Cross-borrowing and its impact on microentrepreneurs' repayment performance and well-being in Peru

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DECLARATION

I certify that this work has not been accepted in substance for any degree, and is not concurrently being submitted for any degree other than that of Doctor of Philosophy being studied at the University of Greenwich. I also declare that this work is the result of my own investigations except where otherwise identified by references and that I have not plagiarised the work of others.

Signed:

Student ______________________ Date ______________________

Supervisor ______________________ Date ______________________

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ABSTRACT

Cross-borrowing or the ability of microentrepreneurs to borrow from different lenders simultaneously is widely perceived to lead to repayment problems and a deterioration of well-being. However, there is sparse empirical evidence to support these perceptions.

Based on information gathered in Peru during 2011 and 2012 and combining qualitative and quantitative research, this study aims to contribute to the in-depth understanding of cross-borrowing from the clients' perspective and from its causes to its impact.

The qualitative study is based on semi-structured interviews with 32 clients of EDYFICAR that cross-borrowed, as well as on further interviews with management and staff, which were analysed using the grounded theory approach (Corbin and Strauss 2008).

In the quantitative study, data provided by Financiera EDYFICAR (one of the country's largest MFIs) on 550 clients was collected. The data included information on the clients' characteristics, their EDYFICAR loans since 2006, their punctuality in repaying these loans and their cross-borrowing situation. The data was analysed using different statistical methods, including tests to compare groups or correlation analysis.

The study makes the following key contributions. First, it relates cross-borrowing to the microentrepreneurs' overall financial situation. Cross-borrowing was found to increase the complexity in the borrowers' financial portfolios, which intensifies challenges resulting from uncertainties and vulnerability to crises. Second, the study uncovers different pathways for the impact on the repayment performance and well-being. Cross-borrowing is neither a necessary nor a sufficient condition for repayment problems, but it leads to exceedingly high indebtedness-levels. When these levels are reached, small movements in income or expenditures can lead to a financial misbalance and a negative impact on the well-being. However, for those who manage cross-borrowing well, it can be an engine for growth or greater well-being. Third, the study suggests that the effective Peruvian credit bureaus play a key role in preventing a repayment crisis.

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ACP	-	Acción Comunitaria del Perú
ASOMIF	-	Asociación de Instituciones de Microfinanzas del Perú (association of MFIs in Peru)
CCC	-	Central de Crédito Cooperativo del Perú (centre of cooperative credit in Peru)
CGAP	-	Consultative Group to Assist the Poor
CMAC	-	Caja Municipal de Ahorro y Crédito (municipal savings and credit institution)
COPEME	-	Consorcio de Organizaciones Privadas de Promoción al Desarollo de la Pequeña y Microempresa (consortium of private organisations for the promotion of the development of small-scale enterprises and microenterprise)
CRAC	-	Caja Rural de Ahorro and Crédito (rural savings and credit institution)
EDPYME	-	Entidad de Desarrollo para la Pequeña y Microempresa (small-scale enterprise and microenterprise developing company)
EIU	-	Economist Intelligence Unit
FENACREP	-	Federación Nacional de Cooperativas de Ahorro y Créditos (national federation of credit and saving cooperatives)
FEPCMAC	-	Federacion Peruana de Cajas Municipales de Ahorro y Crédito (national federation of CMACs)
GDP	-	Gross Domestic Product
Idesi	-	Instituto de Desarollo del Sector Informal (institute for the development of the informal sector)
INDECOPI	-	Instituto Nacional de Defensa de la Competencia y de la Protección de la Propiedad Intelectual (national institute to protect competition and intellectual property)

InM	-	Institute of Microfinance
MCS	-	Microcredit Summit Campaign
MES	-	Préstamos a Microempresas (credit to microenterprises)
MFI	-	Microfinance Institution
MIX	-	Microfinance Information Exchange
PAR	-	Portfolio at Risk
PPP	-	Purchasing Power Parity
PRODEM	-	Fundación para la Promoción y Desarollo de la Microempresa
SBS	-	Superintendencia de Banca, Seguros y AFP

CHAPTER 1: INTRODUCTION

Originally, microfinance was intended to alleviate poverty by providing financial services to the poor[1]. At the beginning of the movement, non-profit organisations started to provide microcredit to a clientele that was considered unbankable by commercial banks. By doing so, they intended to correct existing market failures that state-owned banks had widely proved unable to address, and they offered an alternative to unsuccessful agricultural and rural credit initiatives (Arun et al., 2005). At this stage of the microfinance movement, MFIs were mainly competing with expensive moneylenders in providing financial services to low-income people (Armendáriz de Aghion and Morduch, 2010).

Since then, the microfinance landscape has changed dramatically. Despite existing criticism, more and more donors have acknowledged the power of microfinance in the fight against poverty and increasing funding has been provided. Furthermore, it has been found that serving the poor could generate profits when a strong focus on the institutions' financial performance was taken, which attracted commercial banks to enter the microfinance segment (Morduch, 2000; Arun and Hulme, 2008).

In consequence, the industry has experienced impressive global growth and in many regions of the world the microfinance sector has become highly competitive (Chen et al., 2010). In some areas, MFIs compete with state-owned banks, commercial banks and NGOs for the same clients, offering the same or similar products and fighting fiercely to increase their market shares. In addition, in many regions, informal providers of financial services continue to play an important role (Chen et al., 2010; Guirkinger, 2008).

While a certain degree of competition promotes innovation, efficiency and intensified client focus (Meyer, 2002; Cohen, 2002), there have been discussions on whether the focus on growth has been to the customers' benefit. There are concerns that the poorest borrowers are being excluded when MFIs focus on financial objectives mainly, which is usually referred to as mission drift (Cohen, 2002; Augsburg and Fouillet, 2010; Marr,

[1] From the different existing definitions of poverty, in microfinance regularly the measure of the United Nations Development Goals is referred to, according to which a person is poor if living off less than US$1.25 a day (PPP), with PPP standing for purchasing power parity. Also, the World Bank's poverty line of US$ 2 a day (PPP) can frequently be found. Other measures include relative poverty lines that relate to a country's average income level.

2012; Mersland and Strøm, 2010). In addition, over-indebtedness and repayment crises have raised debates on customer protection (Schicks, 2011).

One consequence of the growth and increased competition in the microfinance industry is that many microentrepreneurs have simultaneously taken loans from different lenders, which is usually referred to as double-dibbing, client overlap, multiple borrowing or cross-borrowing (McIntosh et al., 2005; Diaz et al., 2011; Chaudhury and Matin, 2002; Krishnaswamy, 2007; Burki, 2009; Kamath et al., 2010; Maurer and Pytkowska, 2011; Pytkowska and Spannuth, 2012b; Vogelgesang, 2003; Chen et al., 2010; Faruqee and Khalily, 2011). When taking into account that the same clients were considered unbankable some years ago, this constitutes a significant change.

Despite the fact that there is no universal definition of cross-borrowing and a limited understanding of its reason and impact, there is concern that cross-borrowing leads to over-indebtedness, thus harming the borrowers' well-being and the stability of the microfinance sector (Burki, 2009; Chaudhury and Matin, 2002; Chen et al., 2010; Maurer and Pytkowska, 2011; McIntosh et al., 2005; Pytkowska and Spannuth, 2012b; Venkata and Veena, 2010). However, there is sparse empirical evidence on this topic.

Combining qualitative and quantitative research, this study aims to contribute to the in-depth understanding of cross-borrowing in microfinance. It looks at the phenomenon from the clients' perspective and sheds light on cross-borrowing as a whole, i.e. from its causes to its impact on the clients' repayment performance and well-being.

The study is based on data gathered in Peru during 2011 and 2012, and it was realised with support of Financiera EDYFICAR, one of the largest MFIs in Peru, which shared data and knowledge and allowed access to clients. The Peruvian market was chosen because it is characterised by a high degree of competition and high transparency, two factors that play an important role in the context of multiple borrowing (Economist Intelligence Unit, 2012; Economist Intelligence Unit, 2013).

The remainder of this chapter is structured as follows. First, the background to the research problem is introduced (1.1), before research objective (1.2) and research questions are presented (1.3). Subsequently, the significance of the study is elaborated (1.4), and the chapter ends with the description of the thesis' structure (1.5).

1.1 Background to the research problem

The background to the research problem is first described from the global and subsequently from the Peruvian perspective.

1.1.1 Growth and competition in microfinance

When the first MFIs started their operations in the 1970s, they were monopolists in the respective regions. Also, most of the institutions were socially motivated lenders, which tried to maximise outreach with their limited financial means.

In the following years, it became clear that under certain conditions and when serving a specific clientele, which is likely to not include the poorest of the poor, MFIs can earn profits (Morduch, 2000). Furthermore, microfinance has become widely acknowledged as an effective tool in the fight against poverty. Consequently, more donors and commercial investors were attracted and enabled the sector to grow at an impressive pace. For instance, the Consultative Group to Assist the Poor (CGAP) calculated that the cross-border investments in microfinance reached US$ 10 billion by 2008 which equals a seven-fold increase over the prior five years (Chen et al., 2010).

The pace of the growth even raised the concern that the microfinance sector has grown too fast and there are voices stating that the industry was not yet ready for the push initiated by donors and investors (Goldsworthy, 2010). For instance, the rapid growth has caused the need for a large number of staff in a short time and possibly not all of them have been well prepared for employment in the microfinance sector. In addition to that, the institutional infrastructure and the regulatory bodies show deficiencies in some countries. The same may be true for internal controls, incentive systems and risk management tools in some institutions (Chen et al., 2010).

Global estimates on microfinance facts and figures vary depending on the source, whereby the variances are mainly caused by differences in methodology, definitions and available data. Two frequently used sources for microfinance data are the Microfinance Information Exchange (MIX) database and the Microcredit Summit Campaign (MCS) database.

According to the MCS, as of December 2011, 3,703 MFIs served 195 million clients around the world. From 1997 to 2010, the number of clients had constantly risen from

13 million to 205 million, but from 2010 to 2011 it declined to 195 million. The decline was caused by a reduction in the poorest clients reached, i.e. the clients that live of less than US$ 1.25 PPP a day. Most of the reduction happened in India as a consequence of the repayment crisis in Andhra Pradesh in 2010 (Reed, 2013).

It is also important to note here, that the number of clients is not the same as the number of persons affected by microfinance, as ideally not only the client but also the family profits from the financial products. Apart from that, many people are employed in the microfinance sector itself.

The growth of the microfinance industry has led to increased competition, which is not evenly distributed. There are countries in the world with more developed microfinance sectors than others and even within one country there are regional differences (Krishnaswamy, 2007; Burki, 2009; Reed, 2013; Chen et al., 2010). In India for instance, MFIs are clustered in South India with about 60% of all MFIs operating in Andhra Pradesh, Tamil Nadu and Karnataka. These MFIs regularly offer the same products to the same clients which leads to a situation of strong competition in these regions (Krishnaswamy, 2007).

The uneven distribution of microfinance providers is likely to be caused by two reasons. First, donors often concentrated their investments on a few countries, and second, microfinance institutions preferably enter markets that are already served by other institutions.

On the one hand this is natural, because, depending on their mission, many MFIs like to operate in areas with more economic activity. But another reason for the follower-strategy is that it can reduce set-up costs as training and screening of other institutions can be leveraged. In addition, the inhabitants in regions with an incumbent lender already have a general awareness of financial institutions and the microfinance movement (McIntosh et al., 2005; Reed, 2013).

The rising competition in the microfinance industry has positive and negative consequences. On the one hand, competition provides clients with more choices, which increases the need for MFIs to adapt their products to the client’s demand. Hence, competition can drive innovation (Meyer, 2002; Cohen, 2002). MFIs also have a stronger incentive to offer their products at a reasonable price and as long as this does not derogate the quality of the services, it is favourable for clients as it reduces the financial burden they have to carry.

On the other hand, there is the concern that competition may cause MFIs to focus on commercial objectives rather than on social ones, which may not be in line with the ultimate objectives of the movement (Copestake, 2007; Mersland and Strøm, 2010; McIntosh and Wydick, 2005; Marr, 2012). In addition, competition can lead to irresponsible lending, meaning that loans are disbursed to microentrepreneurs, which do not fulfil the risk-related requirements, in order to gain new clients (Krishnaswamy, 2007; Chen et al., 2010). Additionally, if competition becomes very strong MFIs try to poach clients from competitors as those clients are used to the rules and processes of MFIs (Krishnaswamy, 2007).

In line with the global development, the microfinance sector in Latin America and the Caribbean has shown impressive growth[2] between 2001 and 2011, which is reflected by an increase in the number of MFIs[3] from 90 to 384, the number of borrowers from 1.5 million to 18.3 million, the number of depositors from 405,000 to 16.6 million, the amount of total assets from US$ 1.5 billion to US$ 36.6 billion or the gross loan portfolio from US$ 1.2 billion to US$ 29.4 billion in 2011 (Microfinance Information Exchange, 2013c) (Table 1).

Table 1: Microfinance growth in Latin America and the Caribbean

Growth indicator	**2001**	**2011**	**Compound annual growth rate (CAGR)**
MFIs [Number]	90	384	15.6%
Borrowers [millions]	1.5	18.3	28.4%
Depositor [millions]	0.4	16.6	45.1%
Total assets [US$ billion]	1.5	36.6	37.6%
Gross loan portfolio [US$ billion]	1.2	29.4	37.7%

Source: MIX Market database

[2] According to the Microcredit Summit Campaign, as of December 2011, 15.7 million clients were served by 668 MFIs in Latin America and the Caribbean, 3 million of them belonging to the poorest clients (Reed, 2013). In contrast to the MIX database, the number of MFIs reported by MCS also includes MFIs that reported in former years but not in 2011, whereby it is not always clear if those MFIs were still operating in 2011. Part of the difference in the figures may arise from this difference in methodology.

[3] 384 is the number of MFIs reporting to MIX in 2011. The number of MFIs in the region that reported to MIX at all possible dates is 536.

Since the microfinance industry in the region is well developed and competitive, cross-borrowing is a frequent phenomenon. For instance, according to the MIX Report for Latin American and the Caribbean (2010c) the majority of all clients from the reporting institutions cross-borrowed.

1.1.2 Microfinance in Peru

Peru is a country in South America that is part of the Emerging Market and Developing Economies (International Monetary Fund, 2013a). In 2012, it had a population of 30.5 million people and a Gross Domestic Product (GDP) of US$ 199 billion. In consequence, the GDP per capita was US$ 6530, which equals about 13% of the GDP per capita of the Unites States in the same year (International Monetary Fund, 2013b).

Over the last decade, Peru has shown an impressive economic performance and with an average annual real GDP growth rate of 6.3% the Peruvian economy almost doubled its size between 2002 and 2012. At the same time, annual inflation fell to 2.8%, being the lowest in Latin America (International Monetary Fund, 2013b). Peru even managed the consequences of the global financial crisis relatively well with a real GPD growth of 1% in 2009, followed by 9% in 2010, 7% in 2011 and 6% in 2012 (International Monetary Fund, 2013b). According to the International Monetary Fund, the Peruvian economy is currently running near its potential despite the weak external demand for Peruvian goods (International Monetary Fund, 2013a).

The share of the population living below the national poverty line decreased from 59% in 2004 to 28% in 2011. In 2010, 13% of the population were living below the poverty line of US$ 2 (PPP[4]) a day (The World Bank, 2013). In 2011, Peru was ranked 77 out of 187 countries in the United Nations Human Development Index, a measure taking into account three dimensions: a long and healthy life, access to knowledge and a decent standard of living (United Nations Development Programme, 2013).

Microenterprises play a very important role in the Peruvian economy. For instance, in 2011, 66% of the working population worked in enterprises with one to five workers (INDECOPI, 2013). Unfortunately, there is no further segmentation available but it is likely that a major part of these 66% worked as microentrepreneurs. Hence, microbusi-

[4] PPP stands for Purchasing Power Parity.

nesses are the source of income for a large part of Peru's population and contribute importantly to the country's GDP. Consequently, microfinance is highly important in Peru as it provides the major part of the financial resources that microentrepreneurs need for their businesses.

In recent years the formal[5] Peruvian financial system has developed considerably and total assets[6] increased from US$[7] 41.9 billion in February 2008 to US$ 102 billion in February 2013, which equals an annual compound growth rate of 16.9% in the local currency (Superintendencia de Banca, 2013a).

The growth in the formal financial system has been accompanied by the evolution of the microfinance sector[8]. For instance, between 2001 and 2011, the number of MFIs increased from 15 to 60, the number of borrowers from 452,000 to 3.6 million, the number of depositors from 156,000 to 3.5 million, assets from US$ 399 million to US$ 10.6 billion and the gross loan portfolio from US$ 300 million to US$ 8.8 billion (Microfinance Information Exchange, 2013a) (Table 2).

Table 2: Microfinance growth in Peru

Growth indicator	**2001**	**2011**	**Compound annual growth rate (CAGR)**
MFIs [Number]	15	60	14.9%
Borrowers [millions]	0.5	3.6	23.1%
Depositor [millions]	0.2	3.5	36.5%
Total assets [US$ billion]	0.4	10.6	38.8%
Gross loan portfolio [US$ billion]	0.3	8.8	40.2%

Source: MIX Market database

Despite this development, an important informal credit market persists and as Guirkinger (2008) showed, the informal sector is not necessarily the sector of last resort for

[5] Here the expression *formal financial market* refers to all financial institutions that are supervised by the Superintendencia de Banca, Seguros y AFP (SBS).

[6] Numbers do not include assets of the National Bank.

[7] For the conversion from PEN to US$ the exchange rate as of 28.02.2008 or 28.02.2013 respectively was used, as displayed on http://www.oanda.com/lang/de/currency/converter/, accessed on 24/04/2013.

[8] Note that the size of the Peruvian microfinance industry is difficult to assess, since many different institutions offer different products to a wide range of clients. Also, the figures reported by MIX might underestimate the size of the sector since not all institutions report to MIX. Nevertheless, the figures are sufficient for this industry overview.

those not served by formal financial institutions. Instead, it is also the sector of choice for some borrowers, for whom transaction costs and the risk associated with a credit contract are lower in the informal sector than in the formal sector (Guirkinger, 2008).

As in most other countries, the availability of financial services is not evenly distributed across the country. Instead, there are more and less competitive areas. For instance, when looking at the loan volume disbursed to microenterprises in January 2013, 32% of the volume was disbursed in Lima, followed by 8% in Arequipa, 7% in Piura and 7% in Puno (Superintendencia de Banca, 2013a).

In common with other competitive markets, cross-borrowing is frequent in Peru. For instance, in 2011 only 53% of EDYFICAR's clients were exclusive clients, whereas the rest had additional loans from other formal financial institutions. This is especially remarkable as EDYFICAR has a strong focus on bank penetration, i.e. it explicitly tries to reach clients that have not had access to financial services before (Financiera EDYFICAR S.A., 2011). In addition, it is unknown which percentage of the client base had loans from informal providers.

The fact that microentrepreneurs, who were formerly considered unbankable, now have to manage several loans at the same time raises questions and concerns. Are those people able to manage their loan portfolios going forward? How does that affect them and how does it have an impact on the lenders? Answering these questions is important for borrowers and lenders as will be outlined in the following sections.

1.2 Research objective

This study aims to contribute to the understanding of cross-borrowing in microfinance.

Using rigorous methods, cross-borrowing should be analysed from the clients' perspective, i.e. their views and experiences should be examined to understand why they cross-borrowed and how that has affected them.

The client focus was chosen, since after all microfinance was invented to increase the clients' well-being. While this has sometimes been lost out of sight, while striving for growth and financial sustainability, the return to the client-focus is important if the movement's greater aims are to be reached.

In addition, the phenomenon of cross-borrowing should be understood as a whole, i.e. from its causes to its impact. Although the main focus was on the client, the impact of cross-borrowing on lenders was considered as well, since it is important for the stability of the microfinance market and as such indirectly for the borrowers.

1.3 Research questions

To achieve the research objective, the following research questions were addressed, based on the study conducted in Lima, Peru.

1. What is cross-borrowing and what do the financial portfolios of cross-borrowers look like?
2. Why do some clients cross-borrow?
3. Are some microentrepreneurs more likely to cross-borrow than others?
4. How does cross-borrowing affect the borrowers' repayment performance?
5. How does cross-borrowing impact on the borrowers' subjective well-being?

1.4 Significance of the study

Gaining a deeper understanding of cross-borrowing is important for different stakeholders in microfinance.

First, it is important for borrowers in the context of customer protection. In some regions of the world, growth in the microfinance industry has turned the supply gap, in which a large number of people were underserved by financial institutions, into a situation of over-supply (Schicks, 2011). In consequence, discussions have come up on whether this development was still for the clients' benefit. Over-indebtedness and repayment crises in some regions of the world have raised concerns that MFIs use irresponsible lending practices to increase their market shares, thereby pushing the clients into a situation of over-indebtedness and decreased well-being (Schicks, 2011; Marr, 2012; Burki, 2009; Chen et al., 2010).

A number of academics and practitioners see cross-borrowing in this context. They argue critically that cross-borrowing results in over-indebtedness and repayment problems or that it is the starting point of a vicious circle in which borrowers take one loan to pay off another one, usually referred to as loan recycling (Chaudhury and Matin, 2002; Burki, 2009; Maurer and Pytkowska, 2011; Pytkowska and Spannuth, 2012b; Chen et al., 2010).

If these concerns are proved right, cross-borrowing should be avoided to protect the clients from its negative consequences. However, if the concerns are not legitimate, limitations of the number of lenders or loans per borrower would result in unnecessary credit rationing, thereby slowing down entrepreneurial economic development for no reason. Hence, a deeper understanding of cross-borrowing is important to avoid wrong conclusions.

For the assumed impact of cross-borrowing on the clients' repayment performance, the topic is also highly relevant for MFIs, since high repayment rates are key for a strong financial performance and thus for an institutions' sustainability. For a commercially oriented MFI, maximising repayment rates means maximising profits, everything else being equal. For a more socially oriented MFI, maximising repayment rates means maximising available financial means, which can be used to achieve its social mission in several ways. For instance, the MFI could deepen its outreach by offering financial products to even poorer clients or it could broaden its outreach via geographical expansion. Likewise, the institution could reduce interest rates in order to minimise the financial burden the borrower has to cope with.[9]

In addition, a high repayment rate reduces the need for subsidies and thus increases independency and sustainability. Last but not least, the repayment rate of an institution is an important signal for commercial and social investors and therefore important for its own funding sources. On the other hand, weak repayment rates put the viability of an institution at risk and with that the stability of the microfinance markets. Hence, an understanding of the impact of cross-borrowing is important for lenders, too.

For the same reasons mentioned above, the topic is important for regulators, funders, supporting organisations and networks, since all stakeholders need to decide how to deal with cross-borrowing.

[9] Admittedly the critical role of the interest rate in the sorting process of borrowers (Armendáriz de Aghion and Morduch, 2010; Stiglitz and Weiss, 1981) needs to be taken into account (Armendáriz de Aghion and Morduch, 2010).

No less important, the study will contribute to closing an academic gap, since to the knowledge of the author this study is the only one that analysis cross-borrowing in-depth, using a combination of qualitative and quantitative methods, to understand the phenomenon from the clients' perspective and from its reasons to its impact. Furthermore, to the knowledge of the author, it is the only study that analysis cross-borrowing in a market with a highly sophisticated regulation and high degree of transparency.

1.5 Structure of the thesis

The study consists of both qualitative and quantitative approaches that complement each other in answering the research questions and achieving the research objectives.

The thesis is divided into eight chapters. In this first chapter, the research problem and its background are introduced. Further, the research objective and the research questions are presented and the significance of the study is elaborated. Chapter 2 provides the relevant theoretical concepts used throughout the study. In Chapter 3, the microfinance industry in Peru is introduced to give the reader the necessary information on the environment of the study. Chapter 4 presents related literature and relevant findings from related studies. Chapter 5 is the methodology chapter. It reviews the methodologies used in other studies and it presents insights from a preliminary study that helped determining the methodology for this final study. Further, it describes the methodology used in the qualitative and quantitative study, whereby further details are provided in Chapters 6 and 7. Chapter 6 presents the qualitative study and Chapter 7 the quantitative study. In the Chapter 8, the findings are brought together and the conclusion of the study is drawn. This chapter also highlights limitations of the study and areas for future research.

CHAPTER 2: THEORETICAL CONCEPTS

This chapter introduces the relevant theoretical concepts used throughout the study, which are microfinance (2.1) and its role as a poverty alleviation tool (2.2), cross-borrowing (2.3), over-indebtedness (2.4), repayment performance (2.5) and subjective well-being (2.6).

2.1 Microfinance

Microfinance is a concept used differently in many different countries, which is why definitions may vary. The following section will therefore first introduce a general definition and then present the relevant definition for this study.

2.1.1 General definition

The different existing definitions of microfinance agree on the fact that the term names small-scale financial services provided to persons with low income, who used to have no access to formal financial services because they were considered unbankable (Ledgerwood, 1999, p. 1; Robinson, 2001a, p. 9; Armendáriz de Aghion and Morduch, 2010).

Traditionally, the objective of microfinance has been to reduce poverty in the world via financial inclusion, which enables the poor to improve their own lives (Morduch, 1999). Nowadays, the importance of this objective for the operation of an institution is reflected in the mission statement of the institution and there is criticism that some organisations give less priority to social objectives than to financial sustainability (Copestake, 2007; Augsburg and Fouillet, 2010; Marr, 2012).

The particularity of the microfinance movement is that it has found innovative lending mechanisms, which allow serving the poor without the use of collateral, as will be described below. While in the 1970s the industry started with the provision of microcredit, the product portfolio today comprises all kinds of financial services, especially credit and savings products as well as insurance. A number of institutions additionally provide further developmental services which may include training, educational programmes, health campaigns or infrastructure programmes, and which are intended to fight poverty in a more comprehensive way. These services are usually referred to as microfinance plus (Lensink and Mersland, 2009; Robinson, 2001a; Armendáriz de Aghion and Morduch, 2010; Ledgerwood, 1999).

Originally, microfinance was mainly meant for microentrepreneurs, i.e. the self-employed operating small-scale businesses, who were supposed to use microloans for productive purposes. But in recent years the clientele tends to include small businesses with a few employees and private households as well. As a result, microloans are not only used for business purposes anymore, but also regularly for housing, consumption, education, health or other needs including crises and emergencies (Lensink and Mersland, 2009; Robinson, 2001a; Armendáriz de Aghion and Morduch, 2010; Ledgerwood, 1999; Arun and Hulme, 2008).

The microfinance services are provided by microfinance institutions (MFIs), which differ for example in their legal forms, missions, product portfolios and methodology of provision.

Since the 1970s, the importance of microfinance in the world has increased steadily and the microfinance movement, which was kicked off by Muhammad Yunus in Bangladesh, has spread around the world. Still, many MFIs face specific challenges in developing countries, for instance deficient institutional infrastructures and limited information sharing between lenders (McIntosh et al., 2005; Chaudhury and Matin, 2002).

2.1.2 Specific definition for Peruvian context

Since this study focuses on microloans in Peru, a definition is needed that fits the Peruvian context in which loan amounts are relatively high as Peruvian MFIs follow a rather commercialised approach to microfinance.

This definition was provided by the Peruvian financial supervisory body ‘Superintendencia de Banca, Seguros y AFP’ (SBS) in 1997 with resolution SBS N° 572-97 according to which a microloan was a loan to persons or institutions whose productive assets were worth no more than US$ 20,000 and whose debt in the financial system did not exceed the same amount (Superintendencia de Banca, 1997). Loans to those clients were usually denominated MES, which stands for ‘préstamos a microempresas’ and which means loans to microenterprises.

Since the average loan amount of microcredit has increased steadily, the SBS updated this credit classification in 2008. Today, microcredits are loans to persons or legal entities, whose debt in the financial system has not exceeded PEN[10] 20,000 in the last 6 months. Small-scale credits are loans to persons or legal bodies whose debt in the system has been more than PEN 20,000 and less than PEN 300,000 in the last 6 months (Microfinance Information Exchange, 2010d; Superintendencia de Banca, 2008).

While the updated definition of 2008 differentiates between small-scale and microloans, in practice this differentiation is mainly important for reporting purposes, and as a matter of fact most MFIs serve both types of loans.

The focus of this study was on clients of EDYFICAR, which include clients with small-scale loans and clients with microloans. In the database, it was not possible to differentiate between those clients, since the differentiation is made for loans but not for clients. Also, a client who receives a small-scale loan today may receive a microloan tomorrow and vice versa. Hence, it is difficult to distinguish ‘small-scale clients’ from ‘microclients’.

As a result, in this study all clients of EDYFICAR were considered. However, they belong mainly to the group of microclients, and in 2011 EDYFICAR disbursed 70.4% of the total loan volume to microenterprises (Financiera EDYFICAR S.A., 2011).

2.2 Microfinance as a poverty alleviation tool

To understand the impact of cross-borrowing, it is essential to know how microfinance works in general and in Peru, in particular. Therefore, a closer look is taken at microfinance innovations that help to overcome cooperation problems in the financial markets.

2.2.1 Cooperation problems in financial markets

Cooperation problems can be divided into two categories: information asymmetries and enforcement problems (Besley, 1995).

[10] On 25.04.2013, PEN 20,000 equal US$ 7,548 and PEN 300,000 equal US$ 113,220 (www.oanda.com, accessed on 25.04.2013).

In a financial context, information asymmetry refers to the lender's inability to perfectly observe a borrower's characteristics or actions (Salanié, 2005). Resulting uncertainties can be classified as ex ante, interim and ex post uncertainties, according to the point in time when they occur (Hartmann-Wendels et al., 2007).

Ex ante, i.e. prior to signing a loan contract: the problem consists in quality uncertainty. This means that the lender does not have complete information on the risk-return profile of the borrower's investment project. In addition to that, she/he[11] does not have complete information on the borrower's entrepreneurial skills and characteristics (Armendáriz de Aghion and Morduch, 2010; Hartmann-Wendels et al., 2007).

Interim, i.e. once the loan has been granted: uncertainty about the borrower's behaviour appears, as the lender cannot fully observe or influence the borrower's actions. This problem is usually referred to as moral hazard, since the borrower may have an incentive to act in a way that is of his own benefit while harming the lender (Armendáriz de Aghion and Morduch, 2010).

Ex post, i.e. after the investment project has been carried out: the cooperation problem exists because the lender cannot perfectly observe the outcome of the investment project. Therefore, the borrower may have an incentive to 'take the money and run'. Consequently, the problem is referred to as ex post moral hazard or as costly state verification. The later expression emphasises that the lender cannot, or only at high costs, verify the outcome of an investment project (Hartmann-Wendels et al., 2007, p. 102).

One possible solution to the cooperation problems would be that the lender collects all information needed to reach information symmetry. But information is costly and leads to high transactions costs. Another possible solution consists in the use of collateral to back-up a loan, which can have different positive effects: first, collateral reduces the lender's risk as the loan is secured by assets (Besley, 1995); second, collateral can function as a signalling mechanism, as good borrowers are rather willing to accept

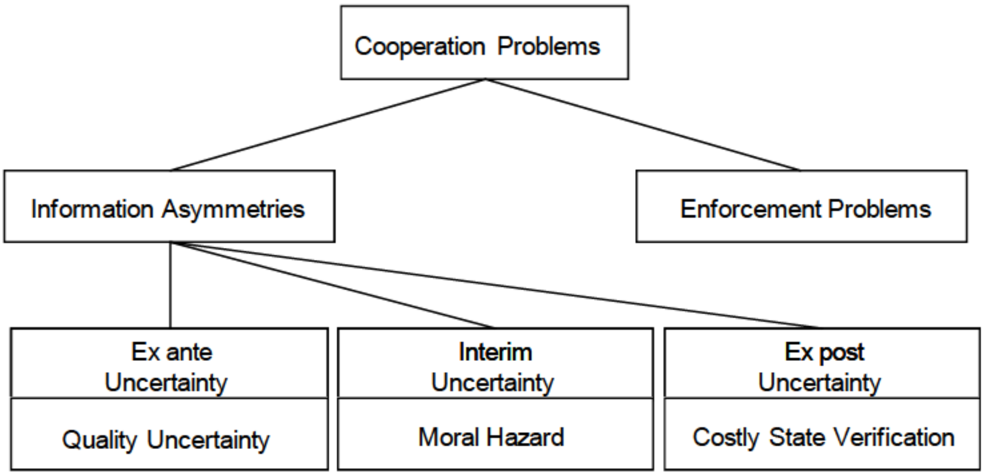
[11] For the ease of reading, in the remainder of the thesis, the pronoun *he* will be used to refer back to persons, whose gender is unknown. For instance, *he* will be used to refer back to the lender, the borrower, the microentrepreneur etc. when speaking of those persons in general. Hence, in those cases the gender-specific pronoun *he* is used with an intended gender-neutral meaning. *She/he* will only be used in verbatim quotes or when there is a need to emphasize that both genders are referred to.

contracts with a high collateral demand (Bester, 1987) and third, collateral can fulfil an incentive mechanism and avoid moral hazard (Watson, 1984). Unfortunately though, these possible solutions can hardly be put into practice when it comes to serving poor people, as will be explained below.

In addition to information asymmetry, enforcement problems are a challenge when offering financial services, meaning that the lender may face restrictions when enforcing the repayment of a loan. The intensity of enforcement problems depends on two main factors: first, the quality of the contract between borrower and lender and, second, the legal environment (Besley, 1995). Here, the term legal environment refers not only to the lender's rights but also to the efficiency of the courts in the country the parties are acting in (Safavian and Sharma, 2007).

Figure 1 summarises the cooperation problems discussed above.

Figure 1: Cooperation problems in financial markets



Source: Hartman-Wendels et al. (2007)

Reflection of cooperation problems allows an understanding of the special challenges when providing financial services to the poor. First, the reduction of information asymmetries through information collection is costly since many less developed countries lack credit bureaus and, in addition to that, many poor live in rural areas, which are not densely populated. Thus, credit officers would have to travel long distances from one client to another in order to gather all the needed information (Zeller and Sharma, 1998, p. 15). Second, the poor do not usually possess assets that could be used as collateral in a classical meaning. That is, they are not able to secure their loan with assets that would be valuable enough to compensate the creditor when the loan is not paid back

(Armendáriz de Aghion and Morduch, 2010). Also, when it comes to enforcement problems, serving the poor is especially difficult, as legislature and judiciary in less developed countries are often deficient. Hence, cooperation problems are especially intense in poor and less developed countries.

Another difficulty when serving the poor lies in the high average costs of small-scale financial services. When providing a loan, generally three types of cost are incurred: costs of funds, costs of default and transaction costs (Shankar, 2007; Ledgerwood, 1999). In contrast to the costs of funds and costs of default, transaction costs are not proportional to the loan amount. Therefore, the average cost per dollar lent is higher for smaller loans than for larger loans (Armendáriz de Aghion and Morduch, 2010).

For many years, the consequence of these problems was that the poor lacked access to formal financial services. This was not only true for loans, but also for savings and insurance products (Armendáriz de Aghion and Morduch, 2010).

2.2.2 Innovations of Microfinance

To overcome the challenges described in the previous section, MFIs use innovative tools, whereby the use of each tool in Peru is more or less common, as outlined below.

The most famous microfinance instrument is the concept of group credit, which was invented by Muhammad Yunus and his Grameen Bank in the 1970s. Originally, five persons formed a group, whereby the formation process was not influenced by the bank. Then the first two members of the group received a loan. If these members demonstrated a good repayment performance, two more members of the group were issued a loan and so on. If a member could not fulfil the repayment obligations, the entire group was excluded from the programme (Yunus and Jolis, 2007). Since then, the tool of group credits has been modified by different MFIs and today different forms exist. While group credits continue to play an important role in some markets, such as Bangladesh, India or Uganda, they are rarely used in Latin America, where individual loans dominate (Von Stauffenberg and Jesús Pérez Fernández, 2005).

Another tool to ensure timely loan repayment is the use of regular repayment schedules. These are characterised by two main features: first, the repayment starts soon after the loan has been disbursed and, second, payments are made frequently. The advantage of a regular repayment schedule is that it supports the borrower in developing disciplined financial behaviour and it prevents the usage of money for consumption or other non-productive purposes. In addition, rigorous repayment schedules reveal potential repayment problems at an early stage (Armendáriz de Aghion and Morduch, 2010). Since many MFIs in Latin America follow a relatively commercialised approach of microfinance, repayment schedules have become similar to the ones in normal consumer finance. For instance, EDYFICAR loans are usually repaid with monthly payments.

In addition to these tools, MFIs use a flexible approach to collateral in which not only the objective but also the notional value of an asset matters, i.e. the value that the item has for the borrower. The relevant question is whether the fear of losing the asset causes the borrower to behave in a prudent way. If this is the case, then even items with a very low objective value can reduce moral hazard (Armendáriz de Aghion and Morduch, 2004). In Peru, some of the better-off borrowers have assets, including cars, houses or shops that can be used as collateral in the classical sense to back-up a loan. In addition, spouses regularly are jointly liable for their partners' loans or a different person can act as a loan guarantor. If neither collateral nor a guarantor is available, microentrepreneurs are usually granted small loan amounts first and the tool of dynamic incentives is used.

The core element of dynamic incentives is a long-term relationship between lender and borrower, in which repeated transactions occur. In this relationship, the lender can influence the borrower's behaviour in two ways: first, he can threaten to exclude the borrower from future loans if payments are not made in time and, second, he can promise future larger loans to reward punctual loan repayment. The increase of the loan size over time is usually referred to as progressive lending. Both ways help to overcome moral hazard as they incentivise the borrower to repay the loan (Morduch, 1999; Armendáriz de Aghion and Morduch, 2010). Another advantage of dynamic incentives is that lenders can get to know the borrowers before disbursing large loan amounts, which reduces information asymmetry (Morduch, 1999). On the other hand, disadvantages are that the effectiveness of the tool can be reduced by increasing competition on the financial markets, since borrowers can then turn to different lenders, as will be discussed in more detail later. Also, the effectiveness of the tool can be affected by high mobility of a borrower, since this makes it easier for borrowers to establish new relationships (Morduch, 1999). In addition to that, the instrument of dynamic incentives requires that the borrower needs more than one loan since otherwise the threat of not granting a second loan or the promise to grant an even higher loan amount do not serve as an incentive. The tool of dynamic incentives is still frequently used in Peru, especially when lending to new clients that do not yet have a credit history.

2.3 Cross-borrowing

As mentioned before, the increased competition on the financial markets has led to a situation in which borrowers regularly use loans from different providers simultaneously. The combinations of providers serving the same client can be different. Some clients may use different formal sources for financial services, while others combine formal and informal loans. And, of course, there may be clients using informal sources only.

In consequence, there is no universal definition of cross-borrowing in microfinance, but researchers decide depending on their research questions and the available data what to include in the analyses. For instance, Chaudhury and Matin (2002) looked at multiple NGO memberships, McIntosh at el. (2005) assumed that clients worked with several MFIs for the decline in their repayment performance and deposits with the incumbent lender, Krishnaswamy (2007) had data from seven MFIs and consequently focused on cross-borrowing from MFIs, Vogelgesang (2003) additionally took consumer finance providers into account and Diaz et al. (2011) asked for formal and informal loans in their questionnaires.

As a result of the different definitions, terms used for cross-borrowing vary and include double-dibbing, client overlap, multiple borrowing or cross-borrowing (McIntosh et al., 2005; Diaz et al., 2011; Chaudhury and Matin, 2002; Krishnaswamy, 2007; Burki, 2009; Kamath et al., 2010; Maurer and Pytkowska, 2011; Pytkowska and Spannuth, 2012b; Vogelgesang, 2003).

Since the objective of this study is to analyse cross-borrowing in a comprehensive way, a broad definition will be applied, which includes different sources and types of loans and according to which *a client cross-borrows if she/he has more than one loan from more than one formal or informal lender simultaneously.*

This broad definition is reasonable since every loan, no matter what type of loan or lender, has an impact on the borrower: for one, because the loan amount is disbursed at the beginning of the contract and can be used for different purposes and also, the borrower has to make regular payments to pay off the debt.

Therefore, in the interviews for the qualitative part of the study, borrowers were asked which loans, both formal and informal, they had from whom and how those impacted them. Unfortunately however, in the quantitative analysis, information on informal loans was not available, since it was not part of the SBS reports used to assess a client's cross-borrowing situation. This is another reason why the qualitative part is so valuable for the study.

With regard to wording, the different terms for cross-borrowing will be used interchangeably.

2.4 Over-indebtedness

Currently in microfinance, there is a broad discussion among practitioners and scholars on over-indebtedness and customer protection. While the topic is highly important to ensure that the social objectives of the microfinance movement are met, there is no universal definition of over-indebtedness.

As Schicks (2013a) showed, the different existing definitions vary in three main dimensions: first, the purpose of the research they are used for, second, the method of the research which defines whether single or multiple criteria are used and third, the severity of the over-indebtedness problem that is examined and which defines, for instance, the time horizon that is considered.

Since this study is client-centred a definition is needed that focuses on the client. The most suitable was introduced by Schicks (2013a) according to which 'a microfinance customer is over-indebted if she/he is continuously struggling to meet repayment deadlines and repeatedly has to make unduly sacrifices to meet her/his loan obligations'. This definition is client-centred as it reflects the fact that over-indebtedness can occur even when payments are made in time, namely when the borrower takes unduly high sacrifices, for instance by reducing food quantity, to fulfil repayment obligations.

According to this definition a borrower is over-indebted if he either unintentionally does not meet repayment deadlines or meets them at the cost of high sacrifices. Note also, that the repayment issues need to be regular or long-term instead of temporary.

In the qualitative study, not meeting the repayment deadlines would be reflected in the dimension repayment performance and meeting the deadlines at the cost of high sacrifices would be reflected in the dimension of well-being. Therefore, in the qualitative study, over-indebtedness is not treated separately but is inherent in the dimensions repayment performance and well-being.

In the quantitative study, over-indebtedness could not be assessed but cross-borrowing was put in relation to absolute indebtedness measures (e.g. debt in the formal financial system). The reasons were the following: First, no reliable information on the clients' income was available, which made it impossible to relate cross-borrowing to objective over-indebtedness measures that relate debt to income. Second, in the quantitative study no information was given on the sacrifices, which clients had to make to ensure the fulfilment of their repayment obligations. Hence, in the quantitative study, cross-borrowing could not be related to the subjective over-indebtedness measures introduced above.

2.5 Repayment performance

Generally, the repayment performance measures how punctually debt is repaid, whereby it can be examined in different ways and for different observation units (Norhaziah and Mohd Noor Mohd, 2010; Armendáriz de Aghion and Morduch, 2010; Godquin, 2004; Assefa et al., 2013).

First, the repayment performance can be assessed for loans or payments. When focusing on loans, either the actual due date of the entire loan can be put into relation to the scheduled repayment date or an average measure of days overdue per payment can be used. For instance, assume a loan is disbursed on the 01.01.2011 and supposed to be repaid by 01.11.2011 in ten instalments. Then either, it could be examined whether the loan was completely repaid by 01.11.2011 or it could be analysed whether all of the ten payments were made in time. The difference is the following: suppose the client paid each instalment with a delay of 10 days except the last one. Then, when comparing the due date of the loan to the repayment date of the loan, no repayment problems would be found since the loan was repaid completely by 01.11.2011. However, when using an average measure of days overdue per payment, it would become clear that on average the client was nine days overdue ((9x10+0)/10). When repayment information for the entire loan is not available, alternatively the timely fulfilment of single payments can be examined (Vogelgesang, 2003).

Second, the repayment performance of clients can be assessed. Here, the question is not ‘how punctual has a loan been repaid?’, but the question is ‘how reliable is a client in repaying loans?’, hence the focus is different. When for each client only one loan is considered, calculating the repayment performance of that borrower is essentially the same as calculating the performance of the loan. For instance, Chaudhury and Matin (2002) classified the loan repayment status of borrowers into three groups, namely regular, irregular and defaulter, depending on how many instalments of their loan had been made in time. However, it is also possible that for each client several loans are taken into account as it was done in the quantitative part of this study. Then, the repayment performance of a single loan may be different from the performance of the client overall.

Third, for MFIs regularly the performance of their loan portfolios is relevant. To assess this, all outstanding loans at a given point in time are analysed with respect to how punctually they are being repaid. The portfolio at risk is usually used to assess the performance of outstanding loans, which measures the share of the loan portfolio that is overdue and therefore at risk not to be repaid. The PAR30 measures the share that is more than 30 days overdue and the PAR90 measures the share that is more than 90 days overdue. Another measure, which is frequently used, is the write off ratio that measures the share of loans that is expected not to be repaid (Assefa et al., 2013).

Depending on the research question and available data of a study, the adequate observation unit and measure need to be chosen. As this study is client-centred, the client was chosen as the observation unit as will be explained in detail below.

2.6 Subjective well-being

Since the objective of this study was to analyse cross-borrowing from the client’s perspective, the impact on the borrower’s *subjective* well-being was assessed.

In the research on subjective well-being, which was widely driven by the American psychologist, professor and author Ed Diener, three separable components of subjective well-being have been identified that were initially introduced by Andrews and White (1976) as cited in Diener (1985): positive affect, negative affect and life satisfaction.

While positive and negative affect are emotional components of subjective well-being that reflect the amount of pleasant and unpleasant feelings in a person's life, life satisfaction refers to cognitive-judgemental aspects that are based on evaluative beliefs resulting from reflection (Diener et al., 1985; Diener, 1984; Schimmack, 2008). Most studies found that the cognitive and affective components of well-being are positively correlated to each other (Eid and Larsen, 2008; Schimmack, 2008), i.e. persons that have a more favourable ratio of positive affect to negative affect usually also judge their lives to be more satisfied.

When assessing the impact of cross-borrowing on a borrower's subjective well-being in the qualitative study, the researcher decided to focus on the concept of life satisfaction for the following reasons. First, taking a loan is an action that has long-term consequences and microfinance is intended to improve a microentrepreneur's economic situation and well-being in the long run. For this time dimension, it is more appropriate to use the cognitive component of well-being since this allows the interviewees to take the time horizon into account. For instance, if a borrower has temporary repayment problems, e.g. he struggles to gather the money for an instalment, he might have negative emotions at that point in time. However, it would not be wise to conclude that therefore the impact of cross-borrowing on his well-being was negative, because the problem is only temporary. Instead, when asking the borrower about the impact of cross-borrowing on his life satisfaction, he may reflect about the question and take the time horizon into account. Second, borrowing has an indirect impact on well-being because having a loan as such does not make a difference but what matters is how the loan is used. For this indirectness of the impact, again the cognitive component is suitable.

As Diener et al. (1985) point out, it is preferable to ask persons for their overall life satisfaction instead of asking them for specific domains since it is the satisfaction with life as a whole that matters. Thereby, it is important to note that the interviewees' criteria and benchmarks matter and not the researcher's. For instance, while the researcher may consider personal relationships very important for her satisfaction with life, this may be different for other persons.

There are different ways to measure life satisfaction and the researcher had to find a way that was suitable for the interviewees of this study, i.e. for microentrepreneurs with a low level of education. Which method was chosen will be described in chapter 6.

Despite focusing on life satisfaction mainly, anecdotal evidence regarding the impact of cross-borrowing on the affect balance was included, for instance when clients reported feelings of stress that resulted from repayment problems.

CHAPTER 3: THE MICROFINANCE INDUSTRY IN PERU

This chapter presents an institutional analysis of the microfinance industry in Peru.[12] The objective is to provide background information necessary to fully understand the context of the research study.

Since microfinance in Peru differs substantially from microfinance in other regions of the world, the analysis is put in a wider context and the first part of the chapter introduces features of microfinance in Latin America (3.1).

Subsequently, the Peruvian microfinance market is described (3.2) beginning with its evolution (3.2.1), the participants and products (3.2.2) including Financiera EDYFICAR (3.2.2.1), important aspects of the regulation (3.2.3), and the role of the different facilitating organisations (3.2.4). After that, the performance of the microfinance industry in Peru is assessed (3.2.5) and the chapter ends with a conclusion (3.3).

3.1 Microfinance in Latin America

Although the microfinance movement has reached developed countries, the most important microfinance regions in the world are Asia, Latin America and Africa. Microfinance markets in those regions differ substantially from each other, which is mainly caused by the fact that they have developed from different points of departure.

For **Latin America and Asia**, a look at the history of two famous MFIs, the Grameen Bank in Bangladesh and BancoSol in Bolivia, illustrates how the industries differ (Weiss and Montgomery, 2005).

The modern microfinance movement was kicked off in Bangladesh in the 1970s, when Muhammad Yunus started lending to villagers from his own pocket in order to reduce poverty in the midst of a famine. He aimed to enable the poor to use their own means of production to escape poverty and he named his project ‘Grameen’, which means ‘rural’ or ‘village’ in Bangla language. In the following years, Yunus received support from the Agricultural Bank and the Central Bank of Bangladesh and in 1983 he transformed his project into the Grameen Bank (Schicks, 2007; Hulme, 2009).

[12] The analysis can be considered as one outcome of the research, but is presented here as a third chapter since it provides information needed to understand the remaining sections.

The Grameen Bank aimed to reach the poor in rural areas, using the tool of group loans and other microfinance tools, as introduced in Chapter 2 (Armendáriz de Aghion and Morduch, 2010). When it started its operations, it instituted the rule that only households owning under a half acre of land should receive a loan, which was meant to ensure the focus on the poorest (Armendáriz de Aghion and Morduch, 2004). This focus on the poorest makes the Grameen Bank (before 2001)[13] a leading example of the poverty lending approach (Robinson, 2001a).

The term *poverty lending approach* has its origin in a major microfinance debate in the 1990s. It refers to an approach that concentrates on the depth of outreach, i.e. on reaching the *extremely poor*, which includes 'those who are unemployed or severely underemployed, as well as those whose work is so poorly remunerated that their purchasing power does not permit the minimum caloric intake required to overcome malnutrition'(Robinson, 2001a). To be able to provide loans to this clientele, credit often needs to be funded by governments and donors, since serving the extremely poor is expensive and thus financial self-sufficiency is difficult to reach (Morduch, 2000; Robinson, 2001a).

The case of BancoSol in Bolivia was different. It was founded in 1992 by the *Fundación para la Promoción y Desarollo de la Microempresa* (PRODEM), an NGO that provided commercial credit to microentrepreneurs. PRODEM had decided to create BancoSol to promote the expansion of its business, since the commercial bank BancoSol had access to more funding sources than the NGO.

BancoSol was meant to provide financial services in a profitable way and it became financially sustainable two years after its creation (Robinson, 2001a; Schicks, 2007). To achieve its objectives, BancoSol has served mainly individuals (instead of providing group loans) and instead of aiming to reach the extremely poor, BancoSol has aimed to reach the economically active poor. The term *economically active poor* refers to the poor 'who have some sort of employment and who are not severely food deficit or destitute' (Robinson, 2001a). For instance, clients of BancoSol must have had their own microbusiness for at least one year before applying for a loan (Schicks, 2007).

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[13] In 2001, Grameen Bank changed its operational methodology to the Grameen II model, which also implied a shift from the poverty lending approach to the financial systems approach (Hulme, 2009).

Also, BancoSol did not specifically target the poor in rural areas, but focused mainly on urban areas. In fact, BancoSol's first branches were in major Bolivian urban centres, namely La Paz, El Alto, Cochabamba and Santa Cruz (BancoSol, 2013). This focus on the urban centres was important to achieve financial sustainability since providing financial services in rural areas implies travelling longer distances, which causes an increase of the operational costs in comparison to serving the more densely populated urban centres.

The example of BancoSol shows that modern microfinance in Latin America has its origin in the *financial systems approach.* In contrast to the poverty lending approach, the financial systems approach emphasises breath of outreach, i.e. the number of clients reached. To increase the breadth of outreach, up-scaling is considered necessary and financial sustainability is aimed for. In consequence, institutions following the financial systems approach often fail to serve the poorest of the poor, since serving them goes along with higher costs as it usually implies smaller loan sizes and higher risk (Robinson, 2001a; Morduch, 2000).

As becomes clear from these two examples, modern microfinance in Asia and Latin America started off differently. While in Asia the main objective was to enable the extremely poor to leave their misery in line with the poverty lending approach, in Latin America the main objective was to provide economically active microentrepreneurs with easier access to capital in line with the financial systems approach.[14]

Microfinance in **Africa** started relatively late compared to Latin America and Asia. Informal finance has been widely spread and most entrepreneurs have made use of informal financial intermediation. Most MFIs entered the scene in East Africa (Kenya, Uganda), in Zambia and the countries of the CFA-Franc-Zone (Benin, Burkina Faso, Côte d'Ivoire, Mali, Togo) (Giesbert, 2008). Some of them targeted the extremely poor and others focused on microentrepreneurs, which is why it is not clear whether the development of the microfinance sector in Africa was mainly driven by the poverty lending approach or the financial systems approach. However, today loan amounts in Africa are relatively high when put in relation to the income, which is usually consid-

[14] Of course, in both regions there may have been institutions that do not fit into this differentiation, but in principle the statement if fair to make.

ered a sign that the poorest are not reached (Giesbert, 2008; Microfinance Information Exchange, 2010b).

It is noteworthy that in the last two decades the financial systems approach has gained weight throughout the world, with more and more institutions trying to achieve financial sustainability, sometimes at the cost of their social objectives (Hulme and Arun, 2009; Mersland and Strøm, 2010). As Hulme and Arun (2009) put it: 'In most parts of the world the microfinance sector is adopting a financial systems approach either by operating on commercial lines or systematically reducing reliance on interest rate subsidies and/or aid agency financial support'. Nevertheless, the fact that the microfinance industries in different regions developed from different points of departures is still notable today in the industries' different features. Thereby, microfinance in Latin America shows the following main features.

Focus on the economically active poor

As outlined above, most MFIs in Latin America and the Caribbean[15] focus on the economically active poor. Gross Domestic Products in the region are higher than in many countries in Africa or South Asia, and absolute loan amounts are relatively high.

According to MIX, in 2010[16], the average loan balance per borrower in Latin America and the Caribbean was mid-range in the global perspective, with loan amounts in East Asia and Pacific (US$ 3,342) and Eastern Europe and Central Asia (US$ 3,121) being highest. The average loan balance in Latin America and the Caribbean (US$ 1,919) ranked third before Middle East and North Africa (US$ 937), Sub-Saharan Africa (US$ 708) and South Asia (US$ 187) (Microfinance Information Exchange, 2010b).

When relating the average loan balance per borrower to the Gross National Income per capita, the picture changes especially for Sub-Saharan Africa. The ratio was highest in East Asia and Pacific (112%), followed by Sub-Saharan Africa (109%) and Eastern Europe and Central Asia (103%). Latin America and the Caribbean ranked fourth (51%)

[15] The focus in this section is on Latin America and the Caribbean since the relevant figures provided by the Microfinance Information Exchange refer to this region (Microfinance Information Exchange, 2010b).

[16] As of 17.11.2013, the MIX benchmarks 2010 are the latest available benchmarks for comparisons on the global scale.

before Middle East and North Africa (34%) and South Asia (22%) (Microfinance Information Exchange, 2010b).

Thus, when taking the loan amount as an indicator for the depth of outreach, Latin America is mid-range. Note also that the figures reflect the poverty lending approach in South Asia with loan amounts being lowest there in absolute and relative terms.

Individual loans versus group loans

In comparison to other regions, group loans have always played a minor role in Latin America and today the vast majority of MFIs offer individual loans. This holds true especially for South America, where group loans have almost completely disappeared. The exception in the Latin American region is Mexico, where group loans accounted for more than 50% of the loan portfolio in 2011 (Microfinance Information Exchange, 2012).

It is likely that the dominance of individual loans results from the focus on growth and profitability in the region, since individual loans have several advantages in this context. First, in the group loan scheme loan amounts are limited to what the group feels that it can jointly guarantee. Hence, individuals with growing businesses may be restrained from taking larger loans by other members of the group. Second, group loan schemes can be costly to implement since they imply regular payment meetings with loan officers (Armendáriz de Aghion and Morduch, 2000). Third, individual loans allow the lender to tailor products to the need of the client, which is especially important in competitive markets, where MFIs fight for market shares (Ramírez, 2004).

In addition, since Latin American MFIs mainly target the economically active poor, i.e. the 'better off' poor, their need to use group loans with the joint liability feature is not as high as in other regions where the poorest and thus more risky clients are served.

Focus on urban areas

Another consequence of reaching for financial sustainability is that MFIs in the region focus mainly on urban areas (Microfinance Information Exchange, 2012). As mentioned before, the advantage of urban areas is that they are more densely populated, which makes the provision of services easier and less costly as less travelling is required. Also, economic activity in urban centres is usually high. In addition, some MFIs pursue a follower strategy and enter markets with incumbent lenders as their presence is considered a sign of viability (Krishnaswamy, 2007).

As a result, the microfinance markets in major cities are often highly competitive and even overheated, whereas in many rural areas the poor are still underserved. Reacting to that, MFIs now have started to focus on the rural areas more. In consequence, in 2011, portfolio growth levels in the rural areas of Latin America and the Caribbean were superior to the growth rates in urban credit (20% and 9%, respectively) (Microfinance Information Exchange, 2012).

Strong performance in savings mobilisation

With regard to savings mobilisation, Latin America and the Caribbean are mid range in the global perspective, but leader in the developing world.

Although Africa is sometimes praised as an example for savings mobilisation (Giesbert, 2008), the MIX benchmark figures do not reflect this. Instead, in 2010, the average deposit balance per depositor/Gross National Income was highest in Eastern Europe and Central Asia (172%), followed by East Asia and Pacific (152%). Considerably lower levels were found in Latin America and the Caribbean (46%) which ranked third, followed by South Asia (30%), Sub-Saharan Africa (29%) and Middle East and North Africa (27%) (Microfinance Information Exchange, 2010b).

Strong financial performance

When compared to the most important microfinance markets in Asia and Africa, Latin America and the Caribbean show a stronger financial performance. In 2010, the financial self-sufficiency[17] ratio for the region was 108%, compared to 93% in Sub-Saharan Africa and 95% in South Asia. The region even performed slightly stronger than the more developed Eastern Europe and Central Asia region (107%). On the global scale, Latin America and the Caribbean ranked third after Middle East and North Africa (123%) and East Asia and Pacific (112%). Thus, it is fair to say that MFIs in Latin

[17] The financial self-sufficiency ratio is regularly used to assess an institution’s performance. It is calculated as adjusted financial revenues/adjusted (financial expense + impairment losses on loans + operating expense). Thereby, the main adjustment is to account for subsidies in form of cheap capital from donors and social investors. If the ratio exceeds 100%, the institution is considered able to continue operating without subsidies (Armendáriz de Aghion and Morduch, 2010).

America and the Caribbean have successfully followed the financial systems approach, with many of them reaching financial sustainability.

After this overview of the features of microfinance in Latin America, the following sections present the microfinance industry in Peru.

3.2 Microfinance in Peru

3.2.1 Evolution

In Peru, as in other regions of the world, the modern microfinance movement was preceded by related developments in the financial market.

In the 1950s, the priest Daniel McLellan founded one of the first savings and credit cooperatives in Peru and launched a movement that created between 40 and 50 cooperatives a year until the 1970s (Conger et al., 2009). At that time, the savings and credit cooperatives could be found in many small villages but did not usually reach the most rural areas.

The model of credit cooperatives has its origins in the 19th century in Germany. The main feature is that people become members of the cooperative when they deposit money and in turn they gain the right to ask for a loan (Huppi and Feder, 1990). Today, the World Council of Credit Unions defines them as 'democratic, member-owned financial cooperatives (that) finance their loan portfolios by mobilizing savings and shares rather than using outside capital (...). As not-for-profit cooperative institutions, credit unions use excess earnings to offer members more affordable loans, a higher return on savings, lower fees or new products and services. (And they) offer a full range of financial services, giving members greater flexibility (...)'(World Council of Credit Unions, 2011).

In 1960, McLellan developed this further by the creation of a so-called 'Mutual' in Peru, a savings and credit cooperative that collected deposits and disbursed housing credits. The 'Mutuales' existed in parallel with the savings and credit cooperatives but they were located in larger cities and served more wealthy clients (Conger et al., 2009).

Since these institutions were relatively new, they could not cope with the difficult economic environment of the following years that was characterised by high inflation, recession and volatile national policies. After 1994, the ‘Mutuales’ nearly disappeared completely. Nevertheless, the savings and credit cooperatives and the ‘Mutuales’ can be considered as the indirect beginning of the microfinance movement, since it was an attempt to include people into the financial system who had not been included before (Conger et al., 2009).

In the 1970s, migration to the urban areas became more prevalent and people in the cities often started their own microbusinesses to generate an income. Consequently, the need to provide microfinancial services increased as well (Pait, 2009). In the same decade, the understanding developed that microenterprises might contribute to poverty alleviation, since poverty was more and more understood as a consequence of unemployment. While the informal sector used to have a bad image in the decades before, it was now considered as the sector in which poor but hard-working people tried to earn their living (Conger et al., 2009).

Subsequently, three main developments took place that fostered the funding of small-scale enterprises and microenterprises and that marked the beginning of modern microfinance in Peru. One important step was the decentralization of the financial system and the creation of local financial institutions that would be able to reach the poorest. In 1981, the first municipal savings and credit institutions (Caja Municipal de Ahorro and Crédito - CMAC) were created in Piura. At the beginning, CMACs had no focus on microenterprises but they operated like municipal pawn offices and gave loans in return for deposits in the form of goods, gold or silver. However, in the following years, the development of the CMACs was supported by German organisations that contributed knowledge and technical assistance, and in the late 1980s a first step was taken into the direction of microfinance: loans could now be disbursed when no direct deposits were required. Instead, new forms of securities could be used to back up loans, such as personal references from third parties. The idea behind this was to ease the access to loans for low income people including microentrepreneurs (Conger et al., 2009; Chong and Schroth, 1998).

In addition to the CMACs, the non-profit organisation ‘Acción Comunitaria del Perú’ (ACP) played an important role in the development of the Peruvian microfinance sector. Founded in 1969 as the Peruvian branch of the American non-profit organisation ACCION Internacional, it undertook several development projects with the aim to enable poor people to find their way out of poverty. One important aspect was that it provided capital to communities for infrastructure projects. For instance, they disbursed loans to a group of people that had just settled down in a new village at the borders of Lima, called ‘Pamplona Alta’. The loan was used to provide family homes with access to electricity and was only disbursed after the beneficiaries had deposited one third of the cost of the project (Campion et al., 2001; Conger et al., 2009). This approach is already similar to tools used by MFIs that oblige their clients to deposit an amount of money before they receive a loan (McIntosh et al., 2005; Armendáriz de Aghion and Morduch, 2010). In 1998, ACP became the majority shareholder of Mibanco, the first Peruvian regulated commercial bank with a focus on microfinance (MIBANCO, 2011; Campion et al., 2001).

The third important development was the involvement of NGOs in the Peruvian micro-finance market. In 1986, the ‘institute for the development of the informal sector’ (Instituto de Desarollo del Sector Informal - Idesi) was created to build a bridge be-tween financial institutes and microentrepreneurs. The objective was to act like a broker between banks and microentrepreneurs. Idesi started cooperating with the ‘Centre of Cooperative Credit in Peru’ (Central de Crédito Cooperative del Perú - CCC), a bank-like organisation installed as a funding source for the savings and credit cooperatives. The CCC then provided funds and cooperated with NGOs to select and evaluate poten-tial borrowers. The advantage of the NGOs was that they often knew the people in the districts they had been operating, so that they possessed more information to select good borrowers (Conger et al., 2009).

As becomes clear, the modern microfinance movement in Peru was mainly driven by the desire to provide financial services to microentrepreneurs, i.e. the economically active poor. Thus, the development of microfinance in Peru was in line with the finan-cial systems approach.

After these three important developments, a major transformation in the Peruvian microfinance market took place in the 1990s, which was the result of the extremely difficult economic and political environment in the 1980s. In this decade the country was plagued by massive external debt, hyperinflation and internal conflicts initiated by the communistic terrorist group ‘Sendero Luminoso’ (‘Shining Path’). The economic situation reached a low mark at the beginning of the 1990s with a strong recession and hyperinflation. In consequence, people lost their jobs and the savings they might have had became almost worthless. Alberto Fujimori became president of Peru in 1990 and served until 2000. During these years he aimed to stabilise the economy of the country and some of his programmes directly influenced the financial market. The consequence was the disappearance of a number of financial institutions and the liberalization of the financial market. Especially the savings and credit cooperatives were affected badly and the majority of the cooperatives disappeared. During these years, the role of the SBS was amplified and specific regulations were introduced for different types of institutions. With this, microfinance institutions received more attention (Conger et al., 2009).

Despite the fact that some institutions disappeared, the 1990s marked a period of growth for the microfinance industry in Peru. A large number of new institutions were created and the industry was fostered through interventions of the government and commercial banks, especially Banco Wiese, that initiated activities to supply microentrepreneurs with loans. In addition to that, external donors, for instance the Inter-American Development Bank, directed funds into the Peruvian microfinance sector (Conger et al., 2009).

In addition, new players entered the microfinance landscape. The rural savings and credit institutions (Caja Rural de Ahorro y Crédito - CRACs) were founded to provide financial services to the agricultural sector (Pait, 2009). And further, Mibanco was created as a new microfinance entity. Originally, President Fujimori had planned to create a state-run microfinance bank but was then convinced to have a new bank taking over the financial activities of the ACP. The government then took a decisive role in promoting all the required regulatory processes and in 1998, Mibanco started its operations as the first commercial bank exclusively focused on microfinance in Peru (Campion et al., 2001).

The participation of commercial banks in microfinance and the fact that Mibanco was created as a commercial bank again highlight the financial systems approach of microfinance in Peru and the commercialisation of the industry.

The microfinance movement further received a very explicit role in Peru's financial market in 1997, when resolution SBS N° 572-97 introduced the new credit category MES, i.e. loans to microenterprises, as outlined in section 2.1.2 (Superintendencia de Banca, 1997). Special rules were introduced for microcredits in order to guarantee solid risk management. Furthermore, a special department within the SBS was created in the 1990s that was in charge for the microfinance sector (Campion et al., 2001).

Another major change in the 1990s was the transformation of a number of NGOs into small-scale enterprise and microenterprise developing companies (Entidad de Desarrollo para la Pequeña y Microempresa - EDPYMEs). The engagement of NGOs in the microfinance market had increased steadily and they were now responsible for a substantial amount of the lending volume. In order to ensure that this money, which was often provided by institutional donors or commercial banks, was in safe hands, special regulations were required. Therefore, NGOs were given the chance to transform to EDPYMEs that were allowed to disburse loans and guaranties as well as receiving funds from different types of donors. However, they were – and are until today – not allowed to collect savings (Conger et al., 2009; Dischner and Gabriel, 2009).

In addition to the entry of new MFIs in the 1990s, supporting organisations, such as the credit bureaus, were created to promote the sector. The credit bureaus facilitate information sharing and thus are very important for the transparency of the sector. They will therefore be described in more detail below.

In the next decade the Peruvian microfinance market grew further and its role in the Peruvian economy has increased steadily. The MFIs have proved that their operations are highly professional and largely sustainable. In consequence, many MFIs managed the financial crises well and often performed better than large commercial banks. As a result, the Peruvian microfinance market is one of the most developed microfinance markets in the world (Conger et al., 2009; Economist Intelligence Unit, 2011).

3.2.2 Participants and products

As was outlined above, the Peruvian microfinance market has developed considerably and is now a competitive market with many different participants (Economist Intelligence Unit, 2012). According to the Microfinance Information Exchange (MIX), in 2011, 60 MFIs in Peru provided a total loan amount of US$ 8.8 billion to 3.6 million active borrowers and they collected deposits worth US$ 6.6 billion from 3.5 million depositors. Total assets of these MFIs in 2011 amounted to US$ 10.6 billion (Microfinance Information Exchange, 2013a).

MFIs, as introduced before, comprise different types of institutions, encompassing banks, financial companies, CRACs, CMACs, EDPYMEs, cooperatives and NGOs (Table 3). These different types of institutions differ not only in their history but also in their legal form, the way they are supervised, the portfolio of products they are allowed to offer, their funding, the clients they target, their regional focus, etc. For instance, while banks offer the whole portfolio of financial products, financial companies may offer credit and savings products but no current or checking accounts, and EDPYMEs or NGOs may not offer any savings products at all (Dischner and Gabriel, 2009; Microfinance Information Exchange, 2010a; responsAbility, 2012).

As of December 2012, according to the number of active borrowers, Crediscotia is the largest MFI (719,000 borrowers), followed by Mibanco (504,000 borrowers) and EDYFICAR (433,000 borrowers). In terms of gross loan portfolio, Mibanco was the largest player (US$ 1.9 billion), followed by Crediscotia (US$ 1.3 billion) and CMAC Arequipa (US$ 1.0 billion), with EDYFICAR ranking fourth (US$ 0.8 billion) (Microfinance Information Exchange, 2013a).

When looking at the volume of micro and small-scale loans disbursed in December 2012 (Table 3), it becomes clear that the financial institutions supervised by the SBS, and following a commercialised approach of microfinance, play the most important role in the Peruvian microfinance industry. They accounted for a total of US$ 14.8 million of micro- and small-scale loans in comparison to US$ 0.6 million disbursed by NGOs and Cooperatives (COPEME, 2012; Superintendencia de Banca, 2012). The commercialised approach of the MFIs is further reflected by the fact that in 2012 the MFIs reporting to MIX had a financial self-sufficiency ratio of 109% (Microfinance Information Exchange, 2013b).

Table 3: Institutions offering microfinance products in Peru

Institution	**Services**	**Number as of 12/2012**	**Micro and small-scale loan volume as of 12/2012 [US$ million]**
Institutions supervised by SBS			
Banks	Banks offer the full range of financial services, including microfinance products.	16	6.09
Cajas Municipales de Ahorro and Crédito (CMACs)	CMACs were founded in order to decentralise the financial system. Today, CMACs offer loan and savings products mainly to microentrepreneurs and other low-income clients.	13	2.88
Cajas Rurales de Ahorro and Crédito (CRACs)	CRACs were founded to provide financial services to the agricultural sector. Today, CRACs offer loan and savings products for all sectors, thereby mainly focusing on microentrepreneurs and other low-income clients.	10	0.60
Small-scale enterprise and microenterprise development companies (EDPYME)	EDPYMES were introduced to support the development of small- scale enterprises and microenterprises. They offer loan-products to this clientele but are not allowed to offer savings products.	10	0.28
Financieras	Financieras were introduced to have a new legal form of financial institutions that can offer loan and savings products but not yet the full range of products offered by banks.	11	4.93
Institutions NOT supervised by SBS			
Cooperatives	Cooperatives are financial institutions owned by their members from which they collect savings to provide them with loans.	15	0.43
NGOs	NGOs are non-governmental and usually non-profit organisations that can have different missions, including providing microfinance services. Since they are not regulated they are not allowed to collect deposits.	19	0.12

Source: Superintendencia de Banca, Seguros y AFP (2012); COPEME (2012)

In line with the Latin American experience, MFIs in Peru target mainly economically active clients. In consequence, in 2012, the average loan balance per borrower / Gross National Income per capita was 54%, which was higher than the ratio for Latin America and the Caribbean (49%) at the same time. Hence, even compared to other countries in the region, MFIs in Peru disburse larger loans, which is a sign of a strongly commercialised approach (Microfinance Information Exchange, 2013b).

Also, as in other countries in the region, MFIs in Peru focus mainly on clients in urban areas and in many rural areas, low-income people are still underserved. Furthermore, MFIs do not specifically target women, but offer services to both genders (responsAbility, 2012).

Generally, in the Peruvian market all types of financial products are offered, and for the formal financial market, the SBS defines and categorises the products. In Peru, as in most of South America, MFIs offer mainly individual loans while group loans are used less frequently. This constitutes an important difference between the Peruvian microfinance market and other microfinance markets in the world as for instance Uganda or Bangladesh (Von Stauffenberg and Jesús Pérez Fernández, 2005; responsAbility, 2012).

3.2.2.1 Financiera EDYFICAR

EDYFICAR was founded in 1997 by CARE Peru and is now one of the largest MFIs in the country. Since 2008 EDYFICAR has the legal status of a Financiera which allows it to collect deposits and since 2009 EDYFICAR has belonged to Banco del Crédito, the largest and oldest commercial bank in Peru.

Translated into English, EDYFICAR’s mission is to ‘give access and provide financial service to low-income people, preferably to small-scale and microentrepreneurs, thereby contributing to the improvement of the clients’ quality of life’ (Financiera EDYFICAR S.A., 2013). As becomes clear from this mission, EDYFICAR aims to achieve a social objective. Also, the institution aims to target people who do not yet have access to formal financial services, which is usually referred to as financial inclusion (Financiera EDYFICAR S.A., 2013; Financiera EDYFICAR S.A., 2011).

At the time of this study, EDYFICAR offers mainly loan products but plans to include microsavings and microinsurance into the product portfolio.

EDYFICAR operates across the country, mainly in cities, and as of December 2012 had 163 subsidies (Microfinance Information Exchange, 2013a). Lima is one of the most important regions with almost one third of the loan volume (27%) disbursed in Lima in 2011 (Superintendencia de Banca, 2011a).

As of December 2012, EDYFICAR served 433,000 borrowers, making it the third largest MFI in Peru in terms of active borrowers. It disbursed a gross loan portfolio of US$ 0.8 billion, with which it ranked fourth (Microfinance Information Exchange, 2013a).

Note however, that the ranking depends on which loans and clients are included in the figures. For instance, in December 2011[18], EDYFICAR provided the seventh largest loan portfolio to small-scale enterprises and microenterprises (US$ 452 million), whereby in the segment of microentrepreneurs it ranked second with a loan portfolio of US$ 352 million (Financiera EDYFICAR S.A., 2011).

3.2.3 Regulation

One important success factor of the Peruvian microfinance sector is the stable legal framework and effective regulation of the financial market.

This has also been acknowledged in the 'Global microscope on the microfinance business environment', a report issued annually by the Economist Intelligence Unit (EIU)[19], which ranked Peru first for the sixth year in a row in 2013. The report presents the findings on 55 microfinance markets in the world that have been analysed in three main categories: regulatory framework and practices, supporting institutional framework and stability (Economist Intelligence Unit, 2013).

In 2012, the report summarised Peru's success factors as follows: 'For the fifth straight year, Peru remains in the number one position, resulting from a strongly competitive microfinance sector and sophisticated regulatory environment. (...) Its regulatory framework for deposit-taking was strengthened, while the government continued to

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[18] In June 2013, EDYFICAR's annual report of 2012 was not yet available, which is why the annual report of 2011 had to be used where no later information was available in the MIX database.

[19] The Economist Intelligence Unit is the in-house research unit for the magazine *the Economist* and was founded in 1964.

promote price transparency and financial literacy. Peru's credit bureaus also provide both reliable and comprehensive information on borrowers' (Economist Intelligence Unit, 2012). Therefore, Peru was the only country in Latin America to receive the highest score for its overall capacity to supervise microfinance. Another very interesting aspect is Peru's strong focus on increasing the customer's financial literacy; the SBS and Ministry of Education in Peru have developed curricula to teach financial literacy in schools. It has to be noted though, that financial literacy among adults remains low (Economist Intelligence Unit, 2012).

In 2011, Peru's 'excellent legal framework, sophisticated regulators and government commitment' were praised, as well as the authorities' efforts to increase the inclusion of the poor in the financial system while at the same time keeping credit risk at a reasonable level. In addition, it was pointed out that the Peruvian financial market was liberalised and free from direct interventions of the state. Finally, the high standards in accounting and transparency required by the SBS were mentioned, which make external audits mandatory as well as the publishing of financial statements, interest rates and fees (Economist Intelligence Unit, 2011).

The main regulation for the financial system is set by the general law for the financial system called 'Ley general del sistema financiero y del sistema de seguros y organica de la superindendencia de banca y seguros', which was passed in 1998 but has been updated regularly with the latest update in January 2013. This law provides the general regulatory and supervisory framework for all institutions working in the financial or insurance system except for the Central Bank (Superintendencia de Banca, 2013b).

The main pillars of the regulation are (responsAbility, 2012):

- modular diversity of regulatory types,
- extensive supervision,
- nondiscrimination between domestic and foreign capital,
- general nonintervention by the state,
- freedom of capital allocation,
- freedom to determine prices (incl. interest rates and commissions),
- permission to take deposits for several regulatory forms.

Important for the research topic is the regulation on banking confidentiality, which is the base for the transparency in the market. Here, it must be distinguished between information on a client's credit history and on a client's savings. With the banking reform in 1993, the banking confidentiality for a client's credit history has been eliminated which means that information on a client's debt in the financial system and the corresponding evaluations are now public information. As a result, transparency in the market is very high and the credit reports provided by the SBS to all supervised financial institutions include a positive and a negative credit history. That is, they include punctual repayments as well as any information on a client's repayment problems (Conger et al., 2009).

The SBS reports on a client's credit history, so called 'reporte historico de central de riesgo', are provided on a regular basis to the formal financial institutions. When it comes to the savings of a client, the situation is different since they are still subject to banking confidentiality and the use of this information is regulated in Chapter 2 of the general law (Superintendencia de Banca, 2013b).

Since the information on a client's loans is public information, it is not only dealt with in the SBS but also in private credit bureaus, as outlined in the next section.

With regard to cross-borrowing, it is further important to know that the Peruvian legislation does neither limit the number of loans or creditors per borrower nor the amount of debt per borrower (Management interviews). However, the SBS and most market participants are aware of the fact that competitive markets exhibit the risk of over-indebtedness (Economist Intelligence Unit, 2012). Therefore, the SBS requires the financial institutions to regularly report indebtedness measures of their clients, although no unique measure for all institutions has been defined yet (Management interviews). In addition, loan loss requirements have been increased and clients with more than one outstanding loan are subject to deeper and more rigorous credit analysis (Economist Intelligence Unit, 2012).

3.2.4 Facilitating organisations

As mentioned before, the main supervisory body in the Peruvian financial system is the SBS (Superintendencia de Banca, 2011b). In addition, the cooperatives are supervised by the ‘national federation of credit and saving cooperatives’ (Federación Nacional de Cooperativas de Ahorro y Créditos - FENACREP) (FENACREP, 2011).

Also, more than 50 NGOs, which are not supervised by the SBS and therefore not allowed to operate with public funds, have grouped together to form the ‘consortium of private organisations for the promotion of the development of small-scale enterprises and microenterprises’ (Consorcio de organizaciones privadas de promoción al desarollo de la pequeña y microempresa - COPEME). The objective of this consortium is to achieve better results for the clients through the cooperation of NGOs that allows the realisation of synergies, e.g. through sharing information (COPEME, 2013).

In addition to the supervisory institutions, there are a number of other organisations facilitating microfinance through the coordination of the efforts of different institutions. One of these organisations is the ‘Association of MFIs in Peru’ (Asociación de Instituciones de Microfinanzas del Peru - ASOMIF), which links a number of CRACs, CMACs, EDPYMES, financieras, Mibanco and other specialised and regulated microfinance institutions. The mission of ASOMIF is to promote the growth of its members, to represent them and to offer special services, for instance the provision of statistical reports (ASOMIF, 2013). Further, there is the federation of the CMACs, called FEPCMAC, which can be considered as an umbrella organisation that coordinates activities of the different CMACs in the country (FEPCMAC, 2013).

The ‘national institute to defend competition and intellectual property’ (Instituto Nacional de Defensa de la Competencia y de la Protección de la Propiedad Intelectual - INDECOPI) is responsible for consumer protection and promoting consumer education and information. For this, a number of norms have been introduced that regulate the information that needs to be provided to the clients as well as the format in which this information is to be provided, e.g. the font size in contracts (INDECOPI, 2013).

As mentioned before, credit bureaus play an important role as their existence in combination with the current data protection laws, is the reason for the extremely high transparency in the Peruvian financial sector (The World Bank, 2006; responsAbility, 2012; Economist Intelligence Unit, 2012). The initial impulse for the creation of credit bureaus in Peru came from COPEME, the NGO network. At the beginning of the 1990s the associated NGOs initiated an information platform to share information on the clients’ credit history. Between 1992 and 1996, about 30 NGOs shared their information using discs but the information exchange was still very basic. Starting in the mid-1990s, the SBS also amplified its credit register; however, initially information on microloans was not collected systematically. To fill the gap, commercial banks initiated activities to create credit bureaus. For instance, the banks BCP and Banco Wiese created Infocorp in 1997 which was bought by EQUIFAX one year later (Conger et al., 2009).

Today, information is mainly provided by the SBS and the two private credit bureaus EQUIFAX and CERTICOM (responsAbility, 2012; The World Bank, 2006). In contrast to the SBS, the market leader EQUIFAX tries to include the clients' credit histories with non-regulated MFIs, which means that the EQUIFAX database may have more information on a client than the SBS (BASIS CRSP, 2003).

Table 4 summarises the facilitating organisations in the Peruvian microfinance market.

Table 4: Facilitating organisations in the Peruvian microfinance market

Organisation	**Objective**
Asociación de Instituciones de Microfinanzas del Perú (ASOMIF)	ASOMIF is an umbrella organisation for MFIs and links a number of CRACs, CMACs, EDPYMEs, Mibanco and financieras. It aims to coordinate activities from the different associates.
CERTICOM, EQUIFAX	CERTICOM and EQUIFAX are private credit bureaus that offer client information to financial institutions.
Consorcio de Organizaciones Privadas de Promoción al Desarollo de la Pequeña y Microempresa (COPEME)	COPEME aims to support its more than 50 member NGOs that offer loans to small- and microenterprises. The objective is to achieve better results through cooperation and the realisation of synergies.
Federación Nacional de Cooperativas de Ahorro y Créditos (FENACREP)	FENACEP supervises and supports the cooperatives.
Federacion Peruana de Cajas Municipales de Ahorro y Crédito (FEPCMAC)	FEPCMAC is the umbrella organisation for different CMACs and it aims to coordinate their activities.
Instituto Nacional de Defensa de la Competencia y de la Protección de la Propiedad Intelectual (INDECOPI)	INDECOPY is, among other things, responsible for customer protection and it promotes consumer education and information.
Superintendencia de Banca, Seguros y AFP (SBS)	SBS is the supervisory body and supervises all formal financial institutions except for the cooperatives. The SBS further encompasses a credit bureau that provides client information to the financial institutions.

3.2.5 Performance

MFIs in Peru have constantly increased their outreach. For instance, in 2011, 11% of all adults were borrowers of MFIs, while in 2004 MFIs were only lending to 4% of all adults (International Monetary Fund, 2011).

However, as mentioned before, the distribution of the microfinance services across the country is not equal and especially in rural areas there are still many households and microenterprises without access to formal financial services (responsAbility, 2012). In addition, due to the commercialised approach of microfinance in Peru and the focus on the economically active poor, some of the poorest of the poor are not yet served. Hence, there is still room to further increase the breadth and depth of outreach.

In terms of loan volume in 2011, the loans outstanding at commercial banks, cooperatives and MFIs in Peru equalled 33% of GDP. In comparison, in the US this figure was 51% and to Germany 41% (International Monetary Fund, 2011). Hence, measured as a percentage of the GDP, the indebtedness in the Peruvian financial market is still relatively low.

Nevertheless, there are indicators suggesting that at least in some regions, over-indebtedness can be a problem. In 2011, out of 21 countries in Latin America for which MIX had data on the PAR30[20], Peru ranked ninth with a PAR30 of 6.4%. The countries with the lowest values were Venezuela with a PAR30 of 0.2%, Bolivia with 1.2% and Ecuador with 2.7% (Microfinance Information Exchange, 2013d). This means that in 2011, the share of weakly performing loans in Peru was higher than in other major microfinance markets in the region. While it must be remembered, that data in other countries may not be as reliable as in Peru, the relatively high PAR30 could also be a sign for over-indebtedness in some regions of the country.

A relatively high risk for over-indebtedness in the Peruvian microfinance market was also found by Kappel et al. (2010). In their attempt to create an early warning index for over-indebtedness (defined as the chronic inability of an individual or household to repay all debts fully and on time) they examined leading indicators of over-indebtedness on four different levels: macroeconomic, microfinance market, firm and household

[20] As introduced in section 2.5, the PAR30 measures the share of the loan portfolio that is more than 30 days overdue.

level. By doing so, they found that Peru has a relatively high risk of over-indebtedness in the microfinance market due to ‘high scores on the most ‘subjective’ variables (perceived levels of competition, commercial bank involvement, investment inflows), combined with a high level of liquidity in the industry, the relatively strong presence of multiple lending and consumer lending’ (Kappel et al., 2010).

3.3 Conclusion

The development of microfinance in Peru, in line with the Latin American experience, was driven by the financial systems approach. Hence, most MFIs in the country have aimed to provide financial services to the economically active poor and to achieve financial sustainability.

In consequence, the Peruvian microfinance market differs substantially from other microfinance markets in South Asia and parts of Africa where the movement was driven by the poverty lending approach.

First, loan amounts in Peru are relatively high and the average loan balance per borrower / Gross National Income per capita was 54% in 2012 (Microfinance Information Exchange, 2013b). When taking the loan size as an indicator for the depth of outreach, this means that in serving the poorest Peru lacks behind Bangladesh, where the ratio was 20% (Microfinance Information Exchange, 2013e). When comparing Peru’s ratio to the major African microfinance markets, the picture is mixed. For instance, for Kenya the ratio was 43%, i.e. lower than in Peru, whereas the ratio for Rwanda was 145% (Microfinance Information Exchange, 2013e).

Hence, on a global scale, the depth of outreach of Peruvian MFIs can be considered mid-range (in line with the Latin American experience described in 3.1). However, in comparison especially with South Asia and some countries in Africa, Peruvian MFIs fail to reach the poorest of the poor.

Second, as another consequence of the financial systems approach, Peruvian MFIs focus mainly on urban areas, which constitutes another important difference to major microfinance markets in South Asia and Africa, where MFIs have a stronger focus on providing services to the important agricultural sector (responsAbility, 2012).

Third, Peruvian MFIs do not specifically target women. While in Asia and Africa MFIs often focus on women, assuming that by doing so the positive impact of microfinance is increased, most Peruvian MFIs act neutrally with regard to gender.

Fourth, the lending technology in Peru differs from other microfinance markets in that group loans play virtually no role in Peru (Von Stauffenberg and Jesús Pérez Fernández, 2005; responsAbility, 2012). In addition, repayment schedules offered by MFIs are similar to the ones offered in normal consumer banking, i.e. loans are normally repaid with monthly instalments. Hence, in this sense, microfinance and consumer finance in Peru are similar. Nevertheless, as was found in the field work, interaction between loan officers and clients in Peruvian microfinance is still different from consumer banking. For instance, loan officers have regular field days where they visit microentrepreneurs in their homes or workplaces and they still estimate the client's repayment capacity based on a detailed estimation of income and expenditures, as will be described in more detail in the chapter on the qualitative analysis. Also, the tool of dynamic incentives is still used and microentrepreneurs entering the formal financial system regularly start with small loan amounts.

Fifth, as a result of the commercialised approach, the financial performance of MFIs in Peru is strong. As additionally the regulatory system is highly developed and transparent, Peruvian MFIs successfully attract national and international investors, which allow them to gradually move out of funding through donations and subsidies. This strong financial performance is reflected in a financial self-sufficiency ratio of 109% in 2012 and it constitutes another major difference to markets with a stronger focus on the poverty lending approach (Microfinance Information Exchange, 2013b).

Sixth, Peru differs from other major microfinance markets in its strong infrastructure and regulatory framework and the fact that information sharing between formal lenders works effectively through the existence of different credit bureaus. Thus, in contrast to other countries, as for instance India, Bangladesh or Uganda, MFIs in Peru are aware of a borrower's loans from other formal lenders. This plays an important role in the context of over-indebtedness and cross-borrowing as it allows lenders to assess a client's overall debt in the formal financial system, which is impossible in many other microfinance markets.

Nevertheless, there is reason to believe that at least in some regions over-indebtedness is existent. For instance, the PAR30 of Peruvian MFIs is relatively high and in addition Kappel et al. (2010), who looked at 14 variables to assess an ‘Over-Indebtedness Early Warning Sign Index’, found that Peru has a relatively high risk for over-indebtedness.

Hence, understanding the role of cross-borrowing in Peru is highly important and at the same time, the Peruvian microfinance market provides a perfect environment to study cross-borrowing.

CHAPTER 4: RELATED LITERATURE

Many entries in the World Wide Web or microfinance blogs suggest that cross-borrowing is frequently found and that it harms borrowers, lenders and the microfinance industry.

For instance, statements say that ‘in extreme cases, mental depression resulting from the financial pressure causes some to commit suicide’ or that ‘non-repayments and delayed repayments adversely affect the portfolio at risk of the MFI. If the impact moves beyond acceptance levels, lenders will rethink their future investments, making it difficult for MFIs to access credit’ (Microfinance Focus, 2011).

Despite the fact that cross-borrowing is a matter of concern for many people, there is not much well-grounded knowledge on the topic and only a few studies with a focus on cross-borrowing are available. In addition, the findings in these studies sometimes differ substantially, e.g. while some studies find a positive impact of cross-borrowing on the repayment performance others find the contrary. Given that, one needs to be careful not to take opinions as facts and anecdotes as evidence.

One reason for the limited existence of relevant studies is the lack of data. For one, the availability of data depends on the MFIs’ documentation processes and the regulations with regard to reporting standards, including especially the existence of a credit bureau. Of course, these factors vary enormously across countries and especially in countries with less developed microfinance infrastructure, regulation and supervision, data on cross-borrowing is rare.

In addition, the availability of data depends on the loan sources involved. As had been mentioned before, cross-borrowing does not only refer to taking loans from different MFIs but also to taking loans from informal lenders, such as moneylenders, rotating savings and credit associations, family, friends and neighbours. This is a very important aspect, since focusing on formal loan sources only delivers an incomplete picture as the informal sources play an important role and increase the financial burden a borrower has to bear. Obviously however, these informal sources are not supervised and do not report any figures. Hence, even in countries with high transparency and credit bureaus in place, formal databases do only contain part of the information. Therefore, it is important to further collect information via other routes, such as interviews or financial diaries.

Furthermore, some questions regarding cross-borrowing, for instance why clients simultaneously engage with several lenders, can only be answered by the clients themselves. While it can be assumed that many loan officers ask their clients reasons for working with competitors, this information is usually not documented. Hence, to study these aspects of cross-borrowing data collection via interviews is necessary, which is time consuming and expensive.

The following section gives an overview of existing studies. Some of the studies do not directly focus on cross-borrowing but on related topics, such as over-indebtedness or repayment crises, yet they contain important information. Because of those different focuses, not every study gives insights in every aspect of the topic but some shed light on a single aspect only.

In addition, as will become clear when presenting the different studies, not all of them have the same analytical depth. Instead, some authors come to indirect conclusions on cross-borrowing, rather than conducting specific analyses. Nevertheless, such studies were included since the findings were of interest and also only a very few rigorous studies on cross-borrowing were available. For the same reasons and because some studies were very recent, working papers and reports were included that were not (yet) published in peer reviewed journals.

First, insights regarding the extent of cross-borrowing (4.1) will be presented followed by findings regarding the reasons for the phenomenon (4.2). Subsequently, findings on the impact of cross-borrowing will be summarised (4.3), whereby findings from theoretical studies and empirical studies will be treated separately. Thereby, when introducing a new study, the research approach and methodology of the study is described. The chapter ends with a conclusion (4.4).

4.1 Extent of cross-borrowing

There are no figures for cross-borrowing on a global, regional or even national scale. Hence, to assess the frequency of cross-borrowing, different studies or data sources need to be analysed. The differences in the quantification of cross-borrowing are remarkable.

Those differences have several causes, for example that studies refer to different countries or years, use different definitions of cross-borrowing or are based on different samples. For instance, there are two studies providing a figure for the extent of cross-borrowing in Pakistan in 2009. Despite the fact that both studies measure the percentage of borrowers with loans from more than one MFI, one study reports the figures of 21% nationwide and 30% in districts with repayment crisis (Chen et al., 2010), whereas the sample in the second study reveals that 70% of 200 interviewed borrowers took multiple loans in the competitive province Punjab (Burki, 2009).

The difference between the figures is huge and stems from the fact that they are based on different samples, which both are not representative. Also, this example demonstrates that there can be enormous differences between nationwide and regional figures, since nationwide figures can only represent an average, whereas the extent in highly competitive regions can be much higher.

Nevertheless, the findings of the different studies can give insights into how common cross-borrowing is in different regions. In addition, they reveal aspects that need to be taken into account when trying to assess the extent of cross-borrowing.

Studies in Africa

In 2010, Mpogole et al. (2012) analysed multiple borrowing and loan repayment in **Tanzania**. They conducted surveys with 250 randomly selected microfinance clients from six MFIs to collect demographic information as well as information on cross-borrowing and repayment performance. In addition, they conducted six in-depth interviews with group loan leaders. The authors mainly used descriptive statistics to analyse the data but, in addition, they performed a regression analysis, whereby they stated that ‘rigorous statistical/econometrical analysis was not [their] aim at this stage’. Hence, the more important analyses are the descriptive ones.

The authors assessed cross-borrowing asking the interviewees for the number of their loans from MFIs, family and friends. They further asked for the reasons of multiple borrowing using a list of predetermined questions.

The authors found that 71% of the 250 microfinance clients sampled in June to July 2010 had two or more loan contracts with different MFIs simultaneously. Breaking it down further, they found that 50% of the clients were indebted with two MFIs, while 21% borrowed from three or more institutions. In addition, the researchers found that 16% of the people in the sample had loans from friends or other individuals. Hence, cross-borrowing was found to be very frequent in this region of Tanzania.

Chen et al. (2010) distilled lessons learned from the repayment crises in different countries and estimated, based on data from the Central bank and information sharing among the five largest MFI, that in **Morocco** 29% of active borrowers had loans from more than one MFI in 2009. This percentage had decreased from 39% in 2008 and 40% in 2007.

McIntosh, de Janvry and Sadoulet (2005) analysed the impact of competition on borrowing group performance in FINCA, **Uganda**'s largest incumbent microfinance institution. The authors derived four hypotheses from the literature regarding the impact of competition on the incumbent lender, which they tested in regression analyses. Their data consisted of four main types. First, they had group-level information on 780 groups provided by the incumbent lender. Part of this data was collected through interviews with the microclients and part was administrative data. Second, 6,517 individual surveys were conducted to collect information on asset holdings and business characteristics. Third, the researchers used district-level data containing information on credit demand, landowning etc. And lastly, they used data from a census containing information on population, urbanisation, and education at the district level.

In their estimations, the authors used panel data on the group level and a group and time fixed effects regression to identify changes in group outcome that were caused by the increased competition after the entry of a new lender. On the individual client level, they used a linear probability regression with robust standard errors.

The researchers found that a rise in competition did not lead to an increased drop-out rate with the incumbent lender and neither did it affect the ability of the incumbent to attract new clients. But, they found a gradual deterioration in the repayment performance and a drop in savings. The information on the savings is important, because mandatory savings were common among the MFIs in Uganda and, therefore, the reduction in savings suggested that clients did not leave the incumbent lender but took additional loans from competing institutions. Hence, cross-borrowing was existent. Unfortunately though, no precise figures regarding its extent were given in the study.

Studies in Asia

In their study on the risk of over-indebtedness of microcredit clients in **Azerbaijan**[21], Pytkowska and Spannuth (2012b) sampled 1,100 microcredit borrowers of eight microfinance providers. All client data was collected through a client survey that was self-reported by the clients. In addition to collecting the client data, interviews were conducted with 24 credit managers, branch managers and loan officers of the participating institutions. The data was analysed using descriptive statistics and the analysis focused mainly on the scope of multiple borrowing, repayment performance and over-indebtedness. Furthermore, related supply-side factors were examined.

Regarding the extent of cross-borrowing, the authors found that in May 2011 and April 2012, the scope of multiple borrowing was relatively low and only 8.4% of the 944 clients had more than one active credit contract. It was further found that 13% of the clients had applied for another loan but some of them were not successful with the application. When leaving the level of individual clients and looking at the household level, 13% of households were found to have more than one loan contract. With regard to the different types of lenders, only 4% of the clients in the entire sample borrowed simultaneously from MFIs and banks. However, when looking at the sub-sample for clients with multiple loans only, 51% of them were found to combine loans from MFIs and banks. Hence, a strong integration of the microcredit sector and the banking sector was detected.

Diaz et al. (2011) analysed multiple borrowing in the **Philippines** using a random sample of 151 urban female microentrepreneurs that were selected from a branch of a leading MFI. They collected data in two steps: First, they used a questionnaire covering demographics and information on cross-borrowing. Second, they conducted in-depth

[21] While geographically Azerbaijan is at the border of Europe and Asia, the United Nations classification places it in Western Asia (http://unstats.un.org/unsd/methods/m49/m49regin.htm#asia).

interviews with two multiple borrowers to document their stories as examples. The survey data was analysed using descriptive statistics, mainly frequency analyses, in which the authors covered demographics, borrowing behaviour and reasons for multiple borrowing. The in-depth interviews were included as examples or case studies.

With regard to the extent of cross-borrowing, the researchers found that 65 women in the sample (43%) cross-borrowed, whereby 28% borrowed from two lenders and 15% from three or more lenders. Most of the cross-borrowers (44%) obtained their additional loans from MFIs, followed by family members and relatives (30%) and moneylenders (24%). Again, this stresses the importance of including different sources of loans into an analysis of cross-borrowing.

As Faruqee and Khalily (2011) reported, the Institute of Microfinance (InM) tried to estimate the extent of cross-borrowing in **Bangladesh** conducting household surveys with 4496 households in the area of Pathrail Union in 2007. The study found that 59% of the participating households had multiple MFI memberships, whereby 33% of them had memberships with two institutions and the rest with more than two institutions. Furthermore, they found that 31% of all individuals had overlapping memberships. After this study, the InM carried out a national survey in 2009 sampling 4143 households from 38 villages to assess the trend of the membership overlaps. This survey found a constantly increasing trend of membership overlaps at the individual level from 9% in 2000 (N=924) to 31% in 2009 (N=4078). In addition, the membership overlap at the household level was found to have risen from 13% in 2000 (N=924) to 42% in 2009 (N=4078) (Khalily and Faridi, 2011, as cited in Faruqee and Khalily, 2011). Hence, cross-borrowing in Bangladesh seems to be common and on the rise, although there might of course be important differences across regions.

Also in **Bangladesh**, Chaudhury and Matin (2002) analysed microfinance membership overlap in a competitive district. Their exploratory study focused on understanding the borrowing behaviour of multiple borrowers. The researchers collected household level data via a questionnaire and the examination of the credit passbooks of 240 households that were members of BRAC’s Village Organizations in the Tangail district. The research covered NGO participation and loan related information for three years, from 1999-2001. To gain further depth, the authors additionally used short case studies, although these were not analysed systematically.

The data was analysed using descriptive statistics and tests to compare the groups of BRAC-only households and overlapping households, which had a membership with more than one MFI.

Since the researchers found that the level of indebtedness of a household increased with the number of NGO memberships, they concluded that multiple memberships had been taken to get access to additional loans. Hence, cross-borrowing was found to exist. Unfortunately however, the researchers did not mention the proportion of households with multiple NGO memberships in their article but wrote of 'alarming degrees of overlapping'.

Another interesting finding of the study was that there were no significant differences in the socio-economic profile of households with multiple or single NGO memberships. The group of households with only one NGO membership contained more landless, lower average landownership and more households with a chronic financial deficit, but those differences were not statistically significant. The only significant difference between the groups was that households with multiple memberships were more often headed by women. Hence, cross-borrowing was found to be existent in different socio-economic groups.

Kamath et al. (2010) analysed financial diaries from October to December 2007 in order to understand the cash flows of 20 urban poor households in Ramanagaram, **India**. The financial diaries had to be written by the householders themselves and should contain all the financial transactions of the households. In four cases, a field researcher had to write the diaries on a weekly basis since the households had no literate member. In the study report, the researchers mentioned qualitative aspects, e.g. reasons for multiple borrowing, which they found in conversations with members of the respective households, but those were not collected systematically.

The authors found that 19 out of 20 households had loans from more than two MFIs, whereby ten even had loans from more than four institutions. In addition, 14 households had to make repayments to non-MFIs, for instance to moneylenders. The authors reported that the most extreme cases were two households that were indebted to seven MFIs, apart from taking loans from a private finance company.

Also in **India**, Krishnaswamy (2007) used a panel dataset with data on clients from seven MFIs in a competitive state. The MFIs worked in a partnership model, i.e. for some clients the MFIs acted like an intermediary between a bank and the client. The clients served via this partnership model were represented in the panel dataset. The dataset contained data for two to four months, starting in September 2006, and data for March and April 2007. The researcher used a name matching methodology to determine the client overlap between the MFIs. To get an understanding of the reasons for multiple borrowing, the author further conducted interviews with selected clients, as well as with sector experts and practitioners. The data was analysed using descriptive statistics.

With regard to the extent of cross-borrowing, the author found that the overall percentage of cross-borrowers in the dataset, which was calculated as the number of cross-borrowers over the number of all borrowers in the villages with at least one cross-borrower, was 7.3%. As the researcher pointed out, this number was likely to understate the real extent of multiple borrowing, as the name matching methodology was not perfectly precise. Furthermore, the dataset only contained data on the partnership model clients of the MFIs. Therefore, the researcher further estimated the extent of cross-borrowing for all the clients of the respective MFIs in the state to be 10.3%[22].

As mentioned above, Chen et al. (2010) aimed to derive lessons learned from the repayment crises in different countries. They estimated based on data from the **Pakistan** Microfinance Network that nationwide 21% of borrowers had loans from more than one MFI in 2009, while in the districts with repayment crisis the percentage was higher with 30%.

Also focusing on **Pakistan**, in a study on the dynamics of microfinance expansion in Lahore, Burki and Shah (2007) found that MFIs had clustered in the same markets and were competing for the same clients. This has led to questionable tactics, as for instance to the adjustment of terms and conditions to be able to offer larger loans on easier terms or to offering incentives to the leaders of borrower-groups to shift to another MFI. As a result of the strong competition, the authors estimated that about 40%-70% were taking parallel loans from multiple lenders in 2006.

In a subsequent study on the delinquency problem in Punjab, **Pakistan**, Burki (2009) also looked at cross-borrowing. This study was based on interviews with staff and

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[22] Unfortunately, there is an inconsistency in the paper of Krishnaswamy (2007). On page 57 he numbered the estimate with 10.08% and on page 26 with 10.28%.

management of nine MFIs, collected data on portfolio size and quality of seven MFIs that accounted for about 75% of active borrowers in the region, as well as on interviews and focus group discussions with 200 microfinance borrowers. This study found that MFIs continued to fight for the same clients and Burki now estimated that on average 70% of the microfinance borrowers in their respective communities were taking parallel loans from competing MFIs. The researcher also found that a typical borrower had taken loans from more than three MFIs at the same time. Interestingly, Burki further pointed out that in comparison to the former study, cross-borrowing now seemed to be much more accepted and microentrepreneurs were more open and less apologetic talking about it. Also, the MFI staff showed tolerance for the cross-borrowing behaviour. Hence, cross-borrowing in Pakistan was found to be common and on the rise. And in addition, the intensity of cross-borrowing was found to be high with a typical borrower being indebted with more than three MFIs.

Studies in Europe

Analysing the indebtedness of microcredit clients in **Kosovo**, Pytkowska and Spannuth (2012a) followed a similar approach as in their study on Azerbaijan listed above. The main difference was, that in Kosovo data from the credit bureau was available that allowed assessing the extent of cross-borrowing more easily. The authors found that between September 2010 and July 2011 25% of the 1200 sampled clients had more than one outstanding loan contract, whereby 18% had two loans, 4% has three loans, 2% had four loans and 1% had five or more loans. With regard to cross-borrowing from different lenders they found that on average clients were indebted with between 1.2 and four different institutions. Cross-borrowing from different types of institutions was found to be relatively rare with only 11% of the borrowers being indebted with banks and MFIs simultaneously. However, in the sub-sample of clients with multiple loans, 44% were combining loans from MFIs and banks. Hence, as in their study on Azerbaijan they found a strong integration of the microfinance and banking sectors.

Maurer and Pytkowska (2011) conducted a study on the indebtedness of microcredit clients in **Bosnia and Herzegovina** from July to November 2009. Again, the researchers used a similar methodology as described for the Pytkowska and Spannuth study of 2012 on Azerbaijan.

Here, they found that the majority of borrowers had multiple loans. Concretely, the 887 clients in their sample had a total of 2071 active credit contracts, whereby the number of loan contracts was not equally distributed among the clients. 42% of clients had one outstanding loan, 26% had two, 15% had three, 8% had four and 9% had five or more active loan contracts. With regard to the number of different lenders (which is not necessarily the same as the number of credit contracts since a client may have more than one loan from the same lender) they found that on average clients used loans from 1.9 different lenders with one client even working with nine different institutions. Also, even among the clients with only two contracts, 86% borrowed from two lenders. The researcher also found that cross-borrowing from different types of institutions was common with 38% of clients borrowing simultaneously from MFIs and commercial banks. With regard to different financial products they found that the use of credit cards and debit cards was still low, with 6% and 3% respectively of clients in the sample using those cards.

A strong incidence of cross-borrowing in **Bosnia and Herzegovina** was also reported by Chen et al. (2010) who estimated based on a client survey with clients from the MFI MiBOSPO that 40% of clients borrowed from more than one MFI in 2009.

Studies in Latin America

When analysing lessons learned from the repayment crises in different countries, Chen et al. (2010) also considered **Nicaragua** and estimated, based on interviews, that the extent of cross-borrowing, measured in the percentage of clients with loans from more than one MFI, was 40% in 2009.

An exhaustive dataset from Caja Los Andes in **Bolivia** was used by Vogelgesang (2003), which was described more in detail in Vogelgesang (2001). The dataset contained information about 76,000 clients and 28,000 rejected loan applications and covered May 1992 to June 2000. The data was analysed using a probit regression in order to identify repayment determinants for loans from Caja los Andes.

With regard to cross-borrowing Vogelgesang (2001) found that the ratio of clients that obtained trade credits decreased from 20.3% in 1992 to 6.4% in 2000, but during the same time span the percentage of clients with loans from other sources increased from 10.4% to 27.0%. Hence, it could be concluded that cross-borrowing existed and that clients at least partially substituted trade credit with other loans including consumer loans. Again, these figures demonstrate that different sources for loans need to be taken into account when analysing cross-borrowing. If Vogelgesang (2001) had only looked at trade credits, it would have seemed as if the clients of Caja Los Andes had a tendency to take less additional loans in 2000 than in 1992. But, when considering other sources it became clear that this was not the case. In addition, Vogelgesang found that there were important regional differences and the fraction of clients with other loans was especially high in Cochabamba and Santa Cruz.

Although no comprehensive picture on the extent of cross-borrowing, neither on a global nor a national level, is available, the studies explored above allow one conclusion: several researchers have found in diverse studies in different regions of the world that cross-borrowing is a phenomenon that regularly appears in competitive financial markets. Hence, it is certain that the phenomenon as such cannot be neglected and may have an impact on the performance of an MFI.

4.2 Reasons for cross-borrowing

As introduced above, a client cross-borrows when taking more than one loan from more than one lender simultaneously. Hence, the question of the reasons for cross-borrowing has two elements: first, it contains the question why the borrower takes more than one loan and second, it contains the question why the borrower engages with more than one lender.

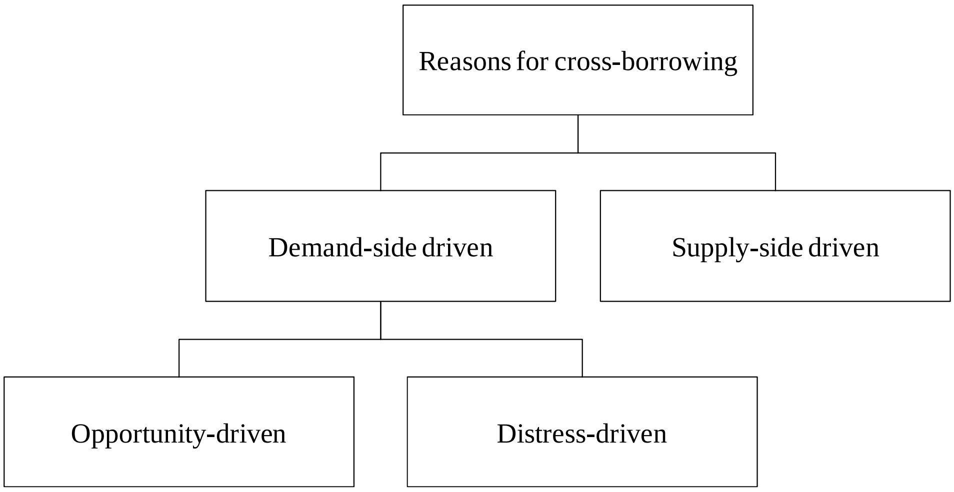
These two questions are not identical as the reasons for taking an additional loan do not necessarily explain why the borrower turned to different lenders instead of working with only one supplier. For instance, stating that a client needed additional funds to expand an existing business does not explain why the client had to engage with more than one lender to obtain those funds. This is especially important as many cross-borrowers state that they would prefer to work with only one lender if they could still obtain the desired loan amount in this scenario (Krishnaswamy, 2007; Kamath et al., 2010). Nevertheless, most of the existing studies do not separate the two questions but focus on the purposes of the additional loans, as will become clear in the following section.

Also, in this context it is noteworthy that the use of loans is difficult to analyse since the actual use may differ from what clients stated in the loan application. In addition, clients may be hesitant to admit in interviews when they used loans for expenditures different from the ones they specified towards the lender (Kamath et al., 2010). This is especially the case when clients use loans for consumption that were meant to be used for business purposes. Also, since microentrepreneurs often do not separate between their personal and business finances, it may be even difficult for them to state what borrowed money was actually used for.

Having these limitations in mind, two important differentiations can be made with regard to the reasons for cross-borrowing (Figure 2). First, cross-borrowing can be supply-side driven or demand-side driven. Supply-side driven cross-borrowing means that a client did not plan to cross-borrow but was motivated to do so by the supplier, for instance by a loan officer that proactively kept offering loans thereby pushing the client into further debt. In contrast, demand-side driven cross-borrowing means that the client followed a cross-borrowing strategy out of his own motivation.

Within the group of the demand-side driven cross-borrowers, it can further be distinguished between opportunity- and distress-driven cross-borrowers, as introduced by Chaudhury and Matin (2002). While the first group chooses the cross-borrowing strategy voluntarily to optimise their economic situation, the second group has to take additional loans because of an emergency situation.

Figure 2: Taxonomy of reasons for cross-borrowing



It needs to be mentioned here that this classification cannot always be applied perfectly to the real world. First, to a certain degree cross-borrowing is always supply-side driven since competition in the financial markets is a precondition for cross-borrowing. And second, often a combination of different reasons may lead to cross-borrowing. For instance, the interviews revealed cases in which microentrepreneurs have been thinking about taking another loan shortly before a loan officer passed and offered further credit. Hence, in these cases cross-borrowing would be supply-side and demand-side driven at the same time. Nevertheless, the classification is helpful to structure the diverse reasons for cross-borrowing.

Demand-side driven cross-borrowing

In the existing studies, most of the cross-borrowers were found to be **opportunity-driven**. They combined loans for different purposes, such as revenue generating investments into new or existing businesses or non-revenue generating investments into education[23], consumption, or housing (Diaz et al., 2011; McIntosh et al., 2005; Mpogole et al., 2012; Chaudhury and Matin, 2002; Krishnaswamy, 2007; Burki, 2009; Burki and Shah, 2007; Kamath et al., 2010; Faruqee and Khalily, 2011).

Furthermore, cross-borrowing was used as a tool to smooth cash-flows and repayment schedules or to optimise the loan portfolio structure (McIntosh et al., 2005). Other

[23] While education should ideally increase the income in the long-run, it is usually not directly revenue generating.

microentrepreneurs followed a cross-borrowing strategy in order to accumulate savings, mostly in the form of goods, such as jewellery (Venkata and Veena, 2010; Diaz et al., 2011). Since the interest rate for loans is high while there is usually little or no interest on savings, it can be argued that taking loans to purchase assets with the purpose to save is irrational. However, for some people this is the only way to save and their only insurance against crises. Different from those reasons, some microclients were found to cross-borrow in order to on-lend to family or friends (Venkata and Veena, 2010).

On the other hand, the studies found evidence for **distress-driven** cross-borrowing, meaning that borrowers used loans to cope with adverse shocks (such as unexpected income outfall) or long-term crises (such as health problems) (Diaz et al., 2011; Venkata and Veena, 2010; Chaudhury and Matin, 2002; Burki, 2009; Burki and Shah, 2007; Faruqee and Khalily, 2011). Chaudhury and Matin (2002) discovered from their case studies in Bangladesh that mainly the households with a constant financial deficit cross-borrowed because of distress, while the better-off households cross-borrowed to pursue opportunities.

Another form of distress-driven cross-borrowing is loan recycling, meaning that micro-entrepreneurs take a new loan to repay an existing one. In contrast to wide-spread concern, the studies did not reveal loan recycling as a main but rather a minor reason for cross-borrowing. For instance, in the study of Diaz et al. (2011) in the Philippines only 5% of the interviewees stated that they cross-borrowed in order to repay an existing loan, in India Krishnaswamy (2007) found that only one out of 21 clients recycled loans and in the study of Mpogole et al. (2012) in Tanzania only 12% of the sampled clients were found to cross-borrow for loan recycling.

An interesting reason for cross-borrowing that can neither be counted to the opportunity-driven nor the distress-driven causes is collective behaviour as found by Krishnaswamy (2007), meaning that clients started following a cross-borrowing strategy because they observed other members in their lending group doing so.

Supply-side driven cross-borrowing

When looking at supply-side driven cross-borrowing it can be said that in some cases the high degree of competition and resulting fight for market shares pushes borrowers into a cross-borrowing situation (Chen et al., 2010; Venkata and Veena, 2010). This is especially prevalent in regions, in which many MFIs cluster thereby generating very intense competition (Burki and Shah, 2007).

Naturally, supply-side driven cross-borrowing is a very critical matter because it results in microentrepreneurs taking loans that they did not actually seek. In consequence, those loans bear a high risk of not being used for productive purposes and may lead to a situation of over-indebtedness. The reasons why some lenders motivate borrowers to incur further debt are manifold.

Given the fast growth in the microfinance industry MFIs had to hire a large number of staff in a relatively short time. For instance, Chen et al. (2010) found that in the four countries under their consideration (Bosnia and Herzegovina, Morocco, Nicaragua and Pakistan) MFIs added nearly 40% new staff each year between 2004 and 2008. This rapid growth meant that finding suitable staff was challenging and, in addition, the MFIs did not always have the time to provide the necessary training before assigning the loan officers their responsibilities. Hence, in some cases supply-side driven cross-borrowing may result from the fact that MFI staff are not perfectly prepared for their tasks and not always aware of the consequences their decisions may have (Chen et al., 2010).

In addition, growth put challenges to internal controls since the development of the same could not always keep pace with the enormous growth of some MFIs. Hence, what resulted was the objective to meet further growth targets combined with relatively weak internal control structures, which opened the door to a decreased lending discipline which also resulted in intensified cross-borrowing (Chen et al., 2010).

In addition, in very competitive markets it is more difficult to acquire new clients since those may choose between a wide range of lenders and many of them may even be in a lender-borrower relationship already. As a result, some MFIs chose to be more risk taking in order to reach their growth objectives which also translated into short-term focused performance incentives for loan officers that were based on growth rather than on long-term risk-return considerations (Chen et al., 2010; Burki and Shah, 2007).

4.3 Impact of cross-borrowing

Later analyses of this research will distinguish between the impact of cross-borrowing on a client's repayment performance and well-being. However, most of the existing studies cover only part of the impact or do not clearly distinguish between the different impact-pathways. Therefore, in this literature review the impact on repayment performance and well-being are not covered separately. Instead, it is distinguished between predictions of theoretical models and findings of empirical studies.

4.3.1 Theoretical models

Hoff and Stiglitz (1998) presented models on endogenous enforcement costs to show that subsidies in credit markets, like in other markets with endogenous enforcement costs, may raise equilibrium prices. The first model has less relevance in this context, as it treated scale economies, which is why it will not be further explained here. The second model showed that competition, i.e. the entry of new lenders, can adversely affect the borrowers' incentive to pay. The argument was that the higher the cost for the borrower in case of a default, the more likely he is to repay. In a competitive market with several lenders, it will be less difficult for defaulted borrowers to get a new loan from a new lender. Thus, their incentive to repay their current lender in order to maintain this source of funding is reduced. This may increase the enforcement costs for the lender, which again may lead to a higher interest rate.

The precise source for the effect in model 2 was laid out more in detail in model 3, where enforcement was ensured through the effort of the lender and reputation effects that punished defaulters. Reputation effects meant that defaulted borrowers may have a bad reputation in the market, which made it more difficult for them to obtain new loans. Reputation effects require intensive information sharing between lenders but the authors assumed that the more moneylenders existed, the less information was shared. Consequently, reputation effects were weakened with an increasing number of lenders and so was the borrower's incentive to pay back his loan. Because of the resulting increase in enforcement costs a rise in the equilibrium interest rate occurs (Hoff and Stiglitz, 1998).

Thus, the models showed that competition may adversely affect a borrower's repayment performance because it weakens the effectiveness of dynamic incentives and thus the incentive of the borrower to repay the loan. Thereby, the impact depends on the degree of information sharing between lenders.

Similar to the results of Hoff and Stiglitz (1998), McIntosh and Wydick (2005) found in their theoretical study on competition and microfinance that competition can cause some microentrepreneurs to cross-borrow, which may have a negative impact on the repayment performance when information sharing between lenders is incomplete.

The authors began with a basic model, in which a non-profit client-maximising MFI competed with an existing moneylender to the benefit of each borrower. In their extended model they then analysed the consequences of the entry of a new MFI in an environment with asymmetric information between competing MFIs[24]. They also introduced a time preference per lending period for each borrower. The more important an immediate loan was for the borrowers, the more impatient they were and the less they cared about future loans. Consequently, the tool of dynamic incentives was less effective for more impatient borrowers.

The authors further argued that the degree of information sharing decreased with an increasing number of competing institutions, if there were no institutional arrangements for information sharing. Furthermore, the authors assumed that lenders charged a higher interest rate for larger loans, which made it attractive for borrowers to combine various smaller loans to reduce costs. In consequence, some clients in the model started to follow a cross-borrowing strategy.

As the authors pointed out, cross-borrowing would even occur when lenders shared negative information, i.e. on defaulting loans, but no positive information, i.e. on performing loans. In this case, lenders would be able to identify defaulting borrowers but still could not determine a borrower’s total level of indebtedness. Consequently they could not adapt the interest rate to the higher total level of indebtedness and because of this it would still be cost-reducing for a borrower to combine loans from several lenders.

The authors further found that the cross-borrowing of the impatient clients may have a negative impact on the repayment rates of the MFIs for two reasons: first, since cross-borrowing reduced the borrowers costs for loans, the overall indebtedness in the pool of

[24] Note that asymmetric information between lenders is not the same as asymmetric information between lenders and borrowers as discussed in the context of cooperation problems.

borrowers increased. Second, for an individual MFI the repayment performance of its clients now also depended on the clients' indebtedness with other lenders.

The important implications from these findings are two-fold. First, the model showed that competition may lead to cross-borrowing and a negative impact on the repayment performance. Second, the model showed that information sharing between lenders is crucial and that the lenders should not only share negative information but also positive information. If they perfectly shared all information, negative externalities of competition could be reduced because in this case the lender could adjust the interest rate to the increased risk of default (McIntosh and Wydick, 2005).

To sum up, the models showed that competition can weaken the effectiveness of dynamic incentives, which in turn may increase the enforcement costs of a lender and/or deteriorate the repayment performance of a borrower.

This reduced effectiveness of dynamic incentives does not necessarily have to go along with cross-borrowing because even when a borrower works with only one lender, the increased loan supply in competitive markets may weaken the dynamic incentives, as long as the borrower is aware of the increased supply. Nevertheless, cross-borrowing is likely to increase this effect as in this case the borrower already has an established relationship to alternative lenders, which will make it even easier to get a new loan in case of default with the current borrower.

The intensity of the effect depends on the degree of information sharing between lenders. The more negative information is shared, the more difficult it is for defaulted borrowers to get a new loan, which is in favour of the effectiveness of dynamic incentives. Also, the more positive information is shared, the better the lenders are informed about the total level of indebtedness of borrowers. This again decreases the borrowers' possibility for cross-borrowing and thus increases the incentive to maintain a stable relationship with the current borrower.

As has been mentioned, the assumption that information sharing declines with an increasing number of lenders may not always hold true, since lenders can institutionalise information sharing via credit bureaus. For instance, in Peru information sharing is very high despite the fact that there are very many players in the market. At the same time, information sharing can obviously never be perfect.

From what was outlined above, according to the existing theoretical models, it should be expected that cross-borrowing causes a deterioration of the repayment performance. This effect is especially strong if the degree of information sharing between lenders is low.

4.3.2 Empirical evidence

Studies in Africa

In **Tanzania**, Mpogole et al. (2012) connected cross-borrowing to the repayment performance by asking whether the late payments were caused by multiple loans, other family obligations or poor business turnovers.

The authors found that 71% of the 250 microfinance clients interviewed between June and July 2010 reported regular repayment problems. Since this percentage coincided with the fraction of clients having more than one loan simultaneously, the authors assumed that multiple loans were the main reason for repayment problems. However, when asking the clients, only 34% stated that their multiple loans caused them to repay late. Given that, multiple loans was the second most mentioned reason for late repayment after poor business turnover (42%), with family obligations at 24%.

Schicks (2013b) analysed over-indebtedness using data on 531 microclients in **Ghana**. As mentioned before, she introduced a new definition of over-indebtedness, according to which a client is over-indebted when she/he is constantly struggling to meet repayment deadlines or meets them at the cost of high sacrifices (Schicks, 2013a). In her analysis she found that cross-borrowing was not related to her measure of over-indebtedness. Furthermore, cross-borrowing was not found to be a significant predictor of repayment problems neither.

Chen et al. (2010) did not directly analyse cross-borrowing but when looking at the repayment crisis in **Morocco** in 2008/2009 and other countries they considered the concentrated market competition and resulting multiple borrowing as one important factor that led to repayment problems.

In **Uganda**, McIntosh et al. (2005) found a negative impact of increasing competition on the clients' repayment performance. Combining this finding with the fact that the drop-out or enrolment rates of the incumbent lender did not change, the authors concluded that some borrowers followed a cross-borrowing strategy, which resulted in repayment issues. The researchers further found that clients in regions with a higher average level of education showed a relatively stronger repayment performance.

As the authors pointed out, this could either be the case because more educated clients tend to cross-borrow less often than their peers or because they are more able to deal with a cross-borrowing situation. In addition, the authors found that the negative impact on the repayment performance was especially strong in districts with a high unmet credit demand, which again may be interpreted as an evidence for cross borrowing. Summing up, the researchers found that increasing competition decreased the repayment performance of clients with the incumbent lender, which is likely to be at least partially caused by cross-borrowing.

Studies in Asia

When analysing the risk of over-indebtedness in **Azerbaijan**, Pytkowska and Spannuth (2012b) found between May 2011 and April 2012 that multiple borrowing (measured as the number of outstanding loan contracts) and over-indebtedness (measured as the amount of debt service in relation to net income) went hand in hand. In other words, the level of indebtedness increased with the number of active loan contracts, whereby the number of creditors from which those loan contracts were taken was not clear. The researchers classified clients into four groups based on their indebtedness-levels: 1) ‘not over-indebted’ clients spent less than 50% of the household net income on debt serving, 2) for clients ‘at risk’ of over-indebtedness this fraction was between 50% and 75%, 3) for clients in a ‘critical’ indebtedness situation it was between 75% and 100% and 4) when clients used more than 100% of the net household income to repay their debt, they were considered ‘insolvent’. Based on this classification they found that among the clients with only one outstanding loan contract, only 28% were insolvent in comparison to 43% of the clients with more than one outstanding credit. In addition, the proportion of clients in a critical indebtedness situation was higher for clients with multiple loans (11%) than for their peers (6%) and the same was true for clients at risk of over-indebtedness (17% versus 10%). Hence, in this study the authors examined the impact of multiple borrowing on indebtedness rather than on the repayment performance. However, it is likely that via the debt levels there is an indirect impact on the repayment performance.

A positive relationship between cross-borrowing and loan size was found in the **Philippines** by Diaz et al. (2011). The average loan principle of the 65 (43%) cross-borrowers in the sample was 50% higher than the sample average. With regard to debt service, the researchers found that 39% of the cross-borrowers used 20% or less of their weekly income for loan payments, 21% of the cross-borrowers used between 21% and 30% of their weekly income and 39% of the cross-borrowers used more than 30% of their weekly income. In comparison, the average over the entire sample was found to be 24% of the weekly income. Unfortunately, from these numbers it cannot clearly be concluded whether cross-borrowers have to use a larger fraction of their income for the loan repayment than their peers.

Furthermore, the study of Diaz et al. (2011) is one of the few studies that looked at the impact of cross-borrowing on indicators of well-being. For this purpose, the researchers asked the cross-borrowers what were the advantages and disadvantages of multiple borrowing from their own perspective. When asked about the advantages, the respondents mainly referred to the uses of the additional loans (e.g. business investments, education, etc.) and 5% even considered multiple borrowing a solution to their problems. But on the other hand, 75% of the interviewees admitted that multiple borrowing resulted in a mental burden when loan obligations had to be met in times when the money is even too short to cover basic needs. Furthermore, 8% stated that because of multiple borrowing it would be more difficult to obtain further funds when needed for an emergency. From the fact that 80% of the cross-borrowers would not recommend cross-borrowing to others it can be concluded that the disadvantages weighed heavily. However, the remaining 20% found cross-borrowing helpful when the money was invested productively.

For **Bangladesh,** Faruqee and Khalily (2011) reported that in 2007 the InM found that overlapping households, i.e. households with memberships in more than one MFI, were better-off than their peers in terms of net wealth due to the increase in their assets. However, the InM further argued that cross-borrowing posed a risk to MFIs since cross-borrowers were more likely to default. Unfortunately, the original reports are not available to the author of this study which is why no further explanations are on hand. It may however be that cross-borrowers used their additional loans to accumulate assets which led to an increase of their wealth but at the same time they had no liquid means to make their regular payments. For instance, buying a house to live in increases assets but does not generate revenues to fulfil repayment obligations. In the subsequent study conducted by Khalily and Faridi in 2009, it was found that cross-borrowing households were better-off than their peers in terms of income, net savings, food and non-food expenditures, as well as in employment days. In contrast to the first study the researchers further found that cross-borrowers could use their increased income for the repayment of their loans. Hence, in this study no negative impact of cross-borrowing on the repayment performance was detected. Therefore, Khalily and Faridi concluded that cross-borrowing was not a major problem but the poor households benefitted from that borrowing strategy which also allowed them to accumulate savings to deal with crises (Khalily and Faridi, 2011, as cited in Faruqee and Khalily, 2011).

Also in **Bangladesh**, Chaudhury and Matin (2002) found that the debt of a household increased with the number of NGO memberships, which showed that multiple memberships were mainly taken to gain access to further credit. With regard to the repayment performance they found that multiple-membership households on average repaid significantly worse than their peers (performance was measured in the proportion of loans for which all instalments except one or two were made in time). The repayment performance decreased with an increasing number of memberships. The authors further found that the negative impact of multiple memberships on the repayment performance was especially strong for very poor households, suggesting that these households had problems managing their debt burden. In an additional analysis, the authors constructed a base case of a household that was not in chronic financial deficit and that did not have multiple NGO memberships. They then added multiple borrowing and chronicle deficit to the base case and found that base case households were more likely to pay in time than households with multiple loans and those again were more likely to pay in time than households with multiple loans and chronic deficit.

In **India** in 2007, Kamath et al. (2010) found that transaction costs for borrowers with multiple MFI memberships were very high since attending the weekly MFI meetings meant missing half a day at work for each meeting. Hence, as the authors pointed out, the borrowers had to organise their lives according to the administrative requirements that resulted from their multiple MFI memberships, which caused serious limitations to their schedules. Furthermore, the researchers found that the 20 households, of which 19 cross-borrowed, had to bear heavy repayment burdens, meaning that on average households were spending almost the same amount on repaying their loans as on food. When breaking down the average further, they found that ten out of the 20 households even spent a higher fraction of their expenditures on debt repayment than on nutrition and 11 households had to use more than 30% of their expenditures for debt servicing. Indirectly, it can be concluded that this impacted the well-being of the borrowers since only a small fraction of a household’s financial means could be used for other important expenditures such as education or health.

In **India**, Krishnaswamy (2007) identified for each of the seven MFIs in his sample the total number of clients, the number of clients in villages where cross-borrowing occurred and the number of cross-borrowers. Then, for each of those sub-samples he defined the percentage of borrowers that showed arrears, whereby an arrear was any money owed to the lender. For each MFI he found that the arrears rate in the group of cross-borrowers was lower than or equal to the overall arrears rate of clients in that MFI. This was true when taking all clients of the MFI into account or when focusing on its clients in regions with multiple borrowing only. Hence, the author concluded that in his sample cross-borrowers repaid better than or as well as their non-cross-borrowing peers.

For **Pakistan**, as for the other countries under their consideration, Chen et al. (2010) considered multiple borrowing as one major cause for the repayment crisis that began in 2008. However, they did not conduct analyses to specifically analyse the impact of cross-borrowing.

Also in **Pakistan**, Burki (2009) analysed the delinquency problem in Punjab of 2008/2009 through interviews with lenders and borrowers. While not directly analysing cross-borrowing, the author touched the matter and concluded that cross-borrowing, which was found to be a tool to access larger debt, could cause over-indebtedness and repayment problems, when the loans were not used for productive, income generating purposes.

Studies in Europe

In **Kosovo**, Pytkowska and Spannuth (2012a) found that repayment problems were more frequent among clients with multiple loans than among clients with a single outstanding loan contract. While only 7% of clients with one active loan contract were overdue by more than 30 days, this occurred with 10% of borrowers with multiple loans. The authors further found that multiple borrowing and over-indebtedness were closely related. As in their study in Azerbaijan they categorised clients into clients that were not over-indebted, at risk of over-indebtedness, in a critical indebtedness situation and insolvent. They found that among clients with a single loan, the proportion of insolvent clients was only 5% compared to 12% in the group of multiple borrowers. Furthermore, the fraction of clients with a critical indebtedness level was higher among multiple borrowers (11% versus 2%) and so was the proportion of clients at risk of over-indebtedness (22% versus 12%).

Another interesting finding of this study was that taking multiple loans was correlated with providing loan guarantees for others. This might indicate that multiple borrowers are generally more prone to enter a binding relationship with a creditor. With regard to well-being it was found that almost half of the clients (49%) considered loan repayment to be a major burden. However, the study does not indicate whether the percentage of multiple borrowers perceiving that was higher than the percentage of clients with single loans.

Examining the indebtedness of microcredit clients in **Bosnia and Herzegovina**, Maurer and Pytkowska (2011) made similar findings as Pytkowska and Spannuth in Azerbaijan and Kosovo. Repayment problems were found to be more common among clients with multiple loans, and only 5% of clients with a single loan contract were overdue more than 30 days while that fraction was 10% among cross-borrowers. For clients with four or more loans, the percentage even increased to 47%. In addition, the researchers found that multiple borrowing and over-indebtedness went hand in hand and the fraction of over-indebted clients increases with the number of active loan contracts. At the extreme ends, while only 4% of clients with a single loan contract were over-indebted, this fraction was 53% in the group of clients with five or more credits.

As in Kosovo, the authors found that taking multiple loans was correlated with providing guarantees for others. This meant that multiple borrowers did not only bear a higher debt burden but they were additionally liable for loans of other people for which they guaranteed.

That cross-borrowing is critical in **Bosnia and Herzegovina** was also concluded by Chen et al. (2010) that considered the phenomenon important with regard to the country's repayment crisis in 2008/2009.

Studies in Latin America

In **Bolivia**, Vogelgesang (2003) analysed two observation units: loans and payments. She found a two-fold influence structure of competition on the clients' repayment performance with an interesting change over time. For loans distributed in 1996, clients with a cross-borrowing strategy were less likely than others to be overdue or default on loans. In contrast, for loans distributed in 1997 or 1998, the probability for late or defaulted loans was higher for cross-borrowers. The author concluded that in a strong economic environment, cross-borrowing may be a successful strategy whereas in more difficult economic times it is likely to cause repayment problems. In contrast, when analysing payments, the researcher found that a client with given characteristics was more likely to pay in time in a branch and region with a high fraction of other loans. This could either be caused by the fact that clients in competitive branches were more aware of the importance of timely payments or by the fact that MFIs in competitive areas developed more effective screening and incentive mechanisms to counterbalance the adverse effects of increased competition. The author summed those findings up saying that 'on the one hand, high competition and supply lead to increasing levels of indebtedness resulting in repayment problems. On the other hand, clients with a given level of indebtedness pay more punctual in such an environment'.

Gonzales (2008) analysed incentives to repay and over-indebtedness in **Bolivia** based on household survey data gathered in 2001. In the research, three different situations were considered as over-indebtedness, namely when default resulted from the borrower's unwillingness to repay, when the borrower had to undertake costly actions to repay or when the borrower was willing but unable to repay, which resulted in arrears, partial repayment or full default. With regard to the topic of this work, Gonzales found no association between multiple borrowing and over-indebtedness. Instead, the author pointed out that there could be over-indebtedness with only one loan or no over-indebtedness with multiple loans. The researcher therefore concluded that multiple borrowing could be a sign for credit rationing or under-indebtedness with a single lender.

4.4 Conclusion

The chapter presented studies related to this research. It was found that dependent on the objectives and research questions, studies focused on quantitative and/or qualitative aspects. Also, the data collection process varied and data was collected via questionnaires, standardised or in-depth interviews, from databases of financial institutions or facilitating organisations, or from other databases on a regional or national level, as for instance from statistic bureaus. The data was analysed using mainly quantitative methods, which could either be descriptive statistics or econometric analyses. Because of these variations, the results of the studies vary with regard to their depth, their breadth, their generalisability and their rigour.

The studies revealed that there are no comprehensive figures on the extent of cross-borrowing on a global, national or even regional level. However, different studies in different regions of the world found that cross-borrowing exists and that it is common in competitive financial markets. Hence, the phenomenon as such cannot be neglected and gaining a deeper understanding is important.

When assessing the extent of cross-borrowing, a number of aspects need to be taken into account. First, different studies use different definitions based on which they estimate the frequency of the phenomenon. For instance, some focus on the number of active loan contracts, while others consider NGO or MFI memberships or the number of different lenders. Therefore, it is important to look at what exactly is measured in order to avoid comparing apples and oranges. Second, it is reasonable to take different types of lenders into account since focusing on MFIs or formal institutions only may provide a wrong picture. For instance, if Vogelgesang (2003) would have focused on trade credit only, she might have concluded that the number of the clients' other loans had decreased over time. But, when taking other loan sources into account, she understood that the contrary was the case. This is especially important in less developed countries in which informal loan sources keep playing an important role. Third, even within one country there may be important regional differences in the extent of cross-borrowing. Hence, one needs to be careful to generalise findings from specific regions.

When it comes to the reasons for cross-borrowing it is important to understand that the question for the reasons contains two elements, namely the reason why clients need more than one loan and the reason why clients need to take those loans from more than one lender. Unfortunately, most of the existing studies mainly focus on the use of the loans.

Further, it is possible to distinguish between supply-side and demand-side driven cross-borrowing. While supply-side driven cross-borrowers were pushed into a cross-borrowing situation by the lenders, demand-side driven cross-borrowers sought the situation themselves.

Within the group of demand-side driven cross-borrowers there is a further distinction between opportunity-driven and distress-driven cross-borrowers. While the first group cross-borrowed to pursue opportunities, as for instance business growth, the second group had to cross-borrow to deal with crises or emergencies (Chaudhury and Matin, 2002).

From the existing studies, most clients were found to be demand-side and opportunity-driven. However, evidence for supply-side driven cross-borrowing or distress-driven cross-borrowing including loan recycling was also found (McIntosh et al., 2005; Diaz et al., 2011; Venkata and Veena, 2010; Faruqee and Khalily, 2011; Chaudhury and Matin, 2002; Mpogole et al., 2012; Krishnaswamy, 2007; Burki, 2009; Burki and Shah, 2007; Kamath et al., 2010).

With regard to the impact of cross-borrowing, it is possible to distinguish between theoretical predictions and empirical findings. Also, the different empirical studies focused on different impact pathways and came to different, sometimes contradicting, conclusions. This makes it difficult to derive an overall picture.

According to the theoretical models, competition and cross-borrowing should have a negative impact on a client's repayment performance since they weaken the effectiveness of dynamic incentives and the borrower's motivation to repay a loan. In other words, when a borrower knows that in case of a default with an existing lender, loans will still be available from other lenders, there is less incentive to maintain a good relationship with the existing lender and to repay the loan. This is even true without cross-borrowing but the effect should be stronger, when a client has already established relationships with several lenders (Hoff and Stiglitz, 1998; McIntosh and Wydick, 2005).

The theoretical models further found that the degree of information sharing between lenders is crucial. When lenders share information on defaulted clients, it is more difficult for a client to obtain a new loan after a default. Hence, in this case the effectiveness of dynamic incentives is reduced less (McIntosh and Wydick, 2005; Hoff and Stiglitz, 1998). Also, McIntosh and Wydick (2005) showed that sharing of positive credit information, i.e. information on a client’s indebtedness level, is important since it allows the lender to adjust the interest rate of a loan to the client’s indebtedness.

The empirical studies partially confirmed the theoretical predictions, but some studies came to contrary conclusions.

A number of studies found a negative impact of cross-borrowing on the repayment performance (Mpogole et al., 2012; McIntosh et al., 2005; Chaudhury and Matin, 2002; Maurer and Pytkowska, 2011; Pytkowska and Spannuth, 2012a), while others found a positive or neutral association (Faruqee and Khalily, 2011; Krishnaswamy, 2007) or a change of the impact over time (Vogelgesang, 2003). As mentioned before however, the analytical rigour of the studies varied substantially, as will be explained more in detail in the methodology chapter of this work.

With regard to the impact of cross-borrowing on the clients’ indebtedness, some studies found a positive impact, i.e. they found that cross-borrowing increased the indebtedness (Pytkowska and Spannuth, 2012b; Diaz et al., 2011; Maurer and Pytkowska, 2011; Chaudhury and Matin, 2002; Burki, 2009; Pytkowska and Spannuth, 2012a). In contrast, Schicks (2013b) did not find that cross-borrowing was a reason for subjective over-indebtedness and neither did Gonzales (2008) who stated that over-indebtedness could exist with or without cross-borrowing. Also, Faruqee and Khalily (2011) reported that multiple borrowing led to increased net wealth of the clients. Note that the fact that these findings vary is at least partially caused by the different definitions of (over-) indebtedness used.

With regard to the impact on well-being, there is hardly any evidence available. Only Diaz et al. (2011) covered aspects of well-being and found that cross-borrowing resulted in a mental burden for many borrowers, which is why most of them (80%) would not recommend cross-borrowing to others. From the other studies, only indirect conclusions regarding the impact on well-being could possibly be derived, and one needs to be cautious not to come to a wrong understanding. For instance, it cannot necessarily be concluded that increased debt automatically has a negative impact on well-being.

From this literature review it becomes clear that there are only a few rigorous studies available that deal with cross-borrowing directly. Also, findings from the different studies differ much. In consequence, it can be said, that cross-borrowing is not yet deeply understood. Therefore, this research will provide an important contribution as it rigorously analyses the phenomenon from its causes to its impact. In addition, it focuses on a microfinance market with a high degree of information sharing among lenders and to the best knowledge of the author, it is the only study specifically on cross-borrowing in such an environment.

CHAPTER 5: METHODOLOGY

The methodology used in this study was defined based on several steps. First, the research objective and the research questions were formulated. Second, methodologies used in previous studies were examined. Based on this, a preliminary methodology for this study was defined. Third, a first field stay in Peru was conducted in which this preliminary methodology was tested. Afterwards, the preliminary data was analysed. Fourth, the research questions were modified to include further questions that evolved during the preliminary analysis. Fifth, the final methodology was defined based on the final research questions, insights from the literature and lessons learned from the preliminary study.

The remainder of this chapter is structured as follows. First, to give a reminding overview, the methodologies of the studies presented in Chapter 4 are classified into four groups (5.1). Second, the preliminary study will be described and lessons learned will be summarised (5.2). Lastly, the resulting methodology for this study will be derived (5.3).

5.1 Methodologies used in other studies

To give a reminding overview, table 5 classifies the methodologies presented in Chapter 4 into four groups[25]. When analysing those methodologies, the most striking realisations for the researcher, were the following.

First, although some studies were found to cover qualitative aspects, these were usually analysed using a quantitative approach. No study is known to the author, in which qualitative aspects were analysed using qualitative methods, apart from the fact that some authors included short case studies. Therefore, the analysis of qualitative aspects regularly lacked depth, which is an important shortcoming: when valid conclusions are to be derived, a profound understanding of cross-borrowing is important that goes beyond quantitative aspects.

[25] Note here that the borders between the groups may not always be perfectly strict. For instance, while McIntosh et al. (2005) focus on quantitative aspects mainly, their econometric model still covers qualitative aspects, as for instance the education level of microclients.

Second, even the studies that examined cross-borrowing directly did not look at the entire phenomenon from its causes to its impact, including the impact on the clients' well-being. Again, this is a shortcoming since it means that no comprehensive understanding of the phenomenon can be gained.

These insights, in addition to the lessons learned from the preliminary study, which will be presented in the subsequent section, were important when determining the methodology used in this research project.

Table 5: Classification of existing studies according to their methodology

	Focus mainly on quantitative aspects	**Focus on quantitative & qualitative aspects**
Descriptive analyses	• Pytkowska and Spannuth (2012b) • Pytkowska and Spannuth (2012a) • Maurer and Pytkowska (2011) • Kamath et al. (2010) • Chaudhury and Matin (2002)*	• Mpogole et al. (2012)* • Diaz et al. (2011)* • Krishnaswamy (2007)*
Econometric analyses	• McIntosh et al. (2005) • Vogelgesang (2003)	• Schicks (2013b)

* Studies focusing on cross-borrowing directly

5.2 Insights from the preliminary study

Based on the research objective, the research questions and the existing literature, a combination of qualitative and quantitative research was considered suitable for the present study.

A strong focus on the qualitative part would be taken since this part fell short in previous studies and since it was considered especially important to understand the clients' perspective. The quantitative part would complement the qualitative research and would allow considering a larger sample. Further, the quantitative study was considered especially useful to analyse the impact of cross-borrowing on the clients' repayment performance.

To decide on the concrete methods to be used, a preliminary study was conducted. For this, a first field stay in Peru was realised over a seven week period in July/August 2011. During this field stay, initial interviews with staff, management and clients of EDYFICAR were accomplished and a first quantitative dataset was collected from the EDYFICAR database. A detailed list with the activities of the first field stay is provided in Appendix 1.

The following section will summarise the preliminary study and the lessons learned from it. Subsequently, the methodology used in the study will be presented.

5.2.1 Preliminary qualitative analysis

Interviews with EDYFICAR's management and staff

Interviews were done with one senior manager and one credit risk specialist in the headquarter, the branch manager of the San Juan de Miraflores branch and one loan officer of that same branch, who was additionally accompanied during one day to see his work. In addition, a focus group discussion with four further loan officers was done.

The senior manager was the researcher's main contact person within the organisation and was with the MFI since it was founded by CARE in 1985. Hence, her experience was highly valuable. She chose the risk expert and the branch manager to be interviewed based on their knowledge and experience with cross-borrowing. The loan officers were chosen by the branch manager based on their experience.

All interviewees were informed about the study and the purpose of the interview. Since there was no dependency on the researcher, it was obvious that the participation in the interviews was voluntary.

The interviews were done using semi-structured check-lists that were different for members of the management and loan officers. The check-lists had the purpose to ensure that all relevant topics were covered. However, the use of the check-lists was very flexible, since the researcher wanted to give the interviewees plenty of room to speak about their experiences.

Client interviews

The clients for the interviews were selected by the manager of EDYFICAR's San Juan de Miraflores branch. He selected possible interview candidates mainly based on the safety of the area where they lived in. In total about 15 clients were selected but not all of them could be reached. As a result, nine clients were interviewed.

Prior to the interviews, all candidates were given information on the researcher, the study and the purpose of the interview in order to meet the ethical standards of good research. Furthermore, they were informed that their participation was voluntary and that they could end the interview at any time.

In the preliminary study, client interviews were done using standardised questionnaires with open- and closed-ended questions. This approach was chosen, for two main reasons: first, standardisation has advantages when analysing the data, since it makes the quantitative analysis of qualitative data easier as well as comparisons across interviews. Second, the use of open-ended questions was meant to leave the interviewees room to mention aspects that the researcher had not thought of when designing the questionnaires. The questions were mainly derived from the existing literature and, in addition, the researcher included further topics that she considered important. The preliminary questionnaire for the client interviews is provided in Appendix 2.

Some of the interviewees were visited and interviewed a second and third time to get a better picture of their situation. For those additional interviews, the researcher left the standardised questionnaire aside and entered a rather informal conversation.

Lessons learned

The preliminary study was highly important for the success of the research project as lessons were learned that guided the further course of the research.

In the interviews with management and staff, semi-structured check-lists proved to be a suitable tool. Cross-borrowing was a current and prevalent topic, so that all interviewees had experiences that they were willing to share. Therefore, the researcher could take a passive role in the interviews, leaving the interviewees talking. She only used the check-lists to add further questions and topics of interest. In the opinion of the researcher, this led to a maximum amount and depth of information gathered. Also, since all interviews were tape-recorded, no information was lost.

Also, the group discussion delivered important insights and since the loan officers had a good and informal relation with each other, an open-minded talk took place.

In contrast, the standardised questionnaires for the client interviews were not found to be a suitable tool for data collection in this context.

Since the interviewees could not be informed in advance, a loan officer of EDYFICAR accompanied the researcher to introduce her to the clients. The researcher soon noticed that the clients reacted in a nervous and intimidated way. Although the purpose of the interview had been explained to them, they did not seem to trust the researcher. In particular, they seemed to be intimidated by the fact that the interviewer used paper and pen. At that point, the researcher thought they were afraid that documented evidence of their statements could be used to their disadvantage. However, during the further course of the research project she got the impression that paper and pen caused the interviewees to believe they were to sign some sort of contract.

It is probably because of that, that interviews minded paper and pen more than the recording of the interviews. Here, they seemed to understand that the researcher needed the recordings to avoid that information would get lost. Furthermore, the researcher asked for the agreement to the recording only after a few minutes, when she felt confident that the interviewees trusted her enough. Therefore, in some records, the first sentences of the interviews were missing.

Apart from that, it was found that interviewees felt uncomfortable answering questions that referred to the concrete number of loans, the number of lenders or the amount of debt. In general, they preferred not to discuss concrete figures in the interviews.

Because of those impressions, the researcher changed the mode of the interviews to find the best way to collect reliable data. First, she memorised the most important questions to avoid using paper and pen. Then, she visited the interviewees a second or third time without being accompanied by a loan officer. And lastly, she turned away from the standardised questionnaires to semi-structured interviews. These modifications revealed the following.

First, it was crucial that the researcher was introduced through EDYFICAR since otherwise people refused answering loan and debt related questions. In an environment in which crime was omnipresent, people were very hesitant revealing their financial situation to a stranger. Therefore, being introduced to the interviewee through somebody they knew was very helpful. At the same time, after this introduction had taken place, it was better to do the interview without the presence of a loan officer. This avoided that interviewees felt the need to give answers, which they assumed the loan officer wanted to hear.

Second, the interviews should not necessarily be used to collect information on the concrete number of loans, lenders or the amount of debt. This information could also be provided by the MFI and asking these concrete questions made the interviewees feel very uncomfortable, which negatively impacted on the entire interview. Therefore, it was decided to collect this information from EDYFICAR and to double-check it with what the clients revealed during the interviewees. This worked well since interviewees usually revealed the number of their lenders anyway during the conversation without being asked for it directly.

Third, a standardised questionnaire was not likely to reveal the true and comprehensive picture of a client's situation. The clients were found to be much more open when the interview was in a rather conversational manner, i.e. semi-structured interviews were found to be more suitable.

Fourth, it was found helpful to visit clients more than once, since clients spoke more openly when they knew the interviewer from former meetings. When meeting them more than once they trusted that the researcher had a real interest in their story and they therefore opened up more and got more into detail when speaking about their situation.

Those lessons learned were taken into account when determining the final research methodology, as will become clear later.

In addition to the lessons learned with regard to the data collection, lessons were learned with regard to further topics that had to be taken into account.

When being asked for the reasons of cross-borrowing, some clients mentioned that they took additional loans because they were offered them by loan officers. In these cases, clients had shown a good credit history so that loan officers assumed that lending to them was a good way to increase sales while keeping risk down. Some of the clients even reported of cases in which loan officers were insistent when trying to push clients to take further loans. This insight was important since it made clear that the supply side needed to be taken into account when analysing cross-borrowing.

Another finding was that the context of a client, in particular the family situation, mattered. For instance, in one case a client took a loan for her sister and another one for her mother. At the time of the interview, she owed money to six different lenders and reported constant repayment problems. She stated that she had to on-lend since her mother did not have access to loans due to a bad credit history. This is critical because when the mother is a risky borrower, on-lending constitutes a serious risk for the daughter. The daughter was aware of that but said that she felt that she could not let her mother down. In another case, a client took a loan for her daughter, who lived abroad. In this case, the on-lending did not cause problems since the daughter was reliable and paid on time.

In addition, it was found that some clients managed a cross-borrowing situation well while others seemed to struggle substantially. For instance, one of the interviewees owed money to four institutions but did not face any repayment problems. In contrast, the client mentioned above, owing to six lenders, was constantly struggling to meet her repayment obligations. Therefore, in the final analyses, it would need to be understood which factors contribute to those different outcomes.

Further, it was found that cross-borrowing had an impact on the clients' lives that went beyond financial considerations. For instance, some clients felt stress and pressure resulting from the fact that they had to maintain relationships to several lenders and to repay large amounts of debt. Therefore, when analysing the impact of cross-borrowing, the researcher would need to take those aspects into account, too.

Since some of these topics were not covered in existing studies on cross-borrowing, it is likely that part of the story would have been missed when using standardised questionnaires based on the literature only.

5.2.2 Preliminary quantitative analysis

In July 2011 a preliminary sample was collected from the EDYFICAR database. A screenshot of the database per 22.07.2011 was used to randomly sample 197 clients. This sample size was decided on because it should be large enough to provide a good overview of the data and small enough to allow easy handling in the preliminary analysis.

The collected data contained information on the clients, the clients' loans with EDYFICAR between 01.01.2006 and 22.07.2011, their repayment performance on those loans and their cross-borrowing situation in the formal financial system at the point in time when they applied for the EDYFICAR loans. A more detailed description of the variables will be provided in the chapter on the quantitative analysis, since the final sample contained the same variables.

The objective of the preliminary analysis was to understand:

- if the available data allowed answering the research questions,
- if the sampling procedure provided an unbiased sample,
- if there were other important aspects to take into account,
- which methods would be most suitable to analyse the data.

To achieve these objectives, the data was analysed using mainly descriptive statistics. The main findings were the following.

First, it was found that the data was very rich and lent itself well to analyse important aspects of cross-borrowing, especially the resulting debt levels and repayment performance. Since the data was not collected via questionnaires but taken from an enormous database, it was complex. This made the analyses more difficult but also gave more insights.

Second, the preliminary sample was biased as a result of the sample selection. The sampling framework consisted of a snapshot that contained only active, late and defaulted loans. Repaid loans were only sampled when clients had loans disbursed after 01.01.2006 and repaid before 22.07.2011. In addition, defaulted loans were over-represented in the sample. Due to the nature of the EDYFICAR database, the snapshot contained all defaulted loans since the software and database structure had been introduced. However it did not contain the repaid loans for the same time span, as was outlined above. Because of those two reasons the sampling procedure had to be modified for the final sample.

Third, it was found that in many cases several loans of one client belonged to one logical loan cycle. This became clear when analysing the loan overlap. Generally, three scenarios with regard to loan overlap exist:

- Loan 1 is repaid before loan 2 is disbursed,
- Loan 1 is repaid on the same day loan 2 is disbursed,
- Loan 1 is repaid after loan 2 is disbursed, i.e. the loans temporarily run in parallel.

It was interesting that more than a third of the 389 loans under consideration (36.5%) had been disbursed on the same day the former loan had been repaid. And an additional 12.3% had been disbursed between 1 and 5 days after. Thus, it was likely that there was a connection between the two loans. For instance, the second loan may have been agreed on before the first loan had been cancelled. And possibly, the first loan was even repaid because the second loan would be disbursed soon. This would mean that there was some sort of internal debt rescheduling.

Another interesting finding was that there was a large share of parallel loans. For instance, in 28% of the cases the overlap between two subsequent loans was more than one month and in 3.1% of the cases the overlap was more than one year.

In addition, especially important for the further analysis was the following finding: in many cases, when several loans belonged together, the first loans were repaid long before their due dates. For instance, in the cases where loan 2 was disbursed on the same day loan 1 was repaid, loan 1 was on average repaid 86.6 days before its scheduled due date.

Lessons learned

The main lessons learned from the preliminary quantitative analysis were that the data was suitable to answer the research questions; that the sampling procedure had to be modified to obtain an unbiased sample; and that in the analysis of the data, the loan strategy of the clients had to be taken into account. Therefore, suitable methods for the analysis had to be found as well as an appropriate measure for the repayment performance, which would account for the relation between loans. For instance, if debt was rolled over from one loan to another, the repayment measure should account for this.

5.3 Methodology used in this study

Based on the research objectives and research questions, the methodologies used in other studies and the lessons learned from the preliminary analysis, the final methodology for this research project was defined.

5.3.1 Qualitative study

The following sections present the main points of the methodology used for the qualitative study, while further details are provided in chapter 6.

5.3.1.1 Requirements

From what has been presented above, the following requirements for the qualitative methods were derived.

First, since existing literature did not deliver a comprehensive picture of cross-borrowing, this study would analyse the phenomenon as a whole, i.e. from its causes to its impact.

Second, since microfinance was intended to serve microentrepreneurs, the clients' perspective should be taken. This was especially important since the impact of cross-borrowing on the client goes beyond what may be mirrored in repayment figures of microfinance providers.

Third, to get a comprehensive understanding of the topic, the qualitative study should capture the complexity of cross-borrowing and the heterogeneity of the clients. Therefore, a methodology was to be chosen that would allow going into depth. This was not only to be considered when choosing the data collection method but also when choosing the appropriate method to analyse the data.

Fourth, to ensure that no important aspects would be missed, a data collection method was needed that would give room for interviewees to speak openly about their experiences. In addition, the methodology needed to be dynamic in the sense that it allowed to add topics that would come up in the course of the research. This was especially important, since not much research on the topic had been done and since the analysis of qualitative aspects had fallen short in existing studies.

Fifth, to obtain reliable and comprehensive qualitative data, a data collection method would be chosen that contributes to building a relationship of trust between interviewer and interviewees. This was especially important since personal economic situations, finances and indebtedness are delicate topics. In the Peruvian context, as well as in most other contexts, people are hesitant talking about those topics. Therefore, when the objective is to obtain a true picture of a client's situation, a certain degree of trust is essential. To create this trust, it should also be aimed to visit interviewees more than once.

5.3.1.2 Data collection

Client interviews

Based on the requirements presented above, semi-structured in-depth interviews were indentified to be the most effective tool for the data collection.

In-depth interviews are interviews that involve 'an interviewer and an interviewee discussing specific topics in depth. In-depth interviews may be described as a conversation with a purpose. (...) When conducted well, this can feel like a conversation for the interviewee' (Hennink et al., 2011).

A semi-structured interview guide was prepared that collated relevant questions based on those used in the previous interviews from the preliminary study. While the questions had a logical order, the guide was used in a flexible way, i.e. the researcher could adapt the order of the questions to the course of the interviews. Furthermore, the checklist was modified during the project to add new topics and to make it easier for the interviewees to understand all questions.

The interviewer was introduced to the clients by EDYFICAR but conducted the interviews in absence of EDYFICAR members. Before each interview, the clients were informed that their participation was voluntary and that they could end the interview whenever they wanted.

To create an atmosphere in which the interviewees felt safe, interviews were conducted either at the clients' homes or at their workplaces. For the interviewees' convenience, they were further conducted at a time that suited them.

Clients were usually visited more than once in order to create a relationship of trust and to ensure that all relevant topics were covered for all clients.

To make sure that all information was captured, interviews were tape-recorded after the clients had been asked for their permission to do so.

In addition to the interviews, further information on the clients' financial situation was gathered from EDYFICAR.

Interviews with management and staff

Initially, interviews with management and staff were done using semi-structured check-lists as had been described in the section on the preliminary analysis. When meetings with loan officers and managers became more frequent and informal, the researcher changed that procedure and used the interviews to clarify questions that came up during the field-stay and interviews with clients. Furthermore, she used the encounters to discuss her ideas and hypotheses.

5.3.1.3 Sample and sample size

Client interviews

The sample size was based on theoretical saturation. Theoretical sampling is 'a method of data collection based on concepts/themes[26] derived from data. The purpose of theoretical sampling is to collect data from places, people, and events that will maximise opportunities to develop concepts in terms of their properties and dimensions, uncover variations, and identify relationships between concepts' (Corbin and Strauss, 2008, p. 143).

In other words, the sample size was not determined beforehand but the sample was considered large enough when additional interviews did not provide additional relevant

[26] Note that in grounded theory the term concept is used for what by other authors may be called code and the term theme for what by other authors may be called category.

information. Hence, when the researcher found that relevant topics in the interviews were repeating and when she considered that she understood those topics well enough, she ended the data collection process.

Before the field visit, the researcher assumed that she would have to conduct between 30 and 50 interviews to reach theoretical saturation. This assumption was based on what she had read in books on qualitative analysis, for instance in Bernard and Ryan (2010). In the end, she found that theoretical saturation was reached after conducting interviews with 32 microentrepreneurs. Note here that the number of interviews was higher since interviewees were visited more than once.

The sampling was done purposefully in order to make sure that interviewees would be heterogeneous along certain characteristics. For instance, interviewees were from different regions in Lima, of either gender, of different ages, working in different economic sectors, having different amounts of debt and showing different repayment performances. This variety was important to ensure that findings would have a certain level of generalisability despite the fact that the sample was not representative in size. Further details on the sample are provided in chapter 6.

Interviews with management and staff

For the interviews with management and staff, no sample size was determined beforehand. Instead, the researcher tried to discuss the topic with different members of EDYFUCAR to get different opinions.

Her main contact partners were the senior manager and the risk expert, who she had already met during her first field-stay. Furthermore, she spoke to a second senior manager and the head of the risk department from the headquarters, three branch managers, a deputy branch manager and two loan officers. In addition, she discussed the topic with several other loan officers that she met during her stay in Peru.

Furthermore, the researcher conducted interviews with the CEO of Mibanco, the largest MFI in the country, and with an executive manager of Interbank. The interview with the representative of Interbank was especially interesting since he was responsible for the credit card business.

The interviewees were chosen purposefully, i.e. based on their experience with the research topic. Further details on the interviewees are provided in chapter 6.

5.3.1.4 Data analysis

Client interviews

Since not much research on cross-borrowing had been done, an inductive method was considered suitable for the research project.

The core element of induction is that knowledge is generated from data. Hence, in inductive methods, the starting point of the analysis is the data from which theories are derived. In contrast, deduction starts from an existing theory which is tested using data that is specifically collected to test the hypotheses (Bernard and Ryan, 2010).

Furthermore, a method was needed that allowed analysing semi-structured in-depth interviews. Based on those requirements, the grounded theory approach was chosen (Corbin and Strauss, 2008; Glaser and Strauss, 1967; Charmaz, 2006).

The grounded theory approach was developed by Glaser and Strauss in the 1960s to provide a systemic approach for the analysis of qualitative data (Glaser and Strauss, 1965 and 1967). Meanwhile, a number of other scholars have developed the method further and as Charmaz (2006) put it 'grounded theory guidelines describe the steps of the research process and provide a path through it. Researchers can adopt and adapt them to conduct diverse studies'.

In this study, the analysis was done mainly following Charmaz's (2006) guidelines in 'Constructing Grounded Theory – A Practical Guide through Qualitative Analysis'. Those guidelines were considered suitable since they provide a framework for the analysis, while at the same time leaving the researcher with a useful extent of flexibility.

The detailed description of the data analysis is provided in chapter 6. The main steps were the following.

The voice records of all client interviews were transcribed verbatim in Spanish, which resulted in more than 320 pages of relevant interview content. Then, the transcripts were read several times and an initial coding was performed. Initial coding means that text units were assigned a label, which is referred to as code[27]. Units with a similar meaning were assigned the same codes; units with different meanings were assigned a new code. After the initial coding, 2,100 text units had been assigned around 400 different codes.

In the next step, the resulting code system was improved by eliminating redundancies and merging similar codes into one. After this further elaboration, the code system consisted of around 260 codes that labelled almost 2000 text units. The improved code system is provided in Appendix 4.

Subsequently, the remaining codes were grouped thematically into higher level concepts, which are usually referred to as categories. Those categories stand for the most relevant phenomena, which were contained in the data, and they help the researcher to reduce data (Corbin and Strauss, 2008, p. 159).

During the data analysis process, certain tools (questioning, constant comparison, memo writing) of the grounded theory approach were used and the researcher aimed to meet the evaluation criteria introduced by Corbin and Strauss (2008). The tools and criteria will be presented in more detail in chapter 6. To increase the efficiency in the process, MAXQDA software was used (MAXQDA, 2012) to organise transcripts, codes and memos.

Further details on the data analysis (including the iterative process of data collection and analysis, the deductive aspects of the method, the critical role of the literature review, and a discussion on theory versus thick description) are provided in chapter 6.

Interviews with management and staff

The interviews with management and staff were used to triangulate the topic. Thus, they were not analysed in a systematic way but the findings from the interviews were aggregated to the results from the client interviews.

[27] Note that Corbin, Glaser and Strauss refer to codes as concepts. In this study, the two terms will be used interchangeably.

5.3.2 Quantitative analysis

The quantitative analysis is meant to complement the qualitative study, thereby focusing mainly on the aspects that lend themselves to be measured in numbers.

In the following sections, the main points of the methodology used for the quantitative study are presented, while further details are provided in chapter 7.

5.3.2.1 Requirements

The methods used to analyse the quantitative data were determined based on the following requirements.

First, data should be analysed on the client level, since the client was the focus of the study. Second, the methods should allow an analysis of the association between cross-borrowing and the clients' repayment performance. Third, loan strategies and loan overlap should be accounted for in the relevant measures. Fourth, differences in the characteristics of cross-borrowers and exclusive clients should be identified. Fifth, the complexity of the analysis should be adequate to the objectives. To the belief of the researcher, unnecessary complexity in quantitative analysis is to be avoided when it does not bring additional insights in order to increase the traceability and to avoid errors.

5.3.2.2 Data collection and sample

Based on what was found in the preliminary study, it was decided to continue using data from the EDYFICAR database.

To correct for the biases in the preliminary sample, the sampling procedure was modified in the final study. Instead of sampling from a snapshot of the database, the sampling frame now contained all clients that had received loans from EDYFICAR issued in Lima between 01.01.2010 and 16.12.2011.

The starting point, 01.01.2010, was chosen to ensure that clients were selected from a broad base. In addition, by the end of 2009 Banco de Crédito del Perú became majority shareholder of EDYFICAR, so from 2010 onwards EDYFICAR has been operating under a new ownership. The end point of the period, 16.12.2011, was chosen because the sampling was done in December 2011.

The sampling frame consisted of 101,710 clients. For the sampling, EDYFICAR provided a list of 101,710 codes that represented those clients and the researcher assigned random numbers to each of these codes using Excel. In a next step the random numbers were sorted in ascending order and the first 550 codes were selected. Via this procedure a random sample was obtained.

The advantage of this simple random sampling is that each client in the sampling frame had the same chance of being included. Hence, the procedure is an objective and unbiased sampling method (Lind et al., 2011).

The number 550 was chosen because of different considerations. Before explaining those considerations in detail, the sample will be described as the knowledge of the data and sample structure is important to understand the rationale for the sample size.

After having randomly selected the 550 codes, the researcher asked EDYFICAR to provide data for the corresponding 550 clients. The data had to be provided by the EDYFICAR data specialist since the researcher had no access to the institution's database for practical reasons (geographical distance) and because of confidentiality obligations. In addition, special procedures were necessary for the data queries that were not known to the researcher.

The data was provided in various spreadsheets that contained information on four main areas, namely

- client attributes,
- loan details for the clients' EDYFICAR loans since 01.01.2006,
- the clients' repayment performance in those EDYFICAR loans, and
- the clients' cross-borrowing situation when they applied for those EDYFICAR loans.

The client attributes were collected using the client number as a unique identifier. They consisted, for instance, of variables like gender, civil status, date of birth, or the sector in which the microentrepreneur operated. These variables were only available for one point in time, namely for the latest point in time they had been documented. For some of the variables, e.g. gender, this was obvious since gender is constant over time. For other variables (e.g. sector) it was possible that the values had changed over time. In this case the sample would only contain the latest value.

In a second step, all loans were looked up that each of the selected clients had taken from EDYFICAR since 01.01.2006 in order to get a comprehensive picture of a client's loan strategy. In total, the selected clients had taken 1574 EDYFICAR loans in the relevant time span and for each of those loans variables like loan amount, interest rate, maturity or number of scheduled repayments were collected.

The cut off at 01.01.2006 was done mainly because data on loans disbursed before that date had not yet been transferred completely to the institution's new data management systems. Therefore, its collection would have been too time-consuming for the EDYFICAR data specialist. In addition, the researcher considered the period after 01.01.2006 sufficient to get an understanding of the clients' loan strategies.

In a third step, information on the client's repayment performance for each of the sampled EDYFICAR loans was collected. The information was comprehensive and showed for each of the 16880 instalments of the 1574 loans when the payment was due and when it was actually made. This allowed determining the punctuality in the payment of every instalment of every loan. Unless, of course, if a payment was due in the future, which was possible since the sample contained active loans as well.

In a fourth step, information on cross-borrowing was collected. Every time a client applies for a loan from EDYFICAR, the institution uses a report provided by the SBS to assess the client's situation in the financial system. The report is called 'reporte historico de central de riesgo' (historical report of the credit bureau) and it contains, for instance, the number of the client's loans in the system, his creditors and his total debt.

This cross-borrowing information was collected for every client in the sample and for every point in time when they applied for their selected EDYFICAR loans. Hence, cross-borrowing information, consisting of a client's loans, lenders and debt in the financial system, should have been available for 547 clients and the 1574 points in time when they applied for the EDYFICAR loans in the sample. Or, in other words, for each EDYFICAR loan in the sample it should have been known how many loans from how many lenders, accumulating to how much debt the microentrepreneur had in the formal financial system when applying for this loan.

Unfortunately however, the cross-borrowing information was missing in 504 cases. In some of the cases the information may have been missing because the client has never had a loan before and thus was not part of the SBS database. However, the reason for the missing information is not clear in all cases and could not be identified in discussions with the EDYFICAR data specialist either. In consequence, the dataset contained cross-borrowing information for 354 clients and 1070 points in time when those clients applied for an EDYFICAR loan. Note that for the remaining clients it is not known whether they were cross-borrowers or exclusive clients.

It is important to note here that the information in the report is provided with a time gap of two months, i.e. when EDYFICAR generated a report on 01.05.2011, the information displayed in the report was as of 01.03.2011. Furthermore, the SBS reports only contain information of institutions that are supervised by the SBS, i.e. all informal lenders are not included. Also, the report contains credit information only and no information on savings or insurance. This means that the available data only comprises part of a client's financial reality. The implications of those shortcomings are discussed in the discussion section of the chapter on the quantitative study.

The result of the described sampling procedure was a data set containing information on:

- 547 EDYFICAR clients,
- their 1574 EDYFICAR loans taken since 01.01.2006,
- their punctuality in paying the 16880 instalments of those 1574 loans, and
- cross-borrowing information for 354 clients and 1070 points in time when they applied for an EDYFICAR loan.

Table 6 provides an overview of the collected variables.

Table 6: Overview of collected variables for the quantitative study

Variable	**Explanation**
Client attributes	
CNr	Client number, unique identifier
AGE	Age
GEN	Gender
CS	Civil status
EDU	Education
SEC	Business sector
LS	Number of loans the client is represented within the sample
IR	Indebtedness-ratio as calculated by EDYFICAR
CR	Risk class of a client as assigned to by EDYFICAR
Loan details	
LNr	Loan number, unique identifier
DD	Disbursement date of the loan
DY	Disbursement year of the loan
SRD	Scheduled repayment date of the loan
ARD	Actual repayment date of the loan
RLA	Real loan amount in dollar and prices as of 01/2006
AvRLA	Average real loan amount per client
CYC	Cycle of the loan (new, parallel, refinanced, recurring with clearing, recurring without clearing)
IR	Annual interest rate of the loan
AvIR	Average interest rate per dollar borrowed per client
DUR	Maturity of the loan in months
STA	Status of the loan (repaid, active)
Repayment performance	
NP	Number of payments to make when repaying the loan (one per month)
SPD	Scheduled date when the payment was to make
APD	Actual date when a payment was made
DO	Number of days overdue of a payment made
ADO	Average number of days overdue per payment of a loan
CADO	Average number of days overdue per payment of all loans of a client
Situation in the financial system	
RD	Real debt in the financial system in dollar and prices as of 01/2006
AvRD	Average real debt in the financial system per client
RDLE	Real non-EDYFICAR debt in the financial system
AvRDLE	Average real non-EDYFICAR debt in the financial system per client
LoFS	Number of loans in the financial system
AvLoFS	Average number of loans in the financial system per client
LoFSLE	Number of non-EDYFICAR loans in the financial system
AvLoFSLE	Average number of non-EDYFICAR loans in the financial system per client
CrFS	Number of creditors in the financial system
AvCrFS	Average number of creditors in the financial system per client
CrFSLE	Number of creditors other than EDYFICAR in the financial system
AvCrFSLE	Average number of creditors other than EDYFICAR in the financial system per client

5.3.2.3 Sample size

The number 550 was chosen since a sample size of 500 was aimed for and since it was expected that for some clients the available information might not be complete. Note here, that clients with incomplete information could not be eliminated beforehand since initially the researcher only received client codes. Those codes were used to randomly select the clients but they did not give information on whether the data for those clients would be complete. The size of 500 was aimed for because of the following considerations.

First, the sample size should provide a variety of clients and loan strategies. When analysing the preliminary sample in detail for a previous study report, the researcher found that the sample of 197 clients contained a variety of clients with different characteristics and loan strategies. Hence, the researcher knew from her experience that a sample of 500 clients would provide sufficient variety of clients and loan structures to ensure that the findings would not be limited to clients with certain characteristics only.

Second, in the quantitative analysis the clients' different loan strategies should be accounted for. Therefore, it was decided to consider all EDYFICAR loans of a client after 01.01.2006 instead of looking at each client's latest loan only. The result was a panel data set, since a cross-section (of clients) was observed over time (Kennedy, 2008). Hence, when the researcher decided to aim for a sample size of 500 clients, she knew that the resulting data set would be very comprehensive, containing information on a much larger number of loans, repayment dates and cross-borrowing variables.

As a matter of fact, the main matrix used for the analysis contained 1574 rows (one for each EDYFICAR loan) and 62 columns (one for each variable or auxiliary variable used to calculate other ones). To obtain this matrix, significant work was needed to rearrange the provided data into the final format. In addition, to account for different loan strategies the researcher had to look at each line of the dataset individually to ensure that the repayment performance measure was calculated correctly (as will become clear in the chapter on the quantitative study). After that, different sub-datasets had to be produced for the analysis.

This process of data preparation, data handling and analysis was very time consuming but necessary to obtain a good understanding of the data and correct results. Hence, due to the researcher's limited resources, a larger sample size would have meant a reduced depth of the analysis. In this sense, when deciding on the sample size and taking her limited resources into account, the researcher decided in favour of depth of the analysis.

Third, the sample size had to be agreed upon with the EDYFICAR data specialist who provided the data. The collected data was comprehensive and included historical data as all loans of a client since 01.01.2006 were considered. The retrieval of this data was time consuming and complicated (especially for the historical SBS reports). The EDYFICAR data specialist had to do this task on top of his normal work load, and it took him several months to provide all information. Given that, asking for more data and thus more of the data specialist's time would have been very difficult.

Based on those considerations, information on 547 clients was collected. Unfortunately, as mentioned above, information on cross-borrowing was available for 354 clients only and average measures per client for cross-borrowing *and* repayment performance could be calculated for 352 clients only. Hence, the analysis was performed for five or three per thousand clients in the sampling frame respectively. In consequence, the generalisability of the findings is limited despite the facts that the sampling procedure was objective and unbiased and that the sample contained a variety of clients and loans. Hence, testing the findings in larger, representative samples would need to be done in further research.

5.3.2.4 Data analysis

The quantitative data was analysed using different tests, which are listed here but described in more detail in the methods section of the chapter on the quantitative study.

In a first step, the data was examined and described using descriptive statistics. This step was important to gain a good understanding of the data and it also delivered first insights regarding the research topic. In the descriptive analysis, mainly frequency analyses, cross-tabulations and graphs were used as well as descriptive measures such as mean, median, or standard deviation.

First, the attributes of clients in the sample were described. Afterwards, their cross-borrowing situation and indebtedness in the financial system was assessed. Average measures per client were built for their loan amount in EDYFICAR, their number of loans in the financial system, their number of creditors in the financial system and their debt in the financial system. All monetary units were converted into real amounts [US$] as of January 2006. Different cross-tabulations showed the distribution of those measures for different groups of clients. For instance, the average real loan amount per client as of 01/06 was compared for clients in different sectors or different age groups. The descriptive part ended with analyses on the loan level for certain variables, for which the client perspective was not useful (e.g. disbursement year of loans or maturity).

After the description of the dataset, cross-borrowers and exclusive clients were compared to assess whether they significantly differed in certain client characteristics (e.g. gender or age). This analysis could be done for the 354 clients, for which information on cross-borrowing was available. From those 354 clients, 127 clients were found to be exclusive clients and 227 clients were found to be cross-borrowers.

As will be described in detail in the chapter on the quantitative study, the clients' average number of non-EDYFICAR loans in the financial system was used to distinguish between the two groups. The groups were compared using Chi Square tests since the client characteristics under consideration were categorical variables. Yates correction was used where needed and the effect size was calculated. Furthermore, a Bonferroni adjustment was performed to ensure that the significance of the findings had not been over-estimated.

In the next step, the association between cross-borrowing and indebtedness was assessed for the same 354 clients. Therefore, cross-borrowers and exclusive clients were compared regarding their average real debt in the financial system, their average real loan amount with EDYFICAR and their average interest rate paid per dollar borrowed from EDYFICAR. Since the indebtedness variables were found not to be normally distributed, Mann-Whitney U tests were performed to compare the groups. Furthermore, Spearman Rank Order Correlations tests were conducted to further examine the association between the cross-borrowing measure and the indebtedness variables.

As becomes clear from the indebtedness variables, in the quantitative study only absolute measures of indebtedness could be used, but no over-indebtedness measures. Objective over-indebtedness measures that relate monthly repayment obligations to income could not be used since no reliable income information was available. A subjective over-indebtedness measure, which would have to be derived from the indebtedness definition of Schicks (2013a), could not be used since no information on the sacrifices was given that clients had to take to repay their debt. Implications of this shortcoming will be explained in the discussion section of the quantitative chapter.

Finally, the association between cross-borrowing and the clients' repayment performance was assessed. First, average measures per client for cross-borrowing and repayment performance were used, that considered all loans of a client in the sample. This analysis could be done for the 352[28] clients, for which those average measures could be calculated.

To begin with, the repayment measure per client was calculated and examined. Thereby, the different loan strategies were accounted for, as will become clear in the respective section. Then, cross-borrowers and exclusive clients were compared regarding their repayment performance using a Mann-Whitney U test, when outliers of the repayment performance were considered, or a t-test otherwise. Different thresholds were used to distinguish between cross-borrowers and exclusive clients to ensure that those thresholds would not distort the findings. Afterwards, graphs and cross-tabulations were used to further assess the association between cross-borrowing and repayment performance. Lastly, Spearman Rank Order Correlation tests were performed (chosen for the non-normal distribution of the variables).

To ensure that the use of average measures per client did not distort the findings, the analyses to examine the association between cross-borrowing and repayment performance were repeated focusing on each client's latest loan in the sample only.

A detailed description of the tests and the reasons why they had been chosen is provided in the chapter 7.

[28] Note that for two out of the 354 clients, for which data on cross-borrowing was available, no average repayment performance measure could be calculated, as will be described in more detail in the chapter 7.

CHAPTER 6: QUALITATIVE STUDY

The qualitative study constitutes the core part of the research. Its objective was to gain an in-depth understanding of cross-borrowing from its reasons to its impact and from the clients' perspective. Thereby, the complexity of cross-borrowing and the heterogeneity of microentrepreneurs should be captured.

To achieve this objective, in-depth data was needed and methods were required that allowed assessing the topic in an open-minded way. This was especially important since not much research on the topic had been done before. In addition, the methods should be dynamic and flexible so that new topics could be considered, which emerged during the process of research.

The study was based on semi-structured in-depth interviews with clients, loan officers and management of EDYFICAR and two further managers of other financial institutions in Lima. Client interviews, which build the main part of the study, were analysed using the grounded theory approach (Corbin and Strauss, 2008; Glaser and Strauss, 1967; Charmaz, 2006). Interviews with loan officers and managers were analysed in a flexible way to triangulate the topic and to complement the findings from the client interviews.

The remainder of this chapter is structured as follows: first, the conceptual framework will be introduced that was derived from the data and that will guide the reader through the study (6.1). Subsequently, the chapter will be separated between client interviews (6.2) and the interviews with management and staff (6.3) and for each one sample and sample selection will be described, followed by the data collection and analytical methods. Afterwards, the findings derived from the conjunction of the interviews will be presented (6.4) and related to the existing literature. The chapter ends with the discussion (6.5) and conclusion (6.6).

6.1 Conceptual framework

As introduced before, a broad definition of cross-borrowing was used that considers all sources of loans. Accordingly, *a client cross-borrows if he/she has more than one loan from more than one formal or informal lender simultaneously.*

Under this definition and using the grounded theory approach, a conceptual framework was derived from the data. It is important to note here, that this framework was the result of the analysis, i.e. from a chronological point of view it would belong at the end of the chapter. However, since it is useful to guide the reader through the chapter, it will be presented here. The detailed findings and explanations that led to the framework will be presented below.

First, it was found that cross-borrowing was one feature of a complex financial reality in which the interviewees found themselves. This complex reality was not only dominated by cross-borrowing but also by uncertainties and vulnerability to crises. While some microentrepreneurs managed complex financial portfolios before becoming cross-borrowers (Collins et al., 2009), it can certainly be said that cross-borrowing increased the complexity.

Being a key feature of a borrower's financial portfolio, cross-borrowing impacted the repayment performance. The impact depended on the reasons for cross-borrowing and the resulting financial portfolio as well as on client characteristics and external factors.

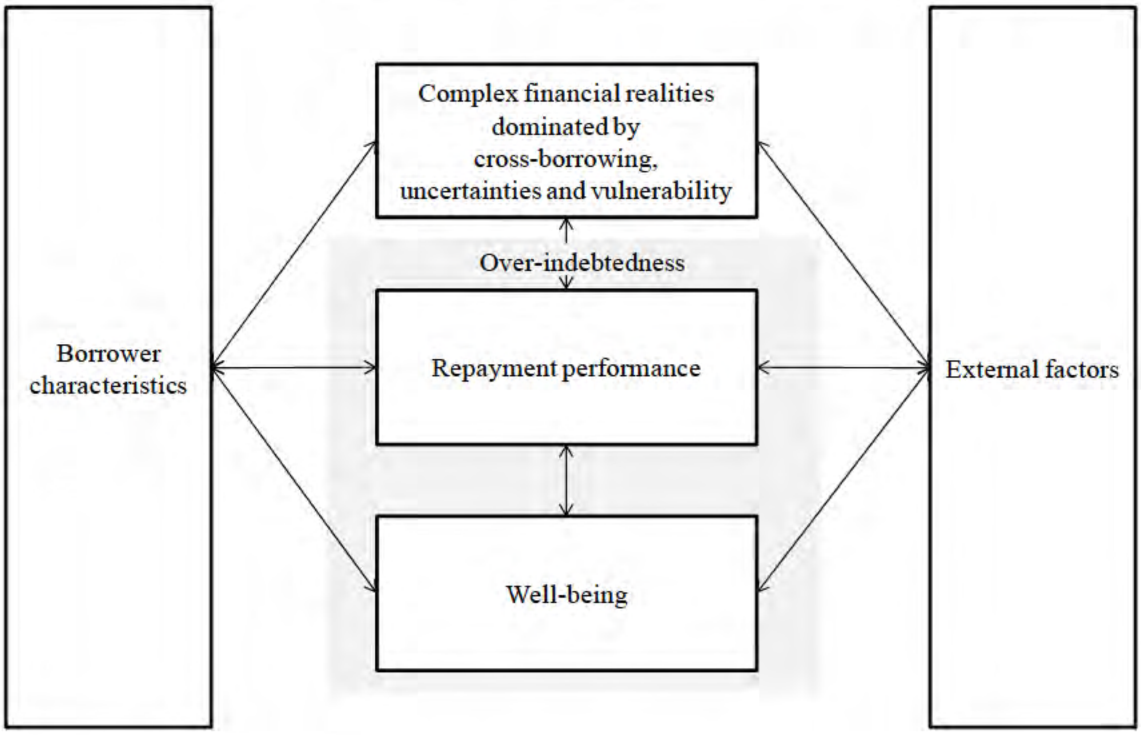
Furthermore, all dimensions impacted a person's well-being, which was assessed in terms of life satisfaction (Eid and Larsen, 2008).

It is noteworthy that in this study, over-indebtedness was not a concept on its own. From the many existing definitions of over-indebtedness, for the client perspective the definition introduced by Schicks' (2013a) was most useful, according to which 'a microfinance customer is over-indebted if she/he is continuously struggling to meet repayment deadlines and repeatedly has to make unduly high sacrifices to meet her/his loan obligations'.

As becomes clear from this definition, an over-indebted borrower either does not meet repayment deadlines or meets them at the cost of high sacrifices. In this study, not meeting repayment deadlines would be reflected in a client's repayment performance, while taking unduly high sacrifices would be reflected in the well-being. Consequently, over-indebtedness was not treated as a separate concept but was inherent in the dimensions of repayment performance and well-being.

Figure 3 shows the conceptual framework that was derived from the data.

Figure 3: Conceptual framework for the qualitative study



6.2 Client interviews

In this section, sample and sample selection for the client interviews will be described, followed by the data collection and analysis methods.

6.2.1 Sample and sample size

The qualitative study was mainly based on interviews with 32 clients of EDYFICAR in Lima. All clients were cross-borrowers, i.e. they were clients of other financial institutions as well.

Preliminary interviews were conducted in July 2011 with nine different clients, out of which two were visited a second/third time. Those interviews were not part of the final sample but insights were used to design the final study, as was explained in more detail in the methodology chapter. The 32 clients for the final study were interviewed between February and April 2012.

The **sampling** was done purposefully to ensure that clients were cross-borrowers and that they were heterogeneous along certain characteristics. Concretely, it was ensured that clients were chosen from different regions in Lima and that the sample contained female and male clients of different ages, working in different sectors and with different amounts of debt. In addition, the repayment behaviour of clients was taken into account to include borrowers that repaid in time as well as borrowers with repayment problems.

Since samples in qualitative studies are usually small in comparison to quantitative studies, purposeful sampling is useful to ensure a variety of different participants.

Lima has 49 districts and in a first step, three different districts of Lima were randomly selected, to have a certain degree of regional variance, in which the interviews took place: Los Olivos, San Juan de Lurigancho and San Juan de Miraflores (Figure 4).

Figure 4: Regions of Lima chosen for the interviews of the qualitative study

Source: Google maps

In each of the districts, EDYFICAR has branch offices and for each district there was one ‘gerente de agencia’, i.e. the manager of the offices in one district – from now on referred to as regional managers. Those regional managers were the researcher’s main contact persons for the client interviews.

In a second step, the regional managers were asked to choose potential interviewees from their client base. They were further informed that the selected clients should be cross-borrowers and that they should vary along the characteristics mentioned above.

Cross-borrowers were identified using the latest available SBS report per borrower, which contained the borrowers' formal loans.

The main reason for asking the regional managers to identify possible interviewees was the researcher's safety. Some regions within a district were considered unsuitable by the EDYFICAR management to be visited by a European-looking researcher. Therefore, the researcher and EDYFICAR agreed that the regional managers should identify clients that lived in relatively safe areas. The risk that regional managers would purposefully influence the results by selecting clients with specific experiences was considered small, since 1) the number of clients per agency is too high for the managers to know the stories of each client in detail and 2) the researcher controlled for the heterogeneity along certain characteristics that included the repayment performance. Hence, clients were included that managed cross-borrowing well and others that did not manage it well.

Based on the lists of clients provided by the regional managers, the researcher visited potential interviewees. The process of interviewing will be described in more detail below. Some of the clients from the list could not be found (for instance because of wrong addresses) and others did not want to participate in interviews. In consequence, an iterative process of sampling and interviewing was necessary: At the end of each field day, the researcher reviewed the list of potential interviewees and the characteristics of the clients interviewed so far. Information on the relevant characteristics (Table 7) was taken from the interviews or from the clients' SBS reports that were provided by EDYFICAR. When clients with different characteristics were additionally needed, the researcher turned to the regional managers again for further names.

As explained in the methodology chapter, the sample size was based on theoretical saturation, i.e. it was not determined beforehand but the data collection was stopped when additional interviews did not provide new information. The researcher found this point after interviews with 32 clients had been conducted since by then she found that topics were repeating and that no relevant new insights were gained from further interviews.

The considered characteristics of the clients in the final sample are presented in table 7. The detailed information on the indebtedness of the clients was taken from the SBS reports as of 02/12 or 03/12, dependent on when the interview was conducted. Note that the objective was not to represent characteristics proportionally to their percentage in the population or sampling frame, but it was aimed for variety and theoretical saturation.

Table 7: Characteristics of sampled clients in the qualitative study

Gender	**N° Interviewees**	**Percentage**
Female	20	63%
Male	12	38%
Total	**32**	**100%**
Age as of 01.02.2012	**N° Interviewees**	**Percentage**
<=30	8	25%
31-40	8	25%
41-50	11	34%
>50	5	16%
Total	**32**	**100%**
Region	**N° Interviewees**	**Percentage**
San Juan de Miraflores, Lima	18	56%
Los Olivos, Lima	9	28%
San Juan de Lurigancho, Lima	5	16%
Total	**32**	**100%**
Microbusiness	**N° Interviewees**	**Percentage**
Various	7	22%
Sale of clothes in market	5	16%
Construction	4	13%
Mechanical Repairs	4	13%
Production of clothes	3	9%
Sale of food/drink in market	3	9%
Convenience Store	2	6%
Restaurants	2	6%
Taxi Service	2	6%
Total	**32**	**100%**
Disbursed loan amount of EDYFICAR loan	**N° Interviewees**	**Percentage**
< PEN 5000 (< US$ 1830)	7	22%
PEN 5001-10000 (US$ 1830 - 3660)	8	25%
PEN 10001-15000 (US$ 3660 - 5489)	6	19%
PEN 15001-20000 (US$ 5489 - 7319)	2	6%
> PEN 20000 (> US$ 7319)	9	28%
Total	**32**	**100%**

Table 7 continued

Average days overdue in repayment of active EDYFICAR loan as of 02/12 or 03/12	**N° Interviewees**	**Percentage**
0-3	15	47%
4-10	7	22%
11-20	5	16%
>20	5	16%
Total	**32**	**100%**
Number of formal loans in the financial system as of 12/11 or 01/12	**N° Interviewees**	**Percentage**
1	0	0%
2	14	44%
3	11	34%
4	4	13%
>4	3	9%
Total	**32**	**100%**
Debt in financial system as of 12/11 or 01/12	**N° Interviewees**	**Percentage**
< PEN 5000 (< US$ 1830)	8	25%
PEN 5001-10000 (US$ 1830 - 3660)	5	16%
PEN 10001-15000 (US$ 3660 - 5489)	3	9%
PEN 15001-20000 (US$ 5489 - 7319)	2	6%
PEN 20001-30000 (US$ 7319 - 10979)	3	9%
PEN 30001-40000 (US$ 10979 - 14638)	4	13%
> PEN 40000 (> US$ 14638)	7	22%
Total	**32**	**100%**

From the table it becomes clear that some clients had large loan amounts in EDYFICAR and a high indebtedness in the financial system. This is a consequence of the fact that usually only the more experienced borrowers are able to cross-borrow and those are also the ones that obtain larger loans since they can provide a credit history.

6.2.2 Data collection

The data collection process for the client interviews will be described in different aspects: the use of semi-structured in-depth interviews, the process of interviewing, and the gathering of further information.

6.2.2.1 Semi-structured in-depth interviews

The clients in the final sample were interviewed in semi-structured in-depth interviews. Usually, the interviews lasted between 30 and 60 minutes, but the researcher adapted that time frame to the clients and some interviews took longer than that. Also, most of the clients were visited more than once.

In-depth interviews can be considered as a 'conversation with a purpose' since for the interviewee they may feel like a conversation rather than an actual interview (Hennink et al., 2011). This type of interview leaves the interviewees plenty of room to openly talk about their experiences and it is therefore suitable for in-depth studies.

Furthermore, a consequence of the conversation-like style of the interview is that interviewer and interviewee react to each other's 'perceived appearance, identity and personality' (Hennink et al., 2011). Hence, a relationship between the two persons develops that influences the conversation and that contributes to an atmosphere of trust. In-depth interviews are therefore very suitable to collect data on topics that require confidentiality (Hennink et al., 2011).

Another advantage of in-depth interviews is that they allow taking different contexts into account, including the cultural and socio-economic context as well as the family context or life-style of an individual (Hennink et al., 2011). This was especially helpful since cross-borrowing was found to be only *one* feature in the clients' complex financial reality. Furthermore, the preliminary study revealed that some clients coped with a cross-borrowing situation better than others and it could therefore be assumed that context mattered.

Semi-structured interview means that the interviewer used a guideline with questions to ensure that all relevant topics were covered. However, this list was used in a flexible way, i.e. the order of the questions could be adapted to the flow of the interview. This allowed interviewees to guide the course of the interview and to talk about what they felt comfortable talking about.

During the process of interviewing the check-list had been modified several times to include new topics and to improve the questions in a way that they were easier to understand for the interviewees.

The initial check-list contained introductory questions regarding the interviewees' business and family situation. It then turned to reasons for cross-borrowing, to the repayment of debt, and the impact of cross-borrowing on the clients' well-being. It ended with two general closing questions. Apart from the questions in the list, the researcher asked additional questions where necessary to understand the clients' situations. Those additional questions arose from what the interviewees told.

Since not much research on the topic had been done before and since this in-depth study was exploratory in nature, the questions have not been derived from the literature but rather from what was found during the preliminary interviews. The initial check-list (translated from Spanish) is provided in table 8.

Table 8: Initial check-list for client interviews in the qualitative study

A. Introduction
• What are you working in? • How many members does your family have? • Do you have savings in a bank or microfinance institution?
B. Loan portfolio and reasons for cross-borrowing
• Which microfinance institutions do you borrow from? • What did you take those loans for? • Did you use the loans for the intended purpose? • Do you also have loans from moneylenders? • Why did you decide to take loans from different lenders? • Does it suit you to work with different lenders?
C. Repayment
• Do you think the amount of your debt is suitable for you? • How do you manage the repayment of your debt? • How would you appraise the effort that the repayment costs you on a scale from 0 (no effort) to 10 (maximal effort) • Do you think the effort would be different if you had the same debt from only one lender? • If appropriate: which role do your savings play in the repayment of your loans?
D. Well-being
• Do you feel satisfied with your life on a scale from 0 (not satisfied) to 10 (perfectly satisfied)? • Would you say that your loans had a positive, neutral or negative impact on your satisfaction with life? • What do you think how satisfied would you be with life if you had no debt on a scale from 0 (not satisfied) to 10 (perfectly satisfied)? • Do you think the impact of debt on your life would be different if you had only one lender? • What do you think how satisfied you would be with your life if you had the same debt from only one lender on a scale from 0 (not satisfied) to 10 (perfectly satisfied)?
E. Closing
• What advice would you give to your friends regarding how to deal with debt? • Are there other topics that seem important to you and that we have not yet covered?

As becomes clear, most questions were open-ended and relatively broad. However, initially the researcher included scales to assess the repayment effort and well-being in an attempt to have a minimal degree of standardization.

Already during the first interviews, the researcher found that the list was not ideal since the questions were too detailed and in a sense still too narrow. For instance, later the researcher did not ask the questions on the loan portfolio and reasons for cross-borrowing as listed above but she started with ‘why did you start working with MFIs’. She then let the clients tell their stories and only prompted where necessary to get a good understanding. After that she would ask ‘so, which MFIs do you work with now?’ and so on. Therefore, the questions used in each interview were different since some clients needed more prompting than others. Hence, the check-list changed from containing precise questions to containing topics that needed to be covered.

It was further found that the interviewees had problems understanding the use of scales. In fact, when the questions containing scales were asked as listed above, the interviewees were unable to process them. The researcher then printed a scale on a paper to be able to show it graphically, but that caused little improvement. In the next step, she changed the scale from a zero to five scale and used words instead of numbers for the ranks. So, the last scale that was tried, for example for the repayment effort, would be: no effort, a little effort, more or less effort, much effort and too much effort.

While this kind of scale was easier to understand for the clients, the researcher got the impression that clients would by default chose the answer in the middle. She therefore decided to refrain from using scales and instead asked more openly ‘how much effort does the repayment of your debt cost you’. And again, she would let the clients speak until she felt she understood the effort. While this procedure had the disadvantage that no quantitative analysis could be performed on the qualitative data, the researcher was convinced that by asking more openly she gathered richer and more precise information.

The final check-list that was used by the researcher is presented in table 9. This check-list was used as a reminder on the topics and the precise questions asked depended on which questions were needed to get a comprehensive picture. Those included, but were not limited to, the sub-questions in the table. Furthermore, as becomes clear, more topics had been added.

Table 9: Final check-list for client interviews in the qualitative study

A. Introduction
• Family situation? • Microbusiness?
B. Loan portfolio and reasons for cross-borrowing
• Started to work with MFIs? • Lenders today (formal and informal)? • Loans today (formal and informal)? • Use of loans? • Why different lenders? Why informal lenders? • Would prefer single lender? • If future loans would be needed, who would turn to / how would manage?
C. Savings? • Savings account? Other forms of savings? • Why? • Savings considered important?
D. Insurance? • Health insurance? Other insurance? • Why? • Different in the past? • Situation in which insurance would have been needed? How was dealt with that?
E. Repayment effort? • Current situation? • Problems now or in the past? • Why? • Strategies to ensure punctual payment?
F. Life satisfaction? • Impact of loans? • Would recommend borrowing to others?
G. Mechanisms to deal with crises? • Family support? • How would cope if money was needed short-term, for instance for health treatment?

6.2.2.2 Process of interviewing

During the preliminary study it became clear that the researcher needed to be introduced to the clients through EDYFICAR since the microentrepreneurs would otherwise be mistrustful and reluctant to talk to her. At the same time, the researcher preferred to conduct the interviews in absence of EDYFICAR members to avoid that their presence influenced the clients' answers.

Before the second field stay, it was therefore agreed that EDYFICAR sent an information letter to a number of selected clients in San Juan de Miraflores to announce the researcher's visit. After these letters had been sent, the researcher visited the clients on her own. Unfortunately, this approach proved to be unsuccessful since most clients had not received/read the letter and others were still mistrustful since they had never seen the researcher before.

Therefore, the approach was changed and from there on loan officers accompanied the researcher during one day to introduce her to a number of clients. In this first encounter, she explained who she was as well as the purpose of the study and the interview. She also handed over an information letter (provided in Appendix 3) with more details on the study and her business card in case the microentrepreneurs had questions. She then asked the clients if they were willing to take part in an interview and when she should return to conduct it. She then returned alone at the agreed upon time for the interview.

When asking the interviewees for their consent, the researcher explained that their participation was voluntary and that they could end the interview whenever they wanted. Although this step was important to meet the requirements of ethical research, in practice it was clear anyway that the participation was voluntary since there was no relationship of dependence given.

To create an atmosphere in which the interviewees felt safe, interviews were conducted either at the clients' homes or at their workplaces. This also had the advantage that the researcher could make additional observations of the clients' contexts, which helped her to gain an even better understanding. Furthermore, visiting the clients at their homes or workplaces was convenient for them and thus increased the chance that they would agree to the interview.

To make sure that clients had the time to discuss in-depth, interviews were conducted at a time that suited the interviewees. This was especially important since microentrepreneurs were found to be hard working and dependent on their work, there were more or less busy times during a day. Hence, when people were wanted to take time for a relatively long interview, it was important to adapt to their schedules. For instance, when interviewees were running a restaurant, it did not make sense to conduct an interview during lunchtime.

Clients were usually visited more than once. First, this helped to create a relationship of trust. And second, it allowed taking new topics into account. For instance, at the beginning of the study, the importance of insurance in the context of cross-borrowing was not known to the researcher. It was only after a few interviews that a client mentioned how he had to take a loan to pay a health treatment. Since the researcher had not covered this topic in the first interviews, she needed to return to the first interviewees to cover this additional topic. This was not only important to gain a deeper understanding but also to ensure certain compatibility across interviews (Bernard and Ryan, 2010).

To make sure that all information was captured, interviews were tape-recorded. Clients were always asked for their permission to record.

6.2.2.3 Gathering of further information

For all the interviewed clients, EDYFICAR further provided the clients’ latest SBS reports, Hence, dependent on when the interview was performed, for all clients the report as of 2/12 or 3/12 was given. The reports contained the clients’ situation in the formal financial system, i.e. the number of their loans and creditors, the names of their creditors, and their debt. This information could be used to cross-check the clients’ statements regarding the respective information.

The researcher found that the statements of the clients were reliable. This is likely to result from the fact that clients only participated in the interviews when they were willing to share information.

6.2.3 Data analysis

The data analysis is described along four different sub-topics: the grounded theory approach, the coding system, theory versus thick description and evaluation criteria.

6.2.3.1 Grounded theory approach

The client interviews were analysed using the grounded theory approach, an inductive method developed by Glaser and Strauss in the 1960s (Glaser and Strauss, 1965 and 1967).

Induction means that knowledge is generated from data, i.e. the starting point of the analysis is the data. This is in contrast to deduction, where the starting point is the literature and where data is collected specifically to test hypotheses derived from the literature (Bernard and Ryan, 2010). ‘In its idealised form, inductive research involves the search for patterns from observation and the development of explanations – theories – for those patterns through a series of hypotheses. The hypotheses are tested against new cases, modified, retested against yet more cases, and so on, until something called theoretical saturation happens – new cases stop requiring more testing’ (Bernard and Ryan, 2010).

The grounded theory approach was developed to build theory from data and to provide guidelines for qualitative analyses (Corbin and Strauss, 2008). The contribution of this method was that it offered ‘systematic strategies for qualitative research practice’ (Charmaz, 2006). The method was thought to move the analysis of qualitative data from merely describing it to providing more abstract understandings of the phenomenon studied. Through this, new theories could be elaborated (Charmaz, 2006).

After the development of the method, Glaser and Strauss have taken different directions in the further development of the method. While Glaser puts more emphasis on the inductive nature of the method and the researcher’s creativity, Strauss (later with Juliet Corbin) emphasised the importance of a systematic approach and validation criteria. However, the authors acknowledged that the guidelines and procedures of the grounded theory approach are flexible to a certain degree, so that they can be used for different purposes, such as ‘theory building, rich thick description; or case study analysis’ (Corbin and Strauss, 2008).

In this study, the analysis was done mainly following Charmaz' (2006) guidelines in 'Constructing Grounded Theory – A Practical Guide through Qualitative Analysis'. As the author states, her book provides '*a* way of doing grounded theory that takes into account the theoretical and methodological developments of the past four decades (Charmaz, 2006). This guide was considered useful since it provides a framework of principles and practices, while at the same time giving the researcher flexibility on how to use the framework. The concrete steps of the analysis will be described in detail below.

It is noteworthy, that the place of the literature review is a critical topic in inductive research and as such in the grounded theory approach. Since the starting point of inductive analysis is the data, theoretically the literature review should be done at the end of the study. As a matter of fact, Glaser and Strauss (1967) recommended 'at first, literally to ignore the literature of theory and fact on the area under study'. The reason for this recommendation is that the authors considered it important that categories were developed from the data instead of being pressed into preconceived frameworks or being manipulated by earlier ideas or perceptions of a topic (Charmaz, 2006; Dunne, 2011).

In the following years, Glaser and Strauss eased their opinion on the literature review, whereby especially Strauss started to advocate an earlier literature review, which was one of the reasons for his split with Glaser (Dunne, 2011). In the book 'Basics of Qualitative Research', Corbin and Strauss (2008) acknowledged the fact that researchers usually have a background in their field and know part of the literature. They further described that this knowledge is useful as it can be used, among others, to make comparisons, to enhance sensitivity or to stimulate questions during the research. However, they also emphasised the importance to always ask oneself if categories found in the data did really emerge from the data or if they were imposed on the data by the author based on what the author had read before.

In the opinion of the researcher of this study, at least part of the literature review has to be done at the beginning of the research project. This is especially important in a PhD project, which is required to contribute new findings to the existing knowledge. At the same time, the researcher has to be cautious to stay open-minded and to not force the data into preconceived ideas. As a matter of fact, for this study, part of the literature review had been done at the beginning, to learn what was already known and to find the academic gap. But the review has been updated constantly, to cover new topics that evolved from the data and to be able to incorporate new studies.

In that sense, the grounded theory approach is not pure induction, since literature had been reviewed before and findings from the data were compared to findings from the existing literature. In addition, as will be described in more detail below, in the grounded theory approach an iterative process of data collection and data analysis is undertaken. Hence, new interviews are compared to the hypotheses derived from former interviews, which constitutes a deductive element as well.

6.2.3.2 Coding system

In the grounded theory approach, an iterative process of data collection and data analysis needs to be performed. After each interview the in-depth analysis of the interview should be done, the theory should be developed and the subsequent interview should be used to test and modify the hypothesis. This process should be repeated until new interviews do not require a further modification of the theory, which is when theoretical saturation has been reached and no further interviews need to be performed (Corbin and Strauss, 2008; Charmaz, 2006; Bernard and Ryan, 2010).

As will become clear below, the in-depth analysis of an interview is a very time-consuming task and the time during the field stay did allow performing this in-depth analysis while in Peru. However, important first analyses were performed while in the field, so that the principle of the iterative process of data collection and analysis was followed.

For this, after each interview notes were done on the main topics and the researcher started to develop first ideas on what she had learned in that interview. In addition, at the end of each field day, the interviews of the day were analysed along core categories. Therefore, a table was used that contained the main topics and short summaries of what the interviewees had responded. This was helpful to develop first ideas and to ensure that relevant topics were covered in all interviews. Also, the researcher drafted graphs on evolving concepts and their relation to each other.

In addition, at the end of each field stay, the sample of clients was examined along the characteristics provided in the section on sample and sample selection (e.g. microbusiness, age, indebtedness, repayment performance). This allowed identifying characteristics that were still underrepresented in the sample and new clients could be added to ensure heterogeneity. The in-depth analysis of the interviews was then performed upon the return from the field.

As a starting point of the in-depth analysis, the voice records were transcribed verbatim. Transcription was done in Spanish to make sure that no information got lost through the translation, and parts of the conversation, which did not matter for the research topic, were not transcribed. Transcription was time-consuming and especially challenging for interviews that were conducted in street markets since they contained a lot of background noise. However, during the process of transcribing ideas evolved since the interviews were listened to many times. The transcription provided more than 320 pages of relevant interview content.

In the first step of the in-depth analysis, the transcripts were read several times to identify meaningful units, which were then labelled with codes. Text units with a similar meaning were assigned the same codes; text units with different meanings were assigned a new code. The initial coding was done incident to incident, that is text unit to text unit. For instance, text units could have been labelled with ‘feeling depressed’ or ‘feeling disappointed’. In Vivo codes, i.e. text labels directly taken from the text, were used where suitable. After this first step of analysis, around 2,100 text units were labelled with around 400 different codes. These codes were ordered hierarchically and built a code system.

In the next step, the code system was further elaborated. Redundancies were eliminated and codes with an identical meaning were merged into one. For instance, the researcher might have labelled one unit with ‘feeling depressed’ and another unit with ‘feeling sad’. In the review of the codes, she might have noticed that the meanings of those two text units were virtually identical. She then might have merged those codes into one, for example ‘feeling depressed’ while at the same time specifying in the description of the code that this contained ‘feeling sad’. This step of the elaboration, namely the aggregation of similar codes to one, is what Charmaz (2006) denotes focused coding. After this further elaboration, the code system consisted of around 260 codes that labelled almost 2000 text units. The improved coding system is provided in Appendix 4.

Subsequently, the codes were grouped thematically into categories, which can be understood as higher level concepts. ‘They represent relevant phenomena and enable the analyst to reduce and combine data’ (Corbin and Strauss, 2008, p. 159). For instance, a higher level concept might have been ‘negative emotions’ and might have contained ‘feeling depressed’ and ‘feeling disappointed’. From there on, a further abstraction on the next higher level could be done, which in that case might have been well-being.

To facilitate coding mainly two tools of qualitative data analysis were used: questioning and constant comparisons. Questioning means that the researcher asks herself questions that increase her understanding of the data. Constant comparison means that different pieces of data are constantly compared to each other to find differences and similarities (Corbin and Strauss, 2008). In addition to these tools, memos were written that contained descriptions of concepts, their relation to each other and first hypotheses. Furthermore, the relationship between concepts was assessed using graphs.

To increase the efficiency in the analysis, MAXQDA software was used (MAXQDA, 2012). This programme is useful to organise transcripts, codes, memos etc. However, obviously, the actual task of the analysis has to be done by the researcher.

6.2.3.3 Theory versus thick description

At the end of the analysis, the codes and categories had to be put together to the big picture. As had been mentioned before, grounded theory can be used in different ways and the outcome may sometimes be a thick description and in other cases it may be a theory. While thinking about which outcome to aim for, the researcher asked herself what term *theory* compromised.

As Charmaz (2006) noted, ‘the term theory remains slippery in the grounded theory approach’. To get more clarity, she assessed different definitions of the term and understood the following.

The *positivist* definition understands theory as ‘a statement of relationships between abstract concepts that cover a wide range of empirical observations. Positivists view their theoretical concepts as variables and construct operational definitions of their concepts for hypothesis testing through accurate, replicable empirical measurement’

(Charmaz, 2006). For this study, the positivist definition did not seem suitable since findings were based on a sample of clients living in a specific context, which had a direct impact on the findings. And what was found in interviews with cross-borrowers in Lima does not necessarily have to be true for all cross-borrowers in other contexts. Hence, findings in this study do not claim to be generalisable to every context. Furthermore, for some of the aspects treated in this study, as for instance for well-being, an accurate, replicable measurement would be challenging since the quantification is difficult and likely to ignore part of the concept. In consequence, this research did not aim to construct a theory as defined in the positivist approach. Instead, it was aimed for an in-depth understanding of the phenomenon of cross-borrowing.

Interpretive definitions view theory as ‘abstract and interpretive; the very understanding gained from the theory rests on the theorist’s interpretation of the studied phenomenon’ (Charmaz, 2006). Hence, interpretivists do not consider theory as something objective but rather as how the researcher understands a phenomenon. For some research topics, this definition may be suitable, especially when no objective topics are studied. For instance, when Glaser and Strauss studied thoughts and feelings of dying people in the 1960s, one may well argue that there is nothing objective involved. In contrast, in the topic of this research objective matters played a role. For instance, when a borrower cannot meet repayment deadlines, he objectively faces repayment problems - there is no room for interpretation in that. Instead, when it comes to how this impacts his well-being, subjectivity becomes more prevalent and the researcher’s interpretation plays a more crucial role. Hence, the interpretive definition of theory is not completely suitable for this study either.

Based on those different definitions of the term *theory*, Charmaz (2006) differentiated between *constructivist* and *objectivist* grounded theory, whereby the constructivist grounded theory is part of the interpretative tradition and the objectivist grounded theory derives from positivism. She defined the constructivist approach as an approach that ‘places priority on the phenomena of study and sees both data and analysis as created from shared experiences and relationships with participants’ whereas ‘objective grounded theory resides in the positivist tradition and thus attends to data as real in and of themselves and does not attend to the process of their production’.

As Charmaz (2006) further stated, in practice the differences between the approaches may not be so clear and researchers may take a mixture of a positivist and interpretive approach.

In this study, the researcher tried to assess the information contained in the interviews as objectively as possible (in line with the positivism approach). However, she was aware of the fact that context, her relationship to the study participants and her subjective interpretation of the interviews inevitably influenced the findings (in line with interpretivism). Having that in mind, she tried to make sense of what the interviewees told her on a level that abstracted from the single microentrepreneur. At the same time, abstraction to an absolutely general level, in the sense that findings would be true for all microentrepreneurs, was impossible since context mattered.

What she found was meant to contribute to the in-depth understanding of cross-borrowing. At the same time, she considered it to be of minor importance which definition of theory her findings would belong to or whether her findings were a theory or a thick description. Hence, she made use of the flexibility in the grounded theory approach mentioned above and used the method in the way that was most suitable to achieve the research objectives.

6.2.3.4 Evaluation Criteria

As Corbin and Strauss (2008) said, 'quality in research is something that we recognize when we see it; however, explaining what it is and how to achieve it is much more difficult'. This is especially true in qualitative research, where no objective measures, such as for instance a significance level in quantitative analysis, exist.

To ensure that her research would deliver results of high quality, the researcher aimed to meet the evaluation criteria listed by Corbin and Strauss (2008).

The first criterion is ***fit***, which means that the findings should resonate with the experience of the participants and other experts on the topic. The researcher tried to achieve fit through different ways.

First, in the interviews with clients and staff she practiced active listening and mirrored back what she had understood. She also summarised parts of the interviews, so that interviewees would have the chance for further explanations where needed. For instance, when interviewees explained the benefit of participating in a junta, the researcher might have summarised ‘so you mainly use the junta to obtain interest free loans’ and the interviewee had the chance to agree or disagree to that statement. Note that summarizing here did not mean that information was lost, since the entire interviews were tape-recorded and analysed anyway.

Second, during the field stay, the researcher regularly discussed her ideas and hypotheses with members of EDYFICAR to assess whether her understanding fitted their experience. While the researcher is aware of the fact that staff and management of EDYFICAR do not necessarily represent the clients’ perspective, this procedure still was a helpful cross-check of her understanding.

Third, the researcher presented her findings on two large international conferences. The first conference was the 9th University Meets Microfinance Workshop in Salamanca, Spain, in May 2013, during which more than 70 participants came together to discuss financial inclusion and microfinance in Latin America. The second conference was the 3rd European Research Conference on Microfinance in Kristiansand, Norway, in June 2013, during which more than 200 researchers from around the world met. During those conferences, the researcher presented her findings to microfinance experts, which had the chance to challenge the findings and to provide feedback. This allowed assessing whether her findings fit the experiences of other experts. During these different discussions and cross-checks the researcher found that her findings were considered reasonable by participants and experts.

The second evaluation criterion is ***applicability*** or usefulness of findings. The questions to ask here is whether the study gives new insights and whether those can be used to ‘ develop policy, change practice, and add to the knowledge base of a profession’ (Corbin and Strauss, 2008). The fact that the study brings new insights and contributes to the knowledge base had been mentioned throughout this report, for instance in the section on the significance of the study.

The third criterion is ***concepts***, meaning that findings should be presented around concepts, so that the reader can follow them easily. The researcher is confident that this criterion was met, since she derived a conceptual framework from the data that guides the reader through the findings of the study.

The fourth criterion is ***contextualization of concepts***, meaning that the context in which participants act is important to gain the full understanding of the studied phenomenon. As mentioned above, the researcher is aware of the importance of the context and of the fact that her findings may not be generalisable to very different contexts. The fact that she spent more than three months in the field, visiting clients at their homes and working places, accompanying a loan officer during his work and being in frequent contact with participants of the study, gives her confidence that she understood the context well. Furthermore, research on facts of Peru and its financial market provided additional insight. Since the context is important, corresponding explanations are provided in the findings section. In addition, the case reports and quotes provide insight on participants' specific situations.

The fifth criterion is ***logic*** or if findings make sense. As the reader will soon notice, this criterion should be met as was also acknowledged in feedback on the conferences mentioned before.

The sixth criterion is ***depth*** meaning that descriptive details are provided to add richness to the study. The researcher aimed to meet this criterion by providing concrete examples, case reports and quotes to illustrate her findings.

The seventh criterion is ***variation*** meaning that examples should be included that show that findings are different for different participants. This criterion is challenging since on the other hand patterns should be found and findings should be abstracted from the level of the single observation. The researcher tried to ensured variation through ensuring a heterogeneous sample. She further reported the differences that were found in the interviews, for instance she reported that cross-borrowing can have different impacts on a borrower's well-being and she then explained where these differences may come from.

The eighth criterion is ***creativity***, meaning that the research contributes something new so that the understanding of the topic is brought forth. Again, this criterion was discussed in the section on the significance of the study.

The ninth criterion is ***sensitivity***, meaning that the researcher was driven by the data and that she did not force the data into preconceived ideas. The researcher tried to meet this criterion by staying as open-minded as possible throughout the research. She is confident that she met this criterion since her findings are not necessarily in line with what she might have expected to find, namely that cross-borrowing would have a negative impact on repayment performance and well-being in any case. Note that being open-minded is different from not having any expectations regarding what might be found because when reading about a topic and thinking about it, some ideas form in a head inevitably. So, the challenge is stay open and be willing to modify initial ideas when the data tells something different.

The tenth criterion is ***evidence of memos***, meaning that the researcher can provide evidence of the memos she wrote during the research process. Unfortunately, this criterion is not necessarily met since the writing of memos and the drawing of graphs was often done on paper, which was not necessarily kept when ideas moved further. However, in any case memos are only intermediate steps on the way to building the final hypothesis.

From what has been said here, the researcher is confident that her research led to findings of a high quality.

6.3 Interviews with management and staff

6.3.1 Sample and sample size

Loan officers and managers of EDYFICAR were selected purposefully based on their experience and knowledge on the topic. No sample size was determined beforehand but the researcher indented to speak with as many people as possible until her questions were answered. Concretely, interviews were conducted with the following people.

During both field stays, the topic was discussed with a senior manager at the headquarters, who was the researcher’s main contact person within the institution and who was with EDYFICAR since its foundation in 1997 by CARE Peru, when it began its operations as a NGO. She had since experienced the different stages of EDYFICAR as an EDPYME from 1998 to 2008, and a Financiera from 2008 to present, during which it was acquired by Banco del Crédito at the end of 2009. She was therefore very experienced and could give important insights into how the institution perceived the topic of cross-borrowing.

During both field stays, regular meetings further took place with a risk expert at the headquarters, who was in charge of quantitative reporting for the institution. Apart from participating in interviews, he was also the main contact person for the quantitative study.

During the first field stay, the researcher further interviewed the regional manager of the San Juan de Miraflores branch, who later became the manager of the larger Los Olivos branch. He was also very experienced in EDYFICAR and could provide great insight on the research topic from a more practical, field-based point of view.

In the first field stay, this regional manager introduced the researcher to one of his loan officers, who she could accompany during one of his working days in the field. During that day, she was present in meetings between the loan officers and clients that applied for a loan and she could witness how the loan officer tried to assess the microentrepreneurs' economic situation in these meetings. Concretely, a carpenter and the owner of a microenterprise were visited, which offered tailoring services to fashion stores. Both were visited in their homes, to which were attached their working places, so that the workshops could be visited as well. In addition, the loan officer made one of his 'daily rounds', during which he spoke to several clients informally about how their businesses were going, if they needed new loans and if they knew people that needed new loans. Furthermore, he visited late payers to remind them of their delay and the payment they needed to do. This day in the field with the loan officer was highly interesting for the researcher and she could observe the interaction between the loan officer and his clients first hand. Upon the return to the office, the loan officer further showed the researcher how the loan applications were processed.

Also, during the field stay, the same regional manager introduced the researcher to four other loan officers that she interviewed in a focus group discussion, in which they spoke about their experiences with cross-borrowing.

During the second field stay, in addition, a second senior manager at the headquarters was interviewed, who was the superior to all regional managers. He shared his views on the topic and introduced the researcher to the regional managers contacted for the client interviews.

Furthermore, after the client interviews had been conducted, the researcher presented her preliminary findings to the head of the risk department, to get to know his opinion on the topic and her preliminary findings.

As had been mentioned before, the main contact persons for the client interviews were the three regional managers of San Juan de Miraflores, Los Olivos and San Juan de Lurigancho, which the researcher could also interview several times.

Furthermore, during the second field stay, the researcher met several loan officers in the different regions, which she could interview informally. Also, when these loan officers introduced her to the selected clients, she had the chance to further witness the interaction between loan officers and clients.

Since all clients interviewed were cross-borrowers, client interviews gave insights referring not only to EDYFICAR but also to the clients' other lenders. Nevertheless, the researcher wanted to have further insights from other institutions.

Therefore, during the second field-stay, interviews were additionally conducted with the CEO of Mibanco, the largest MFI in the country, and with an executive manager of Interbank. Those two persons were chosen since they were accessible for the researcher and since they were very experienced. The CEO of Mibanco, former manager of Banco del Crédito, had long experience in the sector and due to his position a great overview of the sector as a whole. The manager of Interbank was a second-tier manager, again with long experience, who among other things was responsible for the credit card business of Interbank. This was highly interesting since the clients had frequently reported that Interbank was especially persistent when pushing clients to use credit cards.

The interviews with this portfolio of loan officers and managers gave important insights and allowed the researcher to triangulate the topic.

6.3.2 Data collection

The initial interviews with management and staff were also done using semi-structured check-lists. However, in the further course of the research, meetings with loan officers or managers became more informal and the researcher did not use check-lists anymore. Instead, she constantly listed questions in a notebook that came up during the interviews and tried to clarify those with members of EDYFICAR whenever she had the chance to. In addition, she used meetings to get to know their opinion regarding the ideas and hypotheses she developed.

6.3.3 Data analysis

The interviews with management and staff were used to triangulate the topic. Larger meetings were tape-recorded but there were also many shorter encounters and rather informal meetings or discussions that were not recorded.

Also, those interviews were not analysed using a systematic approach, but the information from the interviews was aggregated to the findings were appropriate.

6.4 Results

In the following section, the findings will be presented that were derived from the qualitative data.

Findings are presented along the conceptual framework presented above: First, the borrowers increasingly complex financial realities are described, including the different forms of cross-borrowing, the reasons for cross-borrowing and the importance of uncertainties and crises. Subsequently, the impact of cross-borrowing on the repayment performance will be discussed, followed by the impact on the borrowers' subjective well-being. After that, the role of client characteristics and external events is elaborated.

Numbers in brackets refer to the number of responses. Note that the numbers do not necessarily sum up to 32 since for some topics interviewees made more than one statement. To add richness, case reports and quotes are included in the corresponding sections. All quotes have been translated from Spanish into English.

6.4.1 Increasingly complex financial realities

The existence of various loan providers led to different forms of cross-borrowing and the composition of the resulting loan portfolios depended mainly on the reasons for cross-borrowing. Since cross-borrowing leads to enhanced complexity in the borrowers' financial portfolios, it also increases challenges resulting from uncertainties and crises.

6.4.1.1 Different forms of cross-borrowing

Microentrepreneurs in Lima can choose from a wide range of providers of financial services. There are the formal MFIs introduced above (banks, financial entities called financieras, cajas, small-scale and microenterprise developing companies called ED-PYMEs and cooperatives), formal or informal NGOs and informal moneylenders. In addition, microentrepreneurs create their own systems to lend money to each other via Juntas or Banquitos. Furthermore, money is regularly borrowed from friends or family.

The product portfolio offered by the **formal lenders** depends mainly on their legal status. For instance, while banks offer the whole portfolio of financial products, financial companies may offer credit and savings products but no current or checking accounts and EDPYMEs or NGOs may not offer any savings products at all (Dischner and Gabriel, 2009; Microfinance Information Exchange, 2010a).

A special category of loans provided by the formal lenders constitute **credit cards**. These will be treated separately as they lead to debt that is formal but has the features of an informal loan as will be elaborated in more detail below.

Moneylenders operate mainly, but not exclusively, in street markets or market halls. They are common and only two out of the 32 interviewees stated that they had no access to them. The amount they lend can vary as well as the interest rate and the repayment schedule. The interest rate charged is usually between 10-20% monthly and the lenders collect the payments usually either daily or weekly.

Juntas (Spanish word for unions) are essentially Rotating Savings and Credit Associations. For a junta a number of people groups together to regularly pay a fixed amount into a pot. In every meeting this pot is handed out to one person, which in Lima is usually determined by a lottery. To give a concrete example, a junta could look like this: 10 people join for a daily junta, in which every member pays 10 Soles every day. At the beginning of the junta each member receives a number via a lottery. Number one always goes to the person who organises the junta, which is responsible for collecting the money. Every day the pot of 100 Soles is then lent to the person with the corresponding number, i.e. on the second day, the pot goes to the person with number two. Juntas differ considerably in the number of people participating, the paying period and the amount of money to be paid in every meeting. In the interviews, the largest junta was one with 65 people that paid 100 Soles daily.

Banquitos (Spanish word for small bank) are essentially Accumulating Savings and Credit Associations. They are less common than juntas and only two interviewees participated in a banquito while others had only heard of them. A banquito is similar to a junta in that a group of people gets together to lend money to each other. However, the mechanism is different. In a banquito, people regularly pay money in a pot that is administrated by two to three other people. Over a certain period of time, for instance one year, members of the banquito can then borrow money from the pot which they pay back plus an interest. Because of the interests and the regular contributions of the members, the pot is constantly growing. At the end of the agreed upon life period of the banquito, the pot will be distributed among the members. This means, that borrowers got a cheap loan and members that did not borrow receive a small interest on their savings.

Other informal sources for loans are **friends or family**. Especially intra-family loans were found to be very common.

The range of loan suppliers allows many borrowers to combine loans from different sources and the composition of the loan portfolio depends on various factors, mainly related to the following questions:

- which sources can the microentrepreneur access?
- is a short-, medium- or long-term loan needed?
- what purpose is the loan needed for?
- how urgent is the loan needed?

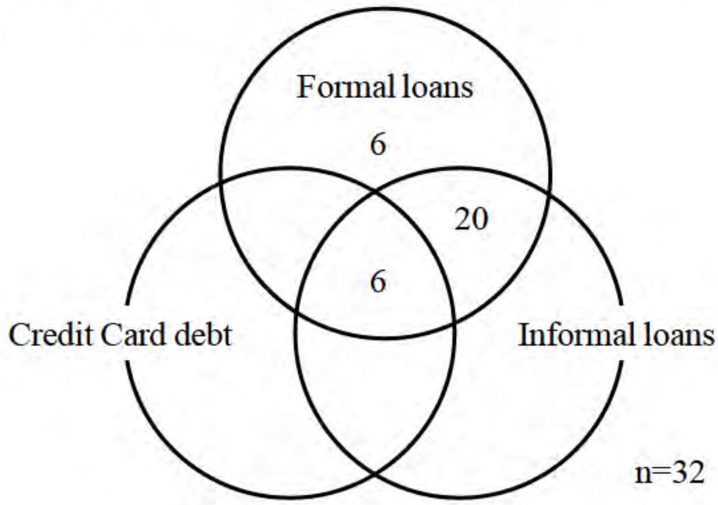
Table 10 shows the number of clients in the sample using the different sources for loans. Note that all clients had several formal loans outstanding, since they were selected by choosing formal cross-borrowers based on the SBS reports.

Table 10: Loan providers used by the interviewees in the qualitative study

Loan provider	# Interviewees
Formal MFI	32
Credit Card	6
Moneylender	11
Junta	20
Banquito	2
Family/Friends	n/a[29]

The resulting combinations represented in the sample are shown in figure 5. While six clients combined loans from different formal lenders only, 20 clients used several formal and informal loans simultaneously and another six clients combined several formal loans, informal loans and credit card loans.

Figure 5: Combinations of loan sources in qualitative sample (n=32)



It is noteworthy, that because of the importance of informal loan sources, cross-borrowers cannot necessarily be identified using formal information systems since those

[29] There is no reliable information available on the number of clients using family loans since those were not systematically covered in all interviews. However, lending and borrowing money among family members is very common and it can be assumed that the vast majority of the interviewees had a family loan at one point in time.

usually cover formal loan sources only. Therefore, the real extent of cross-borrowing can only be assessed by speaking to the microentrepreneurs.

The first finding, that cross-borrowers manage complex loan portfolios is in line with Collins' et al. (2009) description of financial diaries of the poor. However, it must be acknowledged that the complexity of the portfolios has increased due to intense competition in the microfinance sector. Thus, microentrepreneurs manage a complex financial situation despite their often inexperience in managing loans and relatively low level of education. When analysing cross-borrowing it is therefore important to take all components of a borrowers' portfolio into account and not limit the analysis to formal loans since especially for microentrepreneurs informal loans play an important role.

The following case report exemplifies the complexity in the cross-borrowers financial portfolios.

Case report

C. and her husband had a garage for repairing cars that had a store attached to it, in which they sold spare parts. In addition, the couple owned two cars that C. rented out to people working as taxi drivers.

At the time of the interview, the couple had loans from three different formal MFIs outstanding that summed up to approximately US$ 30,000. In addition, C. had two credit cards that she used for consumption, emergencies, other short-time money shortages, and to on-lend to friends.

Furthermore, she organised a junta, in which 30 people participated with 150 Soles daily. In that junta, she participated with two numbers, i.e. she paid 300 Soles daily and received the pot twice. In addition, she played in another junta, in which 10 persons participated with 100 Soles weekly.

Managing that financial portfolio was a challenging full time job for C., who had to overview the different payment dates and to make sure that cash inflows and outflows were aligned.

In addition she had to make sure that she collected the money from the other junta members in time, which meant that she was working every day of the year and that she could hardly ever leave her home since she had to be available when people came in to pay her.

To keep the overview, she divided their income and expenditures into mental accounts: The money earned in the workshop was used for their living and to run the workshop and store. The money she earned from renting out the cars was used to pay one number in the junta. The money from the junta pots was then used to repay her debt in the MFIs.

For organising the juntas, she received her first pot in the daily junta and the pot of the weekly junta on day one. However, the point in time when she received the second pot in the daily junta depended on the number she drew in the lottery. When she received that second pot too late, she had to use the credit card to overcome the money shortage until she received the pot.

6.4.1.2 Reasons for cross-borrowing

Reasons for cross-borrowing vary according to the combination of loans, namely solely a combination of several formal loans or of formal loans with informal ones and/or credit card debt.

Reasons for combining microloans from more than one MFI

From clients in the sample, formal microloans were mainly taken for mid- or long-term investments in business or housing. Formal loans are suitable for these purposes because the formal contracts give certainty for planning, the interest rate is lower than that charged by moneylenders, relatively high loan amounts can be obtained and there is no risk of negatively affecting relationships to family or friends.

When microentrepreneurs combine loans from more than one MFI they can generally be supply-side driven or demand-side driven. Of course, in practice it is usually a combination of both.

Supply-side driven cross-borrowing has two components. First, all cross-borrowing is to a certain degree supply-side driven because competition is a precondition for cross-borrowing. But second, and more importantly, there are clients that follow a cross-borrowing strategy because suppliers push them to.

When asking the interviewees why they decided to cross-borrow, some clients (4) stated that at least on one occasion they took an additional loan from a new lender because it was offered to them. Apart from that, all interviewees with a positive credit history stated that they were regularly offered new loans. The closer clients are to repaying existing loans, the more intensely the courting becomes.

Quote

When asked why she turned to another MFI while already borrowing from EDYFICAR M. stated: *'I did not apply for another loan. They [Scotiabank] sent a letter to my husband saying that they would lend us 20,000 Soles 'a sola firma'*[30]*. So, I went to see how that would work. I took the letter and it was true.'*

Furthermore, credit card offers were very common. All clients in the sample with good credit history were constantly offered credit cards whereby the suppliers would be very persistent. One interviewee was called daily by a bank during one month to convince him to take a credit card. Another interviewee said she no longer had a mobile phone since credit card suppliers did not refrain from constantly contacting her, and others had a credit card sent to their home even though they did not ask for it.

Quote

The following extract exemplifies the supply-side push.

Interviewer: 'Do MFIs call you to offer new loans?'

A.: 'They have called me a lot, Señorita, the banks[31]*. To offer cards, another bank. But I already have my history with credit cards. I used to have seven or eight cards. [...] They had called me by phone. I did not know that the cards would harm me. So I accepted and used the cards.'*

Interviewer: 'Did they [the employees of the respective banks] first call you and then they came to see you?'

A.: 'No, the cards just arrived in envelopes.'

Credit card suppliers follow these practices because they rely on the assumption that a borrower that proved to repay well in the past, will repay well in the future. In addition,

[30] 'A sola firma' is Spanish and means 'against a single signature'. This means that clients are disbursed loans without having to provide any documents apart from the identification documents. This is usually the case when clients have a very good credit history in the financial system.

[31] Note that microentrepreneurs do not usually distinguish between the different types of formal financial institutions; instead they refer to them as 'banks' in general.

interest rates charged on credit cards are so high that losses from potential defaults of some microentrepreneurs are covered by the interests charged to others.

The push to loans from the supply-side is well-known among practitioners and scholars. The extreme form of irresponsible lending has widely been discussed in relation to over-indebtedness crisis in India (Venkata and Veena, 2010; Burki, 2009; Marr and Tubaro, 2011). Staff incentive systems certainly are one important aspect in this context while the quality of staff is the other. Given the growth in the sector, a large number of staff had to be hired in a short time and finding suitable candidates was a challenge for the MFIs (Management interviews; Chen et al., 2010). However, the individual loan officer is crucial for responsible lending. MFIs can define guidelines and implement policies but it is the loan officer who has to comply with them. And even the best control system can never be perfect. Also, no policy can be introduced that covers every detail of every case. Hence, there is always room for interpretation. And last but not least there are exceptions to every rule. Thus, the quality of staff and the values they follow are crucial. EDYFICAR therefore puts a lot of emphasis in the selection and development of its staff as well as in ensuring that every staff member complies with the corporate values of responsible lending.

Although supply-side driven lending has been discussed widely in other contexts, there are important differences in the case of Peru. While cross-borrowing is often linked to limited information sharing between lenders (McIntosh et al., 2005; Chaudhury and Matin, 2002), we find a high degree of information sharing in the Peruvian market. The supervising agency SBS provides detailed, regular information on the financial situation of each borrower and in addition, MFIs can buy further information from private credit bureaus. This is an important advantage because MFIs can specifically target borrowers with a good credit history, which reduces the risk for the lender. This may be the main reasons why Peruvian MFIs do not yet face a repayment crisis despite the high incidence of cross-borrowing. But on the other hand, there is the danger that reliable borrowers are pushed into over-indebtedness. In addition, the risk that increased competition may lead to laxer evaluation standards cannot be denied (Gonzales, 2008).

It is important to note here that the SBS neither limits the number of creditors nor the number of loans or loan amount per borrower. Hence, it is generally the decision of the MFI if a client is given another loan. In the case of EDYFICAR, loans are given until the monthly repayment reaches 80% of a borrower's monthly repayment capacity as will be described more in detail below. And in the normal case, EDYFICAR does not disburse loans to clients that already borrow from more than two other lenders according to the SBS report (interviews with EDYFICAR's management).

In **demand-side driven cross-borrowing** a microentrepreneur actively seeks an additional loan from a new lender. Here it is very important to distinguish between the use of the additional loan and the reason for cross-borrowing, which is not necessarily the same.

In previous studies, the main focus has been on the use of the additional loans. For Bangladesh, Chaudhury and Matin (2002) reported that the poorer cross-borrowers in their sample needed an additional loan because of emergencies while the less poor cross-borrowers followed business opportunities. Krishnaswamy (2007) found that most cross-borrowers used the additional loans for business purposes, while one client used a new loan to repay an existing one (usually referred to as loan recycling). In the Philippines, Diaz et al. (2011) found that the top four uses of additional loans were business investments, education, purchase of assets and emergencies, while only five percent of respondents recycled existing loans. And Khalily and Faruqee (2011) found in Bangladesh that additional loans were mainly used for business investments.

While these studies give information on what additional loans were used for, they do not answer the question why the borrowers turned to different lenders instead of working with one single lender.

This study found that for most (25) clients in the sample the reason for combining formal loans was to **increase the loan amount**, which is in line with what Kamath et al. (2010) found. That means that clients needed additional funds, which they could not obtain from the lender they were already working with.

In some cases, borrowers had initially applied for a larger loan amount that was not fully granted, as the following interview extract exemplifies.

Quote

V. told about her experiences when building her house: *'For instance, when I need a roof, the money has to be sufficient for that. The client approaches the bank and says 'I need 10,000 Soles'. I take out the cost estimate, present my documents and explain that in all those things [listed in the cost estimation] I will pay that much. [...] So, you apply for 10,000 but sometimes they don't accept the 10,000 but they only offer you 6,000. So, that would harm the client since she/he could not achieve the objectives. [...] We had always taken loans from Mibanco. When we applied for 8,000 Soles, they only gave us 5,000. That was not enough. It all stayed unfinished with the scaffold and so. And at the end, we could not progress. So, what did I do? I had to apply for a loan from another bank. So, being client with one bank, I had to apply for a loan from another bank. For me, it is not convenient to work with different banks.'*

In other cases, clients found at a later point in time that they needed more funds, which they could not obtain from an existing lender.

Quote

S. told: *'What happened was that the father of my children had already borrowed a large amount from Mibanco to build the second floor [of their house]. But we needed more money to install electricity and all that. And Mibanco did not want to give us more since they had already given us a lot. And I went to EDYFICAR to apply for more and they gave me.'*

The interesting question is why can borrowers obtain additional funds from a new lender that they cannot obtain from an existing lender? When clients find that they need additional funds, they often turn to their existing lender first, since this is the easiest option. Sometimes clients can then obtain a parallel loan in the same MFI. This is usually the case, when a) the client shows a good credit history and/or b) did not initially take the maximum possible loan amount and/or c) is close to repaying the first loan and/or d) can demonstrate that her assets or business changed to increase her estimated repayment capacity. In other cases, the clients will not be able to obtain a parallel loan and will then turn to another lender.

Turning to another lender is often a successful strategy to obtain further credit since different lenders estimate the repayment capacity differently. And while one MFI, after evaluating the client's repayment capacity may have come to the conclusion that the borrower could not handle more debt, another MFI may have been willing to disburse another loan. Further details on why different MFIs estimate a client's repayment capacity differently will be provided in the section on cross-borrowing and repayment performance.

In addition to the loan amount, **other reasons for formal cross-borrowing** were mentioned. In these cases the borrowers would have received additional funds from their existing lender but preferred to turn to another lender for:

- financial products not obtainable from the existing lender (4);
- lower interest rate (3);
- establishing relations to several lenders (3);
- faster loan provision (2).

The financial products that could not be obtained from the existing lender were credit cards and in one case leasing. The reason for establishing relations to several lenders is that it eases possible future loan applications. Furthermore, MFIs still use the tool of progressive lending and lend small amounts first which they increase over time if the borrower proves reliable. From the two clients that received faster loans from another MFI, one practically used the MFI like a moneylender: every time she did not draw a suitable number in the junta she took a loan from one MFI with which she had already been working for a long time. Since the loan officer knew her well, she could just pass by and received the loan immediately. She then used the loan to buy merchandise and repaid it when she received the money from the junta. Note, that this can still be considered a rational behaviour because playing the junta at least gives her the option of an interest free loan.

Regarding the **use of loans** it was found that borrowers sometimes had difficulties stating what exactly a loan was used for since they do not distinguish between business and personal funds. For instance, a borrower may state that a loan was used to pay tuition fees for a child. However, her income might have covered these fees if it was not for the additional merchandise she needed. So, was the loan actually used for the tuition fees or for the merchandise? This depends on the borrower's priorities and the question to be asked is: without the loan, would the borrower have abstained from buying merchandise or from paying tuition fees? The answer may not always be easy to find. In addition, borrowers may be hesitant in admitting that funds have been used for a purpose different from what was agreed on with the lender. Keeping these limitations in mind, the following uses were mentioned:

- revenue generating assets (22);
- housing (20);
- merchandise (14);
- loan recycling (6);
- consumption (6);
- emergencies (4);
- on-lending to other persons (4);
- accumulating assets as securities for future larger loans (3).

It is important to emphasise, that the number of formal loans taken for emergencies is small because in these cases borrowers rather turn to informal sources.

As becomes clear from the reasons for cross-borrowing and loan uses found in the study, existing concerns (Chen et al., 2010; Burki, 2009) that cross-borrowing is mainly done for loan recycling cannot be confirmed. Instead, the combination of formal loans is mainly done to obtain a larger loan amount for a specific purpose. However, as will be outlined below, this can be critical when it leads to exceedingly high indebtedness levels.

The interviewees were further asked how they **choose the MFI** to borrow from. If the need was not urgent, borrowers compared interest rates (19) or took into account how MFIs react in the case of late payments (5). For the latter, they preferred MFIs that were perceived to be less strict and that charged less additional interest for a delay. Others based their choice on recommendations of friends or family (7) or used the MFI which had actively offered a loan (2) or which they knew from commercials (1).

If the need was urgent, the speed of the service was the most important decision criterion (11). Thereby, a fast service was usually linked to an easy application process where only a few documents were needed. Interviewees spoke in this context about loans 'a sola firma' which means that they only needed to sign the application and no further documents were required. This was usually the case when the person had already been a client of the MFI or when the person had a long credit history and was applying for a small amount.

It is important to note here, that borrowers in many cases perceived their need as urgent. This is a consequence of the fact that some microentrepreneurs lack long term financial planning and hence need fast loans to realise investment opportunities. For instance, they might face a special offer of the merchandise they stock or might find that in their market a stand is being sold. In such cases, they need loans as fast as possible to pursue the opportunity presented to them.

Reasons for combining formal loans with informal loans or credit card debt

From clients in the sample, informal providers were mainly used to **cover short-term money shortage or to deal with crises**.

Informal loans are suitable for these purposes because they are easily and quickly obtainable. However, they are either expensive, in the case of moneylenders, or they provide little certainty for planning as in the case of juntas or family loans. Still, for short-term loans the disadvantages are perceived acceptable by many borrowers. While the combination of formal and informal loans is not new (Collins et al., 2009; Guirkinger, 2008), this study shows that despite a broad range of accessible formal financial services, microentrepreneurs keep working with informal lenders. In addition, the in-depth interviews gave good insights into why borrowers are doing so.

One of the most important sources for informal loans are **moneylenders**. For many people, especially for the ones working on food or other markets, it is customary to work with moneylenders in addition to having a formal microloan. Especially in the markets it is common that moneylenders make their daily rounds and know the marketers. Therefore, loans are often disbursed immediately.

Case report

When conducting interviews on a street market in Los Olivos, the researcher witnessed the operations of the local moneylender.

A woman, supposedly in her late 40s, with a neat look, dressed in white and with a bumbag made her daily round on the market. She seemingly knew most of the vendors, who worked on their usual spots or in their market stores. She approached the microentrepreneurs in a casual, friendly way and collected money from the ones that owed to her.

Coincidentally, she also collected from F., who the researcher was just interviewing. F. showed the researcher a little paper on which the moneylender had listed all the payments F. had to make to repay the informal loan. Each time when the moneylender came to the market, she collected the due payments and signed them off on the paper. She further noted all payments in a little book of hers.

As F. explained to the researcher, he had to borrow from the moneylender because he was overdue with a payment to Mibanco. This payment should have been made at the 15th of the month but since F. had needed money for a medical treatment of his wife, he still was not able to gather the money by the 29th. Since he did not want his credit history to deteriorate, he borrowed 2,000 Soles from the moneylender, which he would pay back in 30 daily instalments of 80 Soles.

Note that this equals a monthly interest rate of almost 37%, because F. did not keep the entire loan amount until the end of the month.

However, the use of moneylenders is not limited to the markets, as the following example shows.

Quote

A. told about her experience with a moneylender: *'When I need money overnight, I call him. I have his number and everything. And since I always pay him in time, he gives me immediately. He says 'how much do you want?' and I say 'that much for that day'. And then I have to pay him back. Within a month, I have to pay it all.'*

In the sample, about one third of the interviewees (11) followed a cross-borrowing strategy combining formal loans and loans from moneylenders. Thereby, loans from moneylenders were used whenever the client faced a short-term money shortage, including for repaying another loan (4), or when he faced a crisis (6).

It was interesting to see that borrowers often were not precisely aware of the interest rate the moneylender was charging. This was because the oral contracts were simple. For instance, in the example above, the moneylender offered to lend 2000 Soles when F. agreed to pay back 2400 Soles within 30 days whereby each day 80 Soles would be collected. F. interpreted this as an interest rate of 20%, which he compared to interest rates from MFIs, thereby ignoring the difference between a monthly and an annual interest rate. Furthermore, he was not aware of the fact that the effective interest rate was higher since money was collected on a daily base, meaning that he did not keep the 2000 Soles for an entire month. Nevertheless, microentrepreneurs in the sample regularly knew that loans from moneylenders were expensive, which is why they normally would only use them for short-term loans. However, in the case of emergencies prompt repayments were not always possible.

As Arnold and Booker (2013) pointed out, it is part of the moneylenders' business to lend money to people who face short-term money shortage and are unable to repay their microloans. In their theoretical model they showed, that borrowing from moneylenders can result from present-biased preferences on the borrowers' side and may be an irrational behaviour. They further argued that this is not necessarily always the case because depending on the additional interest that MFIs charge for delays, using a moneylender for short-term shortage may be a rational behaviour. In the Peruvian context, the borrower's credit history has to be taken into account as well. For borrowers with a good credit history it may be sensible to borrow from a moneylender to avoid that delays in the repayment of formal debt are mirrored in the credit history. This is true because a good credit history eases access to future loans and leads to relatively lower interest rates.

While it was common for some people in the sample to work with moneylenders, others (21) avoided doing so. This was mainly caused by the fact that some clients (16) perceived the loan conditions to be not good enough. Loans from moneylenders are expensive and, in addition, the repayment schedules are not suitable for everybody. For instance, microentrepreneurs that have no daily income might be reluctant to have a repayment schedule that requires daily payments.

Quote

When speaking to the youngest interviewee in the sample, the 19 year old Y., her mother came in. Regarding the moneylenders she added: *'Moneylenders are exploiters. They lend you for 20%. They are barbarians. It's a lot of money. No. And they charge daily.'*

Other clients preferred not to work with moneylenders since they distrusted them (2).

Quote

Regarding moneylenders, W. stated: '*Sometimes they scare me. If I asked them for money, I would have to invite them into my house. No, with moneylenders I haven't worked. They also charge a lot. And other people have had bad experiences with them. No, I don't want to have anything to do with this'*

Another frequent type of cross-borrowing is the combination of formal loans and **juntas** (21). When clients participate in juntas, they usually result to be in a cross-borrowing situation as long as their formal loan runs, since the participation in the junta is usually a long-term commitment. While one circle of the junta ends after every member has received the pot, new circles usually start right afterwards. Combining a formal loan with the participation in a junta can be considered cross-borrowing in every case in which the borrower does not draw the last number because in these cases the junta leads to a loan.

Microentrepreneurs in the sample participated in juntas for different reasons. Some of them (17) hoped for the low numbers that provided them an interest free loan. This loan could then be used for different purposes, such as the purchase of merchandise (3), consumption (9) or the repayment of other loans (10). If the person did not draw a low number in the junta, it was sometimes possible to change numbers with another person either for free or against a small fee.

Quote

R. explained with regard to her participation in the junta:

Interviewer: 'Do you also participate in juntas?'

R.: 'Yes, I do. It is convenient to pay my monthly instalment to the bank. When I draw a high number, I have to refinance it. When I draw a low number – good luck, because it helps me.'

Interviewer: 'And what do you do when you draw a higher number?'

R.: 'I have to refinance it or I change the number with another person.'

Interviewer: 'And do you pay that person something [to change a high number for a lower one]?'

R.: 'Yes, that must be paid.'

Other clients participated in the junta because they considered it a good way to save (11).

Quote

C. explained why juntas helped her to save: *'Because when I have 100 Soles in my pocket, ah, what can I do with 100 Soles? Nothing. I just will be spending them. But in the case of the junta, I have an obligation. So, I participate in the junta. But after two months, I won't just have 100 Soles. I will have 1300, 1400 Soles.'*

Two persons in the sample participated in **banquitos** and did that for the same reasons, namely to have the option for cheap loans and a possibility to save.

Another type of cross-borrowing is the combination of formal loans and **loans from family or friends**. These loans can usually be easily obtained and are interest-free. However, it must not be overlooked that with a family loan comes the moral obligation to lend money back when needed.

Especially for the construction of houses, it seems to be a common practice in Lima that family members help each other financially and non-financially. However, some borrowers (4) prefer to work with an MFI instead of working with family loans to gain more certainty in planning, since family loans have an uncertain maturity and the lenders can ask the money back whenever it suits them. Also, the achievable loan amount is usually limited and family loans bear the risk to negatively impact personal relationships.

Quote

Regarding family loans, R. explained*: 'Sometimes we borrow from our family, but the family doesn't understand you and they want you to pay back immediately, not like in the bank where you can repay bit by bit. And in one moment we decided that was enough. It is easier to plan with the banks.'*

In the case of emergencies, especially when it comes to health emergencies, interviewees (26) often rely on financial and non-financial family support. Also, family members with a close relationship to each other may frequently lend and borrow small amounts to cover short-time financial holes.

Credit cards are treated separately since they are provided by formal lenders but credit card loans have similar characteristics to informal loans, namely they are fast and easily obtainable but expensive.

When speaking about credit card debt, it can be distinguished between debt that results because the client used the card to withdraw money and because the clients used the card to buy goods.

Reasons for withdrawing money are similar to the reasons for using moneylenders and interviewees in the sample (6) used their credit card to cover short-term money shortages. The money is then used for different purposes, including repaying the bank. In comparison with moneylenders, money from the credit card is more often used for consumption.

The reason for buying goods with the credit card is mainly consumption (5). However, there are also credit cards on the market with which business inputs can be bought. For instance, one client in the sample who was a builder had debt from a special card that had been given to him in a store where he bought building materials.

Since clients were aware of the fact that credit cards are expensive again they tried to cancel credit card debt after short periods of time. For instance, like in the case of moneylenders, credit cards could be used to bridge the time until a client received the pot from the junta. However, when borrowers used their credit card to deal with an emergency, fast repayment was not always possible.

Quote

Asked how she dealt with emergencies, C. explained: *'I take money from my credit card. And apart from that, I participate in the junta. And when I have to pay and I don't have money, I go to the cash machine and that's it. Because in the first month, they don't charge you. Only after that they charge you. So, you just take the money and repay it within the first month.'*

From the interviews it became clear, that to some people credit cards are still a status symbol, but at the same time many microentrepreneurs understand that credit cards can threaten their financial stability. Some interviewees (15) had problems with credit cards in the past or knew people who had problems in the past and consequently distrusted credit cards. Also, some interviewees stated that they preferred to stay away from the cards to keep their debt at a manageable amount (17). Hence, in the mind of many microentrepreneurs credit cards are linked to increased debt. Interestingly, only one person in the sample reported not to have access to credit cards.

Quote

Regarding credit cards, V. told: *'No, I don't use a credit card. No, no, no. I am very afraid of cards because they cause huge costs. And the worst is that they [people offering the cards] don't explain you all that. [...] They explain you that you can get cash in all shopping centres, they offer you a miracle. But they don't tell you what is behind all that. It happened to me. With a card of Interbank. [...] I had problems with the card. They charged me a lot of interests. Basically, it is like a moneylender. That is what I would compare it to. 15-20 percent per month.'*

To sum up, it was found that cross-borrowers combine formal loans mainly to obtain a higher loan amount while they combine formal loans with informal ones to cover short-term money shortage or to overcome crises. As a result, borrowers manage loan portfolios that are more complex than they used to be in times when the microfinance sector was less competitive.

6.4.1.3 Cross-borrowing and the challenges from uncertainties

In the previous sections it was described that the competition on Lima's financial market leads to a situation in which microentrepreneurs manage increasingly complex loan portfolios.

This is remarkable for two main reasons: first, microentrepreneurs in many cases have a low level of education and their financial literacy is limited. Second, microentrepreneurs face a high degree of uncertainty, which complicates financial planning.

While low levels of education and uncertainties are known and not limited to cross-borrowers, the following section will show that cross-borrowing intensifies challenges resulting from uncertainties.

The first type of uncertainties faced by microentrepreneurs is **income uncertainty**. To assess this uncertainty, the focus was on the household income. This is sensible because married couples need to sign the loan contract together and are both responsible for repaying the debt. When looking at the household income it can be differentiated between income generated via activities, e.g. selling clothes, and income generated from assets, e.g. when renting out a market stand. Another important distinction is between households with a diversified income and households with an undiversified income.

Diversification of the household income can be done in different ways. First, different members of the household can have different sources of income. In this case when the business of one party goes down, the income of the other party is not necessarily affected. Second, when all household members work in the same microbusiness they could reduce business risks by ensuring that this business is diversified. For instance, they should ensure that they do not depend on a small number of suppliers or clients.

However, in the sample it was found that for some microentrepreneurs (8) no diversification of income was given. In some cases, there was only one non-diversified household income (4) or all members of the household worked in the same microbusiness (4). This is especially critical since many activities of microentrepreneurs bear a structural uncertainty regarding the generated revenues. For instance, revenues on the markets can vary considerably from month to month, so can the income of builders, taxi drivers. etc.

Case report

G. and her husband had two market stores in San Juan de Miraflores. In one store she sold kids' fashion, in the other store he sold men's fashion. In months with low sales (for instance when school started and families had to pay school fees and books for their children, which left them with no money to buy clothes) sales went down in both their stores and so did their income.

In addition to the structural uncertainty caused by the activities, some clients, for instance the ones offering services for the textile production, depend on a few clients. When these clients refuse to pay or pay late, which they regularly do knowing their market power, the microentrepreneur faces an income crisis. When this is the only income of the household or when all members work in the same business the entire household faces an income reduction. Thus, it can be said that some borrowers face a high degree of income uncertainty caused by the fact that the household income is not diversified.

Case report

S. and his wife offered tailoring services to fashion wholesalers. They had taken several loans to purchase the required machines and they set up a small workshop in the house of his parents in law. Apart from S. and his wife, a couple of other members from the extended family worked with them whenever there was enough to do.

About one year before the interview, S. had a crisis from which he had not yet recovered. He had one client who placed weekly orders for jeans. As usual, S. received the cut pieces of fabric and finished the trousers in his workshop.

The client's orders became so large, that S. started to work exclusively for that client. At the beginning, the client paid S. reliably, but once he understood that S. depended on him, he started to make use of that situation.

While S. still produced and delivered on a weekly base, the client started to only pay after two weeks, then after 30 days and then after 60 days. Since this payment schedule was not in line with S.'s repayment obligations in the MFIs, he ran into delays with his own loans.

When S. complained about this situation to the client, they had a conflict and the client stopped the payments after all. All that S. could do was end the business relationship and sell the fabric he had left.

Hence, during that time neither he nor his wife had any income but the debt burden kept accumulating because of interests and fees for late payments.

When evaluating a client's repayment capacity, loan officers take the diversification of income into account. However, it is very difficult to quantify and therefore it is rather considered in a qualitative way.

Another source of uncertainty that impacts all microentrepreneurs is the **uncertainty in the markets** they operate in. Microbusinesses are highly dynamic and microentrepreneurs can never be sure how the competitive situation in their business will evolve. New microbusinesses can be founded easily and impact the revenues of an existing entrepreneur.

For some clients another source of uncertainty is **on-lending to other people**. As was mentioned before, it is common for many people to lend to or borrow from other family members or friends. This bears uncertainty for lenders since they cannot know for sure when they will be paid back and for borrowers since they cannot know for sure when they will be asked to pay back.

Even more intense is the issue when people lend money to friends or family which they borrowed themselves from formal or informal sources. In this role of the mediator they need to repay their own lender, while not knowing for sure if and when their borrower pays them back. This is especially problematic when people lend to others, who do not receive further loans themselves because of a bad credit history. In that case, they depend on people that have already proved to be unreliable when it comes to finances. A similar problem exists when people **guarantee** for others. In this case, the bank will turn to them when the debtor does not pay.

As was found in the interviews, this source of uncertainty is not rare. In the sample, seven persons stated that they had either taken a loan for another person or guaranteed for another person, whereby the person did not repay in time, resulting in problems for the interviewee. In addition, six other persons reported taking a loan for another person or guaranteeing for another person without problems. Thus, 13 interviewees were at least once in a situation in which they borrowed money from an institution to on-lend it.

Quote

When asked if she had on-lent money to other persons, M. told: *'Yes, señorita. But she failed me. From now on, I won't do that anymore. I am cured of that. I borrowed money for my sister-in-law but she left and did not come back. And now, for instance, I have the problem with my cousin [for whom she acted as a guarantor in a MFI]. And I don't know how he will pay me back. I asked, and I asked. From now on no more. It makes things more complicated for me. It is the second time that I guaranteed for him. He still has five payments to make. I hope he will pay that. Otherwise, they [the MFI] will come and look for me.'*

The high degree of uncertainty faced by microentrepreneurs complicates long-term financial planning. It might be argued that long-term planning is not necessarily part of the Peruvian culture but nowadays microentrepreneurs regularly face long-term debt obligations. Thus, time horizons are not in balance because on the one hand planning of income and expenditures is often done for a short- or medium-term perspective but on the other hand loan obligations are often longer term.

Furthermore, uncertainties make it even more complicated for borrowers to estimate their own repayment capacity. Numbers regarding income and revenues which they use to estimate their own repayment capacity in order to decide on a manageable loan amount and manageable maturity may not hold true for subsequent months. Since borrowers regularly stress the importance of knowing their own repayment capacity (13), uncertainty poses an important challenge for them.

Case report

D. had a workshop where he repaired cars. When he was interviewed he had just signed a loan contract for two years.

When he had decided on the maturity for the loan, which determines the monthly rate, he had based his decision on the relatively high income he had generated in the former months.

However, shortly after signing the contract school began and people had additional expenditures for school uniforms and books. Thus, they lacked money to have their cars repaired and the interviewee’s revenues went down.

In the interview he expressed strong concerns that he would not be able to make the first payment and that he should rather have opted for a longer maturity with lower monthly payments.

The uncertainties of the poor are known and microsavings and insurances were invented to provide tools to deal with these uncertainties (Armendáriz de Aghion and Morduch, 2010; Collins et al., 2009). However, the development and spread of these tools did not keep pace with the spread of microloans. Thus, what we find today in many places is a situation in which microentrepreneurs access different microlenders and are highly indebted while at the same time not yet using other formal financial tools to deal with uncertainties.

This is problematic for two reasons. First, the debt of a microentrepreneur increases the magnitudes of income movements. For instance, before taking a loan, a microentrepreneur may have sold food on the street generating costs of US$ two a day and income of between US$ three and five a day, leaving him with a surplus of between US$ one and three a day. After taking a loan, he opens a small restaurant and faces costs (including loan costs) of US$ ten a day while generating revenues between US$ eight and twenty a day, leaving him with a surplus of between US$ minus two and plus ten a day. So, while before the loan he had to deal with differences in income between US$ one and three a day, he now needs to manage income differences of between US$ minus two and plus ten a day. Hence, currently the access to formal loans for many people increases uncertainties and the complexity in managing financial flows (in addition to the increased complexity in the financial portfolios). For cross-borrowers this is even more the case, since they additionally face different repayment schedules and conditions.

Second, since formal loans usually imply mid- to long-term contracts, microentrepreneurs are limited in their flexibility, which makes it more difficult for them to react to unexpected income movements. For instance, without a loan a microentrepreneur may bridge times of low income through reducing expenditures, like for instance through buying less expensive food. When in debt this becomes more difficult and the sacrifices to make are higher since the loan payments need to be fulfilled even in times with no or low income (Schicks, 2013b).

For cross-borrowers this turns out to be even more severe, since they need to deal with several lenders, which makes finding a solution, like deferring a repayment, more difficult. Hence, for cross-borrowers in Lima, that often do not use formal savings and insurance products, uncertainties are even greater than for other microentrepreneurs and they are less flexible to deal with them.

6.4.1.4 Cross-borrowing and vulnerability to crises

In addition to the challenges resulting from uncertainties, microentrepreneurs regularly have no protection against crises and no mechanisms to reduce their impact.

While uncertainties are long-term phenomena, crises are one-time events that have a negative impact on income and/or increase the expenditures. In the interviews, crises were found to mainly result from health issues but also from crime or playing in a junta.

Health issues are especially critical since they often leave the microentrepreneurs with costs for treatments and an inability to work.

Case report

G. was hit by a car when burglars were escaping from a crime scene. Because of his injuries he was unable to work during months and had to bear thousands of Soles for the treatment. His wife did not work since she had health issues herself and the rest of the family was not able to provide financial support. Thus, during the months of illness G. could not repay his formal loans. He then started to borrow from moneylenders and neighbours to satisfy the bank, but after a while he found himself owing to many different parties. In the interviews, he expressed strong concerns and worries regarding how he will ever manage to repay his debt.

Apart from health issues, **crime** is a constant threat. Security in Lima and especially in areas in which microentrepreneurs operate is an issue and several interviewees have been harmed by crime in the past. Harm by crime can lead to serious adverse shocks that cause a lasting financial misbalance. But also, in less severe cases, crime can negatively impact the income of shorter periods, for instance when merchandise is stolen.

Case report

J. used to have a bakery together with her husband for 14 years. In the years before the interview, revenues in the bakery had gone down since competitors opened businesses in the same street. J. therefore had to close the bakery and she started a new business.

In the house that she and her brother had inherited and which both the families of J. and her brother lived in, she opened a little corner store and a small kitchen. In the kitchen she prepared lunch that she delivered to workers in the area and she further had a few tables in front of the house where people could eat. In her corner store she mainly sold beverages but also other things like sweets or basic provisions. To stock her store she had to take a loan.

One day she decided that she wanted to start beer wholesale and she received an order to deliver a large amount of beer to the graduation celebrations of a college. To buy that beer, again she took a loan from a MFI. On the way to the college, she was hijacked and all the beer was stolen from her. Hence, she was left with no merchandise to sell but with more debt to repay.

Other interviewees spoke of cases where production machines or other input factors were stolen. And, of course, the example of G. presented above can also be considered as a consequence of crime, especially since the burglars hit and ran.

Another risk for crises results from the **participation in juntas**. Here, the typical risk of rotating savings and credit associations is that people take the money and run, i.e. that they receive the pot in an early stage refuse to keep paying later, which means a loss of money for the remaining people in the junta. In Peru, this event usually causes immense harm to the person organising the junta, since she takes the full responsibility and has to pay the missing amount.

For some people this risk is the reason to stay away from juntas. However, the risk is limited since people playing in one junta normally know each other well, since they live in the same neighbourhood or work on the same market. This also means that taking the money and running is difficult since it usually means that people have to move. Nevertheless, it happens.

Case report

V. participated in a junta organised by one of her neighbours. When that neighbour left, the other participants asked her to take over the organisation and she agreed.

One time when she organised the junta, a member of the junta left after she had received the pot. The lady did not pay anymore and her daily payments were missing. She had left some groceries for V. to sell but they were worth much less that what she owed.

Since V. was the organiser of the junta, the other members held her responsible for the loss, which is the normal case. Hence, V. had to assume the debt of the leaver, which caused her to repay late in EDYFICAR. As V. explained, she did not feel that she had any other choice than assuming the lady's debt because she did not want to harm the relationships to the other members of the junta.

Interviewees were asked about their **mechanisms to deal with crises**. One possible tool is **saving**, but it was found that for all interviewees in the sample saving was difficult because after regular expenditures there was little or no money left. Only one interviewee had no problems to save and this was because her husband was a military officer with a stable income which meant that all the money she earned with her restaurant could be used to repay the existing debt and to save.

In consequence, many interviewees (15) had no savings at all because either they had no money to save (12) and/or if they had, they preferred to invest it in their businesses (5). The latter ones explained that investing is more useful because savings do not generate returns. Although this is often true, it must be taken into account that savings can prevent a person from requiring expensive loans in the case of an emergency.

Quote

Y. explained: '*No, we, like many others that I know, are not used to save. Because sometimes the money is to eat, for all the expenses, all the payments. Hence, we do not have enough to save an amount. Very few people have a savings account. Not all of us are lucky enough to be able to save. Because as the money comes in, it goes fast.'*

From the ones that saved (17), most kept the money in their homes (10) and stated that they saved rather small amounts. Also, some interviewees (4) saved in goods, for instance through breeding pigs or storing wood as building material. While the advantage of this option is that it can generate returns, the disadvantages are that it might take time to liquidate the goods and that it is an unsecure way of saving.

Case report

D. worked in construction and in addition his family bred pigs. The pigs were considered as an additional source of income but also as the family's savings. They bought pigs when they were one month old, bred them for three months and sold them afterwards. They kept the pigs on a 'granja', which is the Spanish word for farm. However, in fact it was a small, fenced lot, where the pigs were hold. Next to the family`s lot other people were holding pigs as well. One day, a neighbour's pigs fell ill and died and an epidemic started spreading. In consequence, half of D.'s pigs died, which meant that the family lost half their savings at a stroke.

As had been mentioned above, another way of saving is the participation in juntas or banquitos (22), whereby in the case of the junta it depends on the number a person draws in the lottery whether it is to be considered a loan or saving.

Interestingly, only one interviewee stated that she saved in a bank account. For the others, reasons mentioned for not using a bank account included that an account was considered useless (5), that the amounts saved were too small to justify an account (5), that interviewees distrusted banks (4), that a former account had been cancelled due to dissatisfaction (3) and that interviewees were planning to open an account but had not yet done so (2).

Quote

When asked whether a savings account would be useful, R. stated: *'Yes, yes it would be convenient for us. But only if we saved a large amount. For a small amount not. We administrate that on our ownes. Because sometimes, in an emergency, you need it. And in the bank you have to queue for the counter.'*

When microentrepreneurs considered saving accounts as useless that resulted usually from the fact that no interests were paid on savings but administration fees were charged. Bad experiences in the past were in one case that the MFI took money from the account to repay the saver's loan in the same institution without informing the saver. In another case the saver left an amount of money on the account for a long period of time assuming the amount would increase. However, later she found that the money had decreased due to the administration costs. And in the third case it was promised to the client that she could use the account to have her telephone bill paid automatically, which in the end did not prove to be true.

Hence, regarding savings it can be said that people in the sample often understood that savings were useful but they were struggling to put money aside. And even when they saved, amounts were usually rather small and in a crisis the savings were often used up before the crisis was over. In addition, especially in regard to savings it became clear that microentrepreneurs still regularly prefer their informal mechanisms, e.g. the juntas, over existing formal products.

Regarding **insurance** it was found that most people in the sample lacked insurance since it was considered expensive and was not necessarily a priority for microentrepreneurs. The latter can be understood when considering that these people often come from very poor settings and are now striving to improve their quality of life and to climb the social ladder. Thus, their focus is mainly on investing their money in business or housing and not so much in insurance.

Quote

Regarding health insurance, S. explained: *'Yes, we [he and his wife] spoke about that. But – how can I say – you have to make a monthly payment. But I want to repay my loans first and then I will be a new person and then we can think about insurance.'*

Especially the fact that many interviewees (22) lacked health insurance can cause severe problems. Because, as was mentioned above, lacking health insurance means that in the event of a health issue, microentrepreneurs regularly not only face a loss of income for being unable to work, but in addition they have to face high costs for treatments.

From the ten people in the sample with health insurance, six had private insurance and four stated to be covered by the Seguro Integral de Salud (SIS), a public insurance provided by the government for low-income people. This is surprising since the SIS does not normally cover borrowers since they are considered too wealthy but there might be exceptions. In any case, even when covered by the SIS, this insurance has limited benefits and might not totally protect against health expenditures.

Since many microentrepreneurs lack savings and insurance, they (22) have no solution strategy for emergencies. When asked how they would deal with a crisis, many respondents had no answer.

Quote

Asked about mechanisms to deal with crises, the following was said:

G.: 'We don't fall ill.'

V.: 'In this case I would have to ask family for help. That would be the only option. To be honest, I have not yet thought about this much.'

M.: 'Ah, that is the problem. You always run a risk. Hopefully, God won't allow that I fall ill.'

K.: 'Ah, that is the problem. I have not yet tried [to manage a crisis]. It has not happened to me yet.'

Therefore, microentrepreneurs often **rely on family or friends** to support them in crises. While social networks in Peru are strong, this solution strategy is not perfectly reliable since funds of families or friends are limited or may not be available at all. For these cases, Peruvians are inventive. For instance, when one person in the neighbourhood faces severe health issues, it is common to organise 'actividades'. This means that friends or family organise a get together for all neighbours where food and drink is sold to raise money for the person suffering a crisis. They spread the word in advance and make sure that neighbours are aware of the situation and it seems that in these actividades, neighbours are often willing to support each other. However, if a really severe crisis hits a person, all the possible support of family and friends or neighbours may not be enough to solve the situation.

Microentrepreneurs with no family support have to **use formal or informal loans** to deal with crises. As the example of G. above showed, this is highly critical since it may be the beginning of a vicious circle ending in over-indebtedness and default. Obviously, MFIs do not normally disburse loans for emergencies, which is why informal loans and especially moneylenders are more often used to deal with crises than formal loans. However, in the face of a crisis microentrepreneurs may be inventive and even dishonest to obtain the funds they need.

Case report

T. was retired and relatively well-off. He owned a house and had paid off all his debt. One day, one of his daughters got cancer. She had no health insurance and in consequence all treatments and medicaments had to be paid by her. At the time of the interview, she had suffered from the illness for five years and all funds that could be mobilised by the entire family had been used by then.

In his despair, all T. could do was to apply for a formal loan. Knowing, that no MFI would grant a loan for a cancer treatment, he had to invent a story. So, he turned to EDYFICAR and claimed that he would need a loan to expand his house by building a second floor which he would rent out.

Since his credit history was good and since he possessed the house to backup the loan, EDYFICAR accepted his application and disbursed the loan.

Of course, he ran into repayment problems and at the time of the interview, EDYFICAR had already approached him several times to remind him of the payments overdue. According to T., the loan officer thereby behaved very rude and called him a liar.

Because of this rude behaviour, T.'s other daughter contacted a lawyer who ensured that loan officers had to follow certain rules. At the time of the interview this lawyer had just contacted the loan officer to ask her to refrain from rude collection practices.

However, T. did not know how he should repay his loan.

Like in the case of income uncertainty, the vulnerability of microentrepreneurs to crises is known (Armendáriz de Aghion and Morduch, 2010; Collins et al., 2009). But again, it is important to emphasise that cross-borrowing may aggravate the problem.

While microentrepreneurs without debt in the case of an emergency need to deal with their cost of living including cost for health treatments, borrowers have to additionally make sure they repay the bank. And while borrowers working with one single institution may be able to find a solution with their lender, cross-borrowers have to satisfy several parties.

In addition, access to loans from different lenders may ease a crisis momentarily but in the long run it may lead to over-indebtedness and even more severe problems.

Hence, while microfinance it supposed to provide solutions for microentrepreneurs, competition and cross-borrowing may lead to additional challenges especially in times of crises.

6.4.2 Cross-borrowing can impact the repayment performance

The few existing studies on cross-borrowing come to different conclusions regarding the impact of cross-borrowing on the clients' repayment performance. While some researchers found that cross-borrowing leads to a deterioration of the repayment performance (McIntosh et al., 2005; Chaudhury and Matin, 2002; Maurer and Pytkowska, 2011; Pytkowska and Spannuth, 2012b), others found no negative impact on the repayment performance (Schicks, 2013b; Gonzales, 2008; Faruqee and Khalily, 2011) or even a positive impact (Krishnaswamy, 2007). Vogelgesang (2003) found a change of the impact over time from positive to negative, interpreting that in a good economic situation cross-borrowing can be beneficial whereas in a difficult economic climate it leads to repayment problems.

Given these different findings, this study aimed to understand when and how cross-borrowing impacts on repayment, and interviewees in the sample were directly asked about their current repayment performance. Also, EDYFICAR provided official information on whether clients were paying late or in time. With this, the authors could verify the clients' answers and prompt when necessary.

6.4.2.1 Pathways for a negative impact

Generally, there should be three main impact pathways how cross-borrowing could negatively impact on a client's repayment performance.

Dynamic incentives

First, since a cross-borrower has access to different lenders, his dependence on a single lender is reduced which may weaken the tool of dynamic incentives and the borrower's motivation to repay the existing lender (Armendáriz de Aghion and Morduch, 2010).

As had already been mentioned, the core element of dynamic incentives is a long-term relationship between lender and borrower, in which repeated transactions occur. In this relationship, the lender can influence the borrower's behaviour in two ways: first, he can threaten to exclude the borrower from future loans if payments are not made in time and, second, he can promise future larger loans in case of punctual loan repayment. The increase of the loan size over time is usually referred to as progressive lending. Both ways help to overcome moral hazard as they incentivise the borrower to repay the loan (Morduch, 1999; Armendáriz de Aghion and Morduch, 2010).

In competitive markets, the effectiveness of dynamic incentives may be weakened since borrowers know that they can turn to different lenders when defaulting with an existing lender. If a client cross-borrows, this should be even more the case, since relationships to different lenders are already established.

In the interviews it was found that all borrowers were motivated to repay their loans despite the fact that they were cross-borrowers. Since the degree of information sharing in the Peruvian market is very high, a defaulter with one formal lender will be known to the remaining lenders. Hence, if a borrower considers taking future loans, he needs to sustain a good credit history in the entire financial system. Since borrowers are aware of that, and in the Peruvian context, cross-borrowing does not necessarily weaken dynamic incentives.

Note here that this finding may have been influenced by a possible self selection bias in the sample: Borrowers that were unwilling to repay their loans and that did not mind harming the relationship to their lender may not have been reachable or willing to participate in an interview. Thus, it is possible that those borrowers were under-represented in the sample.

Quote

W. explained the importance of maintaining a good credit history: *'No, no, I have never paid late. [He paid] Always at the right day. Delays – no! To start working with banks, one has to think a lot. It is not a game that you can play. You would ruin your image. And when you need a loan later on, they don't give you a loan anymore. From that perspective, you have to think a lot. You can't play with the banks. You always have to respect the bank.'*

Organisational issues

Second, managing relationships to different borrowers might be difficult and cause late payments because of organisational issues. For instance, cross-borrowers need to manage different repayment dates and locations and have to keep the overview of their different outstanding loan amounts.

In the interviews, it was found that organisational matters did not seem to harm the repayment performance. On the one hand, only two interviewees considered cross-borrowing to be convenient, while many interviewees (18) would have preferred to work with only one lender. Reasons for preferring only one lender include that borrowers associate cross-borrowing with more debt (11), that they would prefer to have only one payment date per month (9) or that they would prefer to have a relationship with only one lender (2).

But, on the other hand, none of the interviewees stated that organisational matters caused them to repay late. Also, there were no other hints that led to the conclusion that borrowers struggled with the organisational management of cross-borrowing. However, in the special event of crises or income shocks, the situation is different. In these cases, it is easier for borrowers to find a solution with only one lender than when owing to several parties. Thus, unless in the case of crises it may be inconvenient for borrowers to deal with several lenders but organisational matters do not harm their repayment performance.

Quote

M. explained why working with one single lender would be more convenient: *‘Because then, you would not have to remember so many different dates. This day I have to pay that bank, and this day the other. Instead, you would only have one date. That would leave you to work calmly for the rest of the month. You would gather the money and pay. But now you have to think: this week I have to pay this bank and next week the other. And you think about that all the time. In contrast, if you were working with one single bank, at the tenth of a month you just would think ‘Uh, I still have time, so I just keep working.’*

Increased debt

Third, cross-borrowing might increase debt and therefore negatively impact the borrower’s repayment performance.

Regarding the third possible way of impact, cross-borrowing has a high risk of impacting the repayment performance via the loan amount. As was outlined before, borrowers mainly combined formal loans to **increase the loan amount** when they were unable to receive the desired amount from only one lender. Why is this important?

When clients turn to an MFI, this MFI will perform an evaluation of the client to estimate the repayment capacity. Based on this evaluation the decision-makers determine the loan amount that will be offered to the client. In the evaluation, expenditures and income are taken into account, as well as existing assets to back-up the loan. Furthermore, risk factors are considered, e.g. income diversification or possible family support.

In EDYFICAR, the assessment of the repayment capacity is done by the loan officer who uses a guideline to estimate expenditures and income, whereby personal expenditures and business expenditures are separated. This is done in a very detailed way and different items are considered. For instance, personal expenditures such as for food, hygiene, education, medicaments etc. are estimated with the client. From interviews with key informants, the researcher found that the evaluation practice is similar in most MFIs in that they use a guideline to estimate a client’s expenditures and income.

Hence, when a borrower follows a cross-borrowing strategy with formal loans from different lenders in order to receive a higher loan amount, three cases are possible.

First, the first lender offered less than the estimated repayment capacity suggested to use the tool of progressive lending. Second, in the time span from taking the first loan to taking a second loan, the income situation of the borrower improved. Or third, the second lender comes to the conclusion that the client can take a higher loan amount than estimated by the first lender. From the interviews and the experience in the field the following can be said in relation to these scenarios.

First, progressive lending is a tool that is still widely used by MFIs in Lima. However, it is mainly used for clients with no or little credit history and not usually for cross-borrowers. Also, given the market competition, MFIs regularly try to give the borrower the maximum amount that they can account for in order to avoid that the client becomes a cross-borrower.

Quote

K. told about progressive lending: *'I started to work with EDYFICAR. They gave me 3000 Soles, ah no, 1500. To start with. To get to know me. And from there I grew further. Now, I already have capital. And I take loans of 20,000, 30,000 Soles'*

Second, it is generally possible that the income situation of a client improves over time. However, in this case, the client would normally be able to receive a parallel loan from the existing lender and would not need to follow a cross-borrowing strategy.

Thus, it is likely that in many cases, the reason for granting a loan to an already indebted person is a **different estimation of the repayment capacity**. So the question arises why different MFIs come to different estimations of the repayment capacity of a client.

There were different reasons found in the field work. First, loan officers are paid a fixed salary plus a variable component based on the loan amount granted to clients of this officer. Therefore, a loan officer has an incentive in granting loans. Also, because of high market competition, MFIs fight over the existing microentrepreneurs and especially for the ones with a good credit history. Therefore, assuming that who repaid well in the past will repay well in the future, they outbid each other with the loan amounts they are offering in order to make sure the borrower will sign the contract with them and not with another lender. The intensity of the overbidding depends on the management of the MFI and on its growth strategy. But also, it depends very much on the single loan officer and his attitude towards risk.

Second, cross-borrowers are usually experienced borrowers since new ones cannot obtain large amounts from different lenders. These borrowers have gained experience on how the evaluations are done and how to influence them. Some interviewees reported that it is possible for them to manipulate the loan officers' calculations. This is possible since microentrepreneurs are usually informal and do not necessarily possess detailed documentation to prove their reported income and expenditures. Although the loan officers do ask for receipts or other proof, microentrepreneurs in most cases have room for manipulation.

Quote

S. explained the evaluation of a client's repayment capacity: *'I noticed that the evaluation is not always so reliable. Or, let's say, one can manipulate the evaluation, because not only in my case but also for some of my friends, everything is based on the spoken word, or, let's say, the evaluation is not done in a very detailed way. I can exaggerate the numbers. I can over-estimate the revenues. So, I tell them [the loan officers] that I make much more money than I actually do. So, I can manipulate.'*

When it comes to the **combination of formal microloans with informal ones** or credit card debt it was found that these combinations were mostly caused by a borrower's short-term money shortage or an emergency. Hence, it is obvious that the combinations lead to an increased debt.

To sum up, cross-borrowing may lead to increased debt and cause microborrowers to reach an indebtedness level higher than their first lender considered reasonable given their income and expenditure. Thus, cross-borrowing has a high risk to impact on a borrower's repayment performance via indebtedness levels.

However, there are also ways how cross-borrowing can impact the repayment performance positively.

6.4.2.2 Pathways for a positive impact

In the interviews, two pathways were found how cross-borrowing can impact positively on a client's repayment performance.

First, cross-borrowing can enable a client to **adapt the repayment schedule** of the overall financial liabilities to cash inflows and outflows. This becomes clear, when remembering the case report of C. that was provided in the section on the complex portfolios. C. had a portfolio existing of three formal loans and two credit cards. In addition, she participated with two numbers in a daily junta and with one number in a weekly junta, both of which she organised. To repay her formal loans, C. relied on receiving the money from the junta in time. When this was not the case, she had to use her credit card to overcome the time gap. She then took money from the cash machine to make her payments to the formal lenders and repaid the resulting credit card debt as soon as she received the pot in the junta. In the interviews, other similar examples were found where clients shifted money back and forth to make sure they met as many payment deadlines as possible.

Case report

E. sold clothes in a market and had three formal loans from different lenders outstanding when the interview was conducted. In addition, she regularly participated in a Junta of 65 persons, in which each person paid 100 Soles daily, making a pot of 6500 Soles.

She participated in the Junta since she hoped to draw low numbers and to receive the pot at an early stage, which would mean that she obtained an interest free loan.

When E. drew a high number in the Junta, i.e. when she received the pot at a late point in time, she had to turn to a formal lender. She then approached Scotiabank, in which she was an already well-known client and where she received loans in an instance and 'a sola firma'. She then used the loan to make her payments in the junta and repaid it as soon as she received the junta pot.

Hence, in this example, the loan of the MFI enabled E. to meet her obligation with the Junta.

In this sense, cross-borrowing can increase a borrower's flexibility with regard to repayment schedules and may thus improve the repayment performance.

While this borrowing behaviour is loan recycling in the sense that one loan is taken to fulfil repayment obligations of another loan, there is one important difference. In the examples, the borrowers knew that they would receive money from the junta to repay their new loans. Hence, what the borrowers did was rather cash flow management than loan recycling.

Nevertheless, of course, this impact pathway is double-edged and can certainly lead to a vicious circle and over-indebtedness in other cases.

Second, when borrowers used their loans for **productive purposes**, so that additional income was generated, the increased loan amount obtained via cross-borrowing could enhance the repayment performance of a client. Note that an improvement of the repayment performance results when the income increases over-proportionately to the debt payments (loan amount plus interests and fees) plus other expenditures.

Obviously, the generated revenues depend on the client's ability to successfully invest money as well as on external events, as will be described in more detail below.

Case report

J.-C. worked as a taxi driver and took his first loan to buy his own car. In addition, he had started to enhance the house of his father, in which he lived. Therefore, he took further loans to build a second and a third floor, so that he could rent out rooms. The revenues from renting out the rooms could be used to make the payments for all outstanding debt.

6.4.2.3 Conclusion

As has become clear, there are different pathways and cross-borrowing can impact a client's repayment performance in different ways. Hence, cross-borrowing is **neither a necessary nor a sufficient condition for repayment problems**. However, especially in combination with income uncertainties and vulnerability to crises, cross-borrowing can be critical.

This becomes clear when considering that EDYFICAR disburses loans until the monthly repayment reaches 80% of the client's estimated monthly repayment capacity. For instance, given all income and expenditures of a microentrepreneur[32], he may have a surplus of 200 Soles per month. In this case, he could receive a loan that requires a monthly repayment of 160 Soles. Hence, even without further loans this leads to a high indebtedness level and it is easy to see that small movements in income or expenditures may damage the client's financial stability. For instance, health expenditures are usually considered in the evaluation, based on the borrower's and the loan officer's experience. However, if in the example the borrower faces unexpected health issues in one of the following months, the little money that is left over every month, namely 40 Soles, might not cover these additional expenditures.

[32] The estimations of income and expenditure are very detailed and contain repayments for other loans including informal ones if reported to the loan officer. In other cases, loan officers may just put an estimated figure for repayments of informal loans, which is then based on their experience.

Now consider that this same client might take an additional loan from another lender. To obtain this he will be very optimistic when estimating his income and expenditures. He will then reach an indebtedness level that is even more precarious. In this case, even smaller movements can cause a financial misbalance.

It is obvious that a financial balance so fragile and easily destroyable by small movements is even more susceptible to severe adverse shocks.

The fact that some cross-borrowers reach critical indebtedness levels is exactly what was found in the interviews. The interviewees with delays faced repayment problems because of unexpected movements in income or expenditures or unexpected events that destroyed their fragile financial balance.

Reasons for late payments mentioned by the interviewees were health issues (13), declining income (6), a negative income shock (6), outstanding payments of clients (4) or increasing expenditures (3). These events are not unusual but it is common for entrepreneurs to face months with lower incomes, increasing expenditures or outstanding payments. The problem is that cross-borrowing brings the borrowers in a situation in which they cannot handle these unexpected movements of income or expenditure anymore. Hence, this study finds that cross-borrowing can affect the repayment performance of the borrowers when it leads to **exceedingly high indebtedness-levels.**

However, when clients follow a cross-borrowing strategy for reasons other than to increase their indebtedness or when they use the obtained funds to increase their income over-proportionately to their debt, cross-borrowing is not likely to negatively affect the repayment performance.

Also, it needs to be emphasised that cross-borrowing alone would not necessarily be critical if it was not for the combination with income uncertainties and vulnerability to crisis.

6.4.3 Cross-borrowing can impact well-being

Practitioners and scholars are concerned that cross-borrowing negatively impacts the well-being of borrowers. It is feared that cross-borrowing causes mental burdens for the microentrepreneurs (Diaz et al., 2011) and that it harms the well-being by making more sacrifices necessary to repay the debt (Chaudhury and Matin, 2002).

This study found that a negative impact of cross-borrowing on the borrower's well-being is only likely in cases in which cross-borrowers struggled with the repayment of their debt. If that was not the case, cross-borrowing could be an engine for growth and greater well-being.

In this study, the borrowers' subjective well-being was assessed mainly in terms of life satisfaction (Eid and Larsen, 2008). Additionally, the affective component of subjective well-being, i.e. the balance between a participant's positive and negative emotions, was assessed in an anecdotal way. Thereby, the sacrifices were taken into account that a borrower had to make to ensure timely repayment of his debt.

6.4.3.1 Pathways for a negative impact

It was found that cross-borrowing can have a negative impact on the borrower's well-being when it leads to a situation in which borrowers struggle with the repayment of debts. This is either the case when they are unable to meet their repayment obligations or when it costs them exceedingly high effort to meet them. In other words, cross-borrowing negatively impacts the subjective well-being of borrowers if it goes along with over-indebtedness as defined by Schicks (2010).

Interviewees reported that when struggling with their loan repayment, they were constantly thinking about their debt, from when they woke up until when they went to bed. In the most severe cases in the sample, the borrowers expressed concern that they would never be able to repay their loans and they explained how this concern caused constant worries, stress and depression. Furthermore, there were reports of debt causing harm to personal relationships with family, friends and neighbours. This situation was aggravated when borrowers started to take new loans to pay off existing ones since with that a vicious circle started.

Hence, it can be said that borrowers with severe **repayment problems** faced the material, sociological and psychological consequences of over-indebtedness (Schicks, 2011).

Quote

G. spoke about how he felt with regard to the situation of over-indebtedness he found himself in: '*I don't hide. I understand the situation that I am in. I know my case. But intimidating all my family [referring to the different lenders that regularly approach him and his family to collect money] is a headache. Not only for me. [....] It is a headache that we all have. [...] But I say everything has a bottom. It is a big hole, but it has a bottom. And from there I can fall no deeper. Thank God, I still have lust for life. I have faith. I have faith in God.*

When asked if he had credit cards, he continued: *'No. I don't want to know anything of all that anymore. Not from moneylenders neither, not from anything. [...] I just wished I could get out of this because it is so uncomfortable. I can't even rest, because you sleep and then you wake up and you can only think about that [the debt]. It is so uncomfortable. An ugly life.'*

In addition, some interviewees had to bring concrete **sacrifices** to fulfil their repayment obligations, whereby the nature of those sacrifices varied. Some microentrepreneurs worked seven-day-weeks and hardly rested in order to meet their loan obligations. In the long run, this is dangerous since it may result in health issues, which is especially critical in combination with the lack of insurance that many of them face.

Quote

C. explained about being indebted: *'Of course, it is a responsibility. You always have to plan in advance so that you have enough money. And by nature it is stressful. Sometimes, to repay the debt, you can't even rest. You have to work, work, work.'*

As mentioned before, others abstained from savings and insurance, which also meant that they had limited or no access to the health system. And in other cases, necessary investments in the microbusinesses or housing were postponed, like for instance the repair of production goods. In one case, the microentrepreneur even took her daughter out of the private school to save the fees.

Quote

V. told: *'I will put my daughter in a different school. She is now in a private school but since I want to open a grocery store, I can't further invest in her. Because I need a capital.'*

As becomes clear from those examples, with regard to sacrifices it is very difficult – if not impossible – to know whether they were actually caused by debt and/or cross-borrowing. For instance, when G. told that he could not repair his motorcycle because of the outstanding payments, this is difficult to evaluate. Is he really lacking the money because of those outstanding instalments on his loans, or is he actually lacking the money because of the health treatments he had to pay? And would he have a motorcycle in the first place, if it was not for the loans he had taken? Hence, it is difficult to attribute sacrifices to loans and cross-borrowing.

While repayment problems and sacrifices are not limited to cross-borrowers only, it is important to emphasise that **cross-borrowers are in a special situation** because they have to deal with several lenders. This makes it more difficult for them to negotiate how to proceed in the case of repayment problems. In addition, lenders regularly execute more pressure to enforce payments on cross-borrowers. This is a logical reaction from the lenders since each of them tries to ensure that what the borrower manages to repay is paid to them rather than another lender. However, for the borrower this aggravates the situation.

As became clear from the examples of G. and T. introduced above, in times of repayment problems some borrowers suffered from the constant visits of loan officers. This was especially the case, when those behaved disrespectfully, molested other family members or tried to embarrass the borrower in front of neighbours.

Therefore, the perceived stress resulting from the repayment difficulties became especially high when the payment due dates came closer. However, the more experienced borrowers were less affected by harsh enforcement procedures, since they were less easily intimidated.

It needs to be emphasised that the financial regulation in Peru, including the client protection policy, is well developed (Economist Intelligence Unit, 2012). For instance, there are regulations prohibiting visits or calls from loan officers after a certain hour or during weekends (interviews with EDYFICAR's management). Also, large MFIs like EDYFICAR have policies to ensure a professional and respectful treatment of borrowers. However, it depends on the loan officer if all regulations and policies are complied with and since some borrowers do not know their rights it may be difficult for them to take action against their violation. Also, informal lenders are not subject to any supervision and their enforcement practices may be dubious.

6.4.3.2 Pathways for a positive impact

Despite the fact that cross-borrowing becomes problematic for some borrowers, only a few clients in the sample (3) stated that they would have a better life without loans. The others, even when facing moderate repayment difficulties, acknowledged that the loans helped them to achieve their objectives and most clients (24) stated that microfinance facilitated growth.

Quote

> V. told: '*When I had a chance to buy it [the market store in which sold clothes], I did. I bought it and I grew further. I even opened an internet cafe. An internet cafe also working with the banks, and I grew further. [...] Always, in my case, I always want to grow further and therefore I need the banks. And it is because of that, that I work with the three different institutions, so that I can obtain larger loan amounts.*'

This is interesting because it shows that borrowers are willing to take sacrifices in order to improve their economic situation and climb the social ladder, which was explicitly represented in the In Vivo codes 'crecer' (14), which means to grow, and 'sacrificarse' (10), which means to make sacrifices.

Quote

E. stated: *‘With what EDYFICAR lent me, I roofed my house. The second floor is already finished. I only need to roof the second floor. It is all an effort for the family. One has to bring sacrifices.’*

Indeed, all interviewees stated that debt is something that occupies their minds but for the ones without repayment difficulties this was not an issue. Instead, they welcomed the fact that their debt caused them to be more disciplined in their work and financial management.

Quote

G. explained: *‘A loan is something that makes us more responsible. How can I explain that? If I hadn’t a loan, I think, I would be more settled. But a loan is like a responsibility that requires that you constantly improve. Because, maybe, otherwise, I would just settle for what I have. And if I would not sell anything [in her store], I would not sell. And that would be it. In contrast, if you have a loan to pay, you have to try harder.’*

As mentioned before, some of these borrowers still preferred to work with only one lender, mainly for preferring a single repayment date. However, the inconvenience of having different repayment dates did not negatively impact their subjective well-being.

6.4.3.3 Conclusion

To sum up it can be said that cross-borrowing can have a negative impact on the borrowers’ well-being if it goes along with repayment difficulties. However, if cross-borrowing does not lead to repayment difficulties, the borrowers do not perceive a negative impact of cross-borrowing on their life satisfaction. Instead, in those cases, cross-borrowing can be an engine for growth and greater well-being.

Having said this, from the researchers’ perspective it is critical that borrowers use loans to deal with emergencies instead of using savings or insurance. While this does not necessarily lead to repayment difficulties in all cases, it is likely to impact the borrower’s well-being as it leads to higher debt levels that slow down the improvement of a microentrepreneur's economic situation. However, interviewees did not mention this effect since they probably are not aware of.

6.4.4 Borrower characteristics and external factors matter

Thus far it was found that cross-borrowing can lead to fragile financial balances in which every small movement in income or expenditures can cause repayment difficulties and a resulting deterioration of the borrower's well-being. Hence, the question arises what is the difference between cross-borrowers that manage their debt well and those who face problems leading to a negative impact on their well-being.

First, not all clients cross-borrow to obtain a larger loan amount. As was outlined, others have different reasons like for instance a lower interest rate. In these cases, cross-borrowing does not cause increased debt and thus is not likely to have a negative impact on the repayment performance. Hence, the impact of cross-borrowing depends on the reasons why the strategy is chosen.

Second, it was found that the use of the loans is crucial. This is not only the case in cross-borrowing but with increased debt the judicious use of funds is even more important. In the interviews it was found that borrowers putting loans to non-revenue-generating uses including housing, consumption or loan recycling, struggled most with the repayment. Despite the fact that borrowers present their investment proposition when applying for a loan, after the disbursement MFIs have limited means to control the actual deployment.

Third, it was found that client characteristics matter for the repayment performance and impact of cross-borrowing on well-being. Again, this is not only the case for cross-borrowers but due to their complex situation especially for them. Some of the interviewees emphasised the importance of knowing their own repayment capacity (13) or the importance of a disciplined financial management (7). These characteristics are also part of the In-vivo code 'ser responsable' (13) which means to be responsible and which implies an overall disciplined and moderate behaviour over the entire maturity of a loan to ensure its repayment. Clients with those characteristics are less prone to overestimate future returns and to reach excessive indebtedness levels.

Quote

V. explained the importance of being responsible: *'One has to try not to waste money. Because there are many people that are highly indebted. Sometimes, they ask for an amount but they don't invest it...what do I know...the use it for things that don't give you any income. Hence, they can't support themselves. Here is this market, I know many friends which had problems when working with banks.'*

In addition, some borrowers develop their own strategies to ensure timely repayment. For instance, some constantly put money aside to have the needed amount in the payment date (6) and others even pay before the repayment date to smooth their finances (2). Other measures to ensure a timely repayment are cutting down on expenditure or investments (13) or working more than normal (10). However, these measures might be critical for a borrower's well-being as discussed above.

In addition to the borrower characteristics, it depends on external factors how the repayment performance and well-being is affected by cross-borrowing. Given that cross-borrowing leads to a fragile financial balance, external events, like illness, illness or death of other family members, economic development of the relevant market, crime, regulations and the like, play an important role for a borrowers' repayment performance.

6.5 Discussion

This qualitative study has analysed cross-borrowing from the client's perspective, defining it as the simultaneous combination of more than one loan from more than one formal and/or informal lender.

Based on in-depth interviews with borrowers, loan officers and MFI management and using the grounded theory approach, it has examined the reasons for cross-borrowing as well as its impact on the borrowers' repayment performance and well-being. It has further elaborated on the relation between cross-borrowing and over-indebtedness.

The core part of the analysis was the interviews conducted with 32 clients of EDYFICAR, who cross-borrowed. Although the sample size was relatively small in comparison to quantitative studies, variety in the sample was ensured and theoretical saturation was reached. Hence, the researcher is confident that what was found in her study is applicable to other cross-borrowers in the same context.

The specification ‘in the same context’ means that the findings are supposed to hold true for other microentrepreneurs whose situation is similar to the ones interviewed in this study. From the perspective of the researcher, this includes especially the following aspects.

First, participants in this study lived in Lima, i.e. in a densely populated city with a highly competitive financial market. In this city, microentrepreneurs regularly have access to a wide range of different lenders. Thereby, access to different formal lenders is easiest for clients with a credit history in the formal financial system. However, also microentrepreneurs without a credit history have easy access to informal financial services and they can always apply for small loan amounts to enter a progressive lending scheme with formal lenders. Hence, findings of this study may not necessarily be applicable to rural areas with less competition and higher transaction costs of cross-borrowing, for instance caused by the fact that approaching another lender implies travelling long distances.

Second, in Peru the transparency in the financial markets is high and clients know that a default or negative credit history with one formal lender will be visible to other formal lenders in the databases of the credit bureaus. As highlighted throughout this essay, this feature is highly important and cross-borrowing may be very different in a context without information sharing between lenders.

Third, as the participants of this study lived in Lima, they pursued activities typical for large cities. In contrast, workers in the agricultural sector, to give an example, have different challenges and risks and also different risk coping mechanisms (Meijerink et al., 2011). Hence, it would need to be examined in detail how findings of this study could be transferred to their specific situation.

Fourth, all interviewees were cross-borrowers, which are usually the more experienced borrowers since for inexperienced borrowers it is relatively more difficult to combine loans (especially formal loans). Obviously, the experience of those borrowers is likely to impact on how they manage their loans. Therefore, one must be cautious when applying the findings to more inexperienced borrowers. However, this shortcoming is of limited importance since inexperienced borrowers are usually less likely to cross-borrow anyway.

Fifth, cross-borrowers are usually more indebted than their peers (as will be confirmed in the quantitative study), which results from two facts: First, they are more experienced and thus obtain larger loan amounts and, second, they combine loans to obtain more funds. Given that, they have different business and investment opportunities which again may affect the results.

Sixth, other general aspects of a context, as for instance religion, culture, political system, social environment etc. impact on this study as much as they impact on any other study.

From this list it becomes clear that context is highly important and that findings cannot easily be transferred to other, different contexts. However, this is not exclusively true for this study but it is in the nature of any study involving human beings since their actions and beliefs will always be dependent on their context. Hence, when aiming to generalise the findings of the study, context needs to be considered and for each finding the applicability for the specific context needs to be assessed.

It is further noteworthy that the aim of this study was an in-depth analysis, which is why the researcher decided for semi-structured interviews with a relatively low level of standardisation. While this is useful to gain a deep understanding it has the disadvantage that no quantitative analysis with the qualitative data was possible.

Based on what was found in this study, it would now generally be possible to elaborate more standardised questionnaires to test the findings in a larger sample. However, from the perspective of this researcher, such a study would be of limited success since in any case indebtedness is a topic that microentrepreneurs are hesitant to talk about. In consequence, the quality of data collected in standardised questionnaires might be limited.

6.6 Conclusion

The unprecedented growth in the microfinance industry has lead to increased competition between financial institutions serving low-income people. In the most competitive regions, Lima being one of them, microentrepreneurs have access to various lenders. As a result, many microentrepreneurs are now indebted with different formal and/or informal lenders simultaneously. This development has sparked concerns about the impact of cross-borrowing on microentrepreneurs and the microfinance sector.

The study has found that borrowers combine several formal loans mainly to obtain larger loan amounts while they combine formal loans with informal ones or credit card debt mainly to overcome short-term money shortage or to deal with crises. Cross-borrowing increases the complexity of the borrowers' financial portfolios and it intensifies challenges arising from income uncertainties or emergencies. Dependent on a borrower's reasons for cross-borrowing, it can lead to critical indebtedness levels, in which small movements cause a financial misbalance. In these cases, borrowers can end up in a situation of over-indebtedness in which their repayment difficulties negatively impact their subjective well-being. On the other hand, if cross-borrowing does not lead to repayment difficulties, clients do not perceive a negative impact of cross-borrowing on their life satisfaction.

It has been found that client characteristics and external factors matter for the impact of cross-borrowing. Hence, while cross-borrowing increases the complexity and intensifies challenges for the microentrepreneur's financial situation, it depends on the reasons for cross-borrowing as well as on client characteristics and external factors whether it causes repayment difficulties and a negative impact on the borrower's well-being.

This study challenges the assumption that cross-borrowing is a result of lack of information sharing between lenders (McIntosh et al., 2005; Chaudhury and Matin, 2002). Countries like Peru or Bolivia show that even in markets with credit bureaus, cross-borrowing is common. Thereby, information sharing helps to prevent repayment crises since it allows lenders to identify borrowers with good credit histories. However, the assumption that borrowers who used to repay well in the past will repay well in the future may not hold true when they reach critical indebtedness levels, in which every unexpected event leads to a financial misbalance. Given that in competitive markets, borrowers can turn to different lenders to apply for additional loans, a financial misbalance may be the starting point of a vicious circle leading to severe over-indebtedness.

This is especially dangerous since the financial reality of most microentrepreneurs is still dominated by income uncertainties and vulnerability to crises. Although microsaving and insurance products were developed as tools to cope with these challenges, their spread has not kept pace with the growth in the microcredit business. Hence, for some entrepreneurs microfinance causes increased complexity. To solve this issue, the distribution of suitable microsaving products and microinsurance needs to grow. It is thereby important that well tailored products are offered that respond to the needs of the clients.

The study has further found that cross-borrowing is not problematic to all borrowers. For one, this is down to external factors but, in addition, it widely depends on the individual borrower and his loan officer if cross-borrowing leads to over-indebtedness. Regulation, internal policies and codes of conduct provide an important frame, but within that there will always be room for interpretation and manipulation, like for instance in the assessment of a client's repayment capacity. Therefore, the individual loan officer plays an important role in ensuring that the ideal of responsible lending is put into practice. Hence, MFIs need to put further effort in the design of incentive systems that take long-term success into account. In addition, corporate values as well as the education and development of loan officers are crucial.

At the same time, it is important that loan officers have an overview of a client's economic situation. This requires knowledge of the client including his business, family background, neighbourhood, etc. While it is widely accepted that this knowledge is decisive to reach strong repayment figures in microfinance, it seems that its importance was sometimes lost while striving for growth. Today, loan officers often are responsible for a large number of clients, which makes it impossible for some of them to get to know their clients sufficiently well. But when dealing with microentrepreneurs in the informal sector, most of the relevant information is not documented in information systems and even credit bureaus cannot compensate for what is lost when loan officers cannot study their clients. Therefore, it is important to further respect the differences between microfinance and consumer finance and to enable loan officers to have sufficient time for their clients.

While the lender plays an important role, borrower characteristics are decisive as well. Most borrowers with a good credit history have the possibility to combine loans and reach high indebtedness levels but only some of them make use of this option. Others prefer to aim for slower and more sustainable growth, not risking too much and ensuring that they have some buffer for unexpected events. Given that, it is of great importance that clients understand the implications of their financial decisions and the need to account for income fluctuations and possible crises. This is especially important since it was found that borrowers have room to manipulate a loan officer's estimation of their repayment capacity. Hence, the education of the borrowers to increase their financial literacy is crucial. The role of the educator could thereby partially be taken by the loan officer, if a closer relationship between the loan officer and the client could be reached again.

In conclusion, this study calls for a return to the client-focus in microfinance after a decade of focusing on growth and efficiency. Microfinance should aim to improve the clients' well-being, and over-indebtedness as well as excessive complexity in the financial realities of the poor need to be avoided.

CHAPTER 7: QUANTITATIVE STUDY

The qualitative part of the research is complemented by this quantitative study, for which data on 550 randomly selected EDYFICAR clients were collected from EDYFICAR's database. The data contained information on the clients' characteristics, their loans with EDYFICAR since 01.01.2006, their repayment performance for those loans, and their cross-borrowing situation when applying for those loans. The data were analysed using different statistical tests.

The main objective of the quantitative study was to examine the association between cross-borrowing and the clients' repayment performance. Related to that, the relation between cross-borrowing and indebtedness would be assessed. Furthermore, the data would be used to understand if exclusive clients and cross-borrowers were significantly different from each other in a number of demographic characteristics, such as age or gender. Or, in other words, it should be assessed whether clients with certain characteristics were more likely to cross-borrow than others. In addition, the quantitative study gave important insights in the different loan strategies of the borrowers, which need to be taken into account when assessing the repayment performance.

The remainder of the chapter is structured as follows. First, the conceptual framework for the quantitative study will be presented (7.1) followed by relevant findings from the existing literature (7.2). Subsequently, the sample and data collection process will be introduced (7.3) and the methods used for the analysis will be described (7.4). In the consecutive sections (7.5 - 7.10), findings will be presented and the chapter ends with the discussion (7.11) and conclusion (7.12).

7.1 Conceptual framework

As had been mentioned before, cross-borrowing is often seen negatively and a number of practitioners and academics share the concern that cross-borrowing can result in repayment problems, thus harming borrowers and lenders (McIntosh et al., 2005; Venkata and Veena, 2010; Chaudhury and Matin, 2002; Burki, 2009; Maurer and Pytkowska, 2011; Pytkowska and Spannuth, 2012b; Chen et al., 2010).

As introduced in the qualitative chapter, there are **different pathways** how cross-borrowing can impact the repayment performance. Since those pathways have been explained in detail before, here a shorter summary is provided.

First, cross-borrowing might undermine the tool of dynamic incentives (Armendáriz de Aghion and Morduch, 2010). The core element of dynamic incentives is a long-term relationship between borrower and lender in which the lender can influence the borrower's behaviour in two ways: first, the lender can threaten to exclude the borrower from further loans in case of unreliable repayment or, second, the lender can promise future larger loans in case of reliable repayment. Both ways are an incentive for borrowers to repay their loans (Morduch, 1999; Armendáriz de Aghion and Morduch, 2010).

In competitive markets, the effectiveness of dynamic incentives may be reduced since borrowers know that when defaulting with one lender, they still can turn to different lenders for future loans. This reduces their incentive to repay a loan in time (Armendáriz de Aghion and Morduch, 2010; Chen et al., 2010). In the case of cross-borrowing this effect should be even stronger, since the borrower already has established relationships to more than one lender.

In contrast to this argumentation from the literature, the qualitative study did not find a negative impact on the repayment performance resulting from the reduced effectiveness of dynamic incentives. This is likely to be caused by the high transparency in the Peruvian financial market and the fact that clients know that a default with one lender would be visible for other lenders in the reports of the credit bureaus.

Second, as was found in the qualitative study, cross-borrowing leads to complex loan portfolios and the management of those portfolios is challenging. For instance, borrowers have to gather money for different repayment dates and have to go to different places to pay their instalments. In the interviews it was found that those organisational challenges were inconvenient for many borrowers. However, a resulting negative impact on the repayment performance was not found.

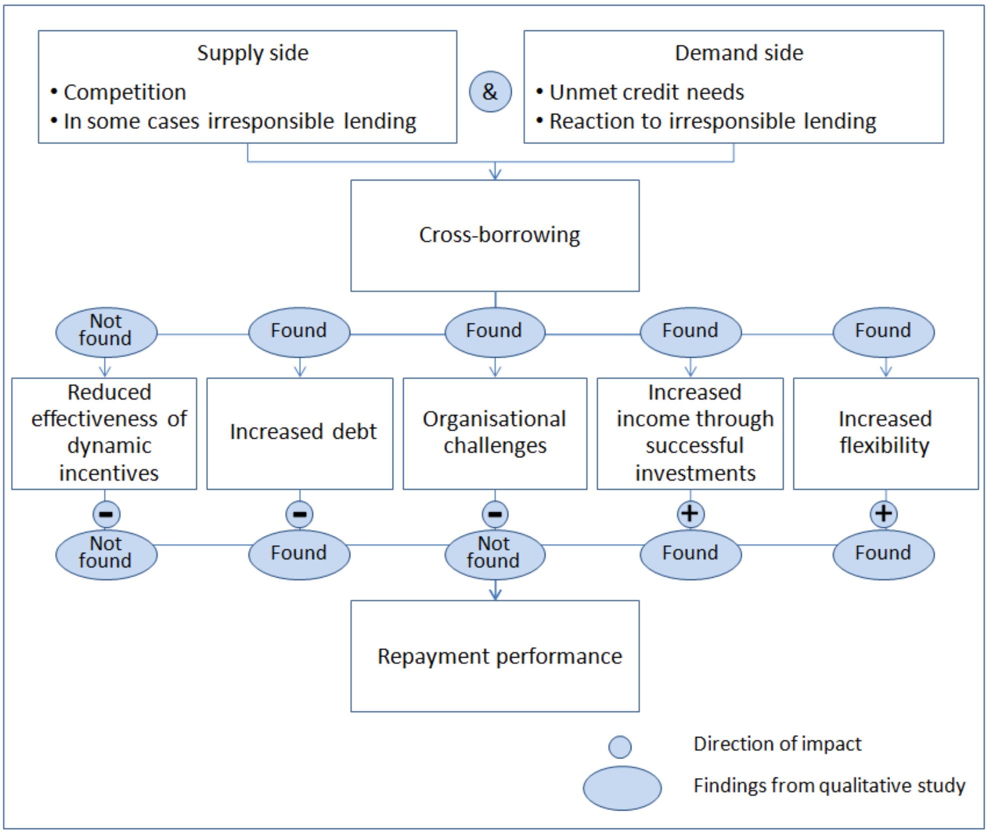
Third, cross-borrowing can lead to increased debt which may result in a deterioration of the repayment performance (Chaudhury and Matin, 2002; Burki, 2009; Chen et al., 2010; Maurer and Pytkowska, 2011; Pytkowska and Spannuth, 2012b). In the interviews, this impact pathway was found to be important, especially when critical indebtedness levels were reached, in which every small movement of income or expenditures cause a financial misbalance.

Fourth, as was found in the interviews, cross-borrowing may improve a client's repayment performance when the client invests the obtained funds so that his income increases over-proportionately to his debt.

Fifth, in some cases cross-borrowing improves the repayment performance because it allows borrowers to align the repayment schedule of their overall debt to their cash inflows and outflows. For instance, this became clear when looking at the example of C. who used her credit card to overcome a time gap between the repayment date of her formal debt and the data when she received money from the junta. As had been explained in detail in the qualitative study, this impact pathway is double-edged since it has elements of loan recycling and thus can result in a vicious circle and default.

The impact pathways from cross-borrowing to a client's repayment performance built the conceptual framework for the quantitative study (Figure 6).

Figure 6: Conceptual framework for the quantitative study



Note that the data did not allow to identify causalities or to specify the pathway that would lead to an impact on the repayment performance. It was therefore very important to combine the qualitative and the quantitative analysis to get a comprehensive picture. For instance, if the analysis would find that cross-borrowers showed a significantly worse repayment performance than their peers, information from the interviews could be used to give possible explanations to this finding, which could not be derived from the available data.

7.2 Related literature

In Uganda, McIntosh et al. (2005) found that increasing competition caused a decline of the repayment performance and a reduction in savings deposits among borrowers of the incumbent lender. They interpreted this as a consequence of cross-borrowing, meaning that clients did not abandon the incumbent lender but took additional loans from new lenders, which damaged their repayment performance with the incumbent lender. Since the authors considered cross-borrowing as a consequence of insufficient information sharing among lenders, they called for ‘institutional innovations for information sharing on client indebtedness levels, if declining repayment rates are to be avoided’.

Chaudhury and Matin (2002) found that competition in the microfinance market in Bangladesh led households to have multiple NGO memberships and in consequence multiple loans. This increased their debt and caused a deterioration of their repayment performance, which was declining with an increasing number of memberships. With regard to differences in the characteristics of households with multiple NGO memberships and households that are only members of the BRAC NGO, the authors found no significant difference in the socio-economic profile, including for instance the land owned by the household. However, they found that households with multiple memberships were significantly more often headed by women. To overcome cross-borrowing the authors recommended information sharing arrangements such as credit bureaus as well as the promotion of protective financial services, which enable the clients to deal with crises.

Focusing on Pakistan, Burki (2009) found that cross-borrowing was mainly done to get larger loan amounts or to repay one loan with another loan. He further found that it led to over-indebtedness and repayment problems if the additional funds were not used to increase the income. In addition, Burki (2009) found evidence for an erosion of the motivation to repay the loans, or in other words a reduction of the effectiveness of dynamic incentives: 'borrowers did not feel that they need to maintain a good repayment record in general to access future loans from any MFP[33]'. Like the authors mentioned before, Burki recommended increasing information sharing among lenders by creating a sector wide credit bureau to avoid over-indebtedness and a negative impact of cross-borrowing on the repayment performance.

In Bosnia and Herzegovina, Maurer and Pytkowska (2011) found that multiple borrowing and indebtedness went hand and hand, meaning that the indebtedness increased with the number of active loans. They further found that repayment problems were more frequent among cross-borrowers, which was especially critical since even overdue borrowers were able to receive new loans. Over-indebtedness, here defined as having to pay monthly instalments of more than 100% of the net income, was found to be the main reason for the repayment problems. The authors saw one reason for the problem in the fact that information sharing between lenders was incomplete despite the existence of a credit registry.

In Azerbaijan, Pytkowska and Spannuth (2012b) found that the scope of cross-borrowing was relatively small (4% of clients in the sample, N=1100) and clients in the study showed an overall good repayment performance with only 1.1% having delays in their repayment of loans. However, the researchers also found that multiple borrowing (measured as the number of outstanding loan contracts) and over-indebtedness (measured as the amount of debt service in relation to net income) went hand in hand, i.e. the indebtedness level of a client increased with the number of active loan contracts. Also, the authors found that 43% of the cross-borrowers in the sample fulfilled their definition of being insolvent, i.e. they used more than 100% of the net household income to repay their debt. In contrast, this fraction was only 28% in the group of borrowers with only one loan outstanding. In addition, the proportion of clients in a critical indebtedness situation (using between 75% and 100% of the net household income for debt repayment) was higher for clients with multiple loans (11%) than for their peers (6%) and the same was true for clients at risk of over-indebtedness (using between 50% and 75% of

[33] MFP stands for microfinance provider.

the household income for debt repayment; 17% versus 10%). Hence, although the impact on the repayment performance was not assessed in detail in this study, findings suggest that cross-borrowing might affect the repayment performance indirectly via the indebtedness level. In Azerbaijan, a credit registry is in place, to which all banks and the majority of MFIs report to and which provides data in real time. However, the authors stated that the registry is often not used due to high cost of data and limited capacity to process multiple inquiries.

That cross-borrowing led to higher indebtedness was also found by Chen et al. (2010), who compiled case studies on Nicaragua, Morocco, Bosnia and Herzegovina and Pakistan, combining data analysis and interviews. The authors saw the microfinance repayment crises in these countries partially caused by multiple borrowing and the fact that it made borrowers less dependent on a single MFI and enabled them to borrow larger loan amounts. As the authors pointed out, from the four countries under consideration, Nicaragua was the only country with a well functioning credit bureau.

On the other hand, there are studies that did not find a negative impact of cross-borrowing on the repayment performance (Faruqee and Khalily, 2011; Krishnaswamy, 2007; Schicks, 2013b) or a changing impact over time (Vogelgesang, 2003).

In Bangladesh, Faruqee and Khalily (2011b) found that cross-borrowing increased the net assets of microentrepreneurs, so that borrowers could use their increased funds for repayment purposes and savings. In consequence, the authors did not consider cross-borrowing as problematic but argued that poor households could get benefit from cross-borrowing (Khalily and Faridi, 2011, as cited in Faruqee and Khalily 2011a).

Krishnaswamy (2007) found in India that arrears rates of multiple borrowers were lower than or equal to the arrears rates of their peers, meaning that multiple borrowers repaid as good as or better than their peers.

Focusing on Ghana, Schicks (2012) did not find a relation between cross-borrowing and over-indebtedness, which she defined, as was mentioned before, as not meeting repayment deadlines or meeting them at the cost of high sacrifices. Hence, it can be said that she did not find cross-borrowing caused repayment problems.

A changing impact over time of cross-borrowing on the repayment performance was found by Vogelgesang (2003) in Bolivia. Clients with loans from several lenders repaid better than their peers for loans disbursed in 1996 but worse for loans disbursed in 1997 and 1998. Vogelgesang concluded that multiple borrowing can be beneficial in times of a good economic climate but harmful when the economic climate becomes more difficult.

To sum up, the available studies came to different conclusions regarding cross-borrowing and its impact on the repayment performance and indebtedness of microentrepreneurs. Most countries, in which cross-borrowing was found to negatively impact the repayment performance, share the fact that there is no or very limited information sharing between lenders. This is an important difference to Peru were credit bureaus are in place, so that the information sharing between formal lenders works effectively. So, it is interesting to assess the impact of cross-borrowing on the repayment performance in this different environment.

7.3 Data collection, sample and sample size

To answer the research questions, in December 2011 a comprehensive set of data on 550 clients was sampled from EDYFICAR's database. Sample, sample size and data collection have been described in detail in the methodology chapter. Thus, here only the main points are repeated.

The sampling frame consisted of all EDYFICAR clients that had received loans issued in Lima between 01.01.2010 and 16.12.2011. For the data collection, EDYFICAR first provided 101,710 codes that referred to all clients in the sampling frame. The researcher randomly selected 550 codes from this base and subsequently the EDYFICAR data specialist provided the requested data for the selected clients. Three clients had to be eliminated since essential information was missing.

The data consisted of four main areas, namely

- client attributes (e.g. age, gender, sector of the microbusiness),
- loan details for the clients' EDYFICAR loans since 01.01.2006,
- the clients' repayment performance in those EDYFICAR loans,
- the clients' cross-borrowing situation when they applied for those EDYFICAR loans.

The EDYFICAR loans of the selected clients since 01.01.2006 were looked up to get a better picture of the clients' loan strategy. The cut off date 01.01.2006 was chosen because data of the loans disbursed before that date was not yet completely transferred to EDYFICAR's new data management system. In total, the selected clients had taken 1574 EDYFICAR loans in the relevant time span and for each of those loans details such as interest rate or maturity were collected.

Furthermore, for all the 16880 repayment instalments of those 1574 EDYFICAR loans, the scheduled date was given as well as the date when the payment was actually made. This allowed calculating the punctuality in each single payment of the selected EDYFICAR loans.

Lastly, cross-borrowing information was collected. This information was taken from reports, which EDYFICAR requests from the credit bureau of the SBS every time a microentrepreneur applies for an EDYFICAR loan. Those reports contain, for instance, the number of a client's loans, lenders and his total debt in the formal financial system. Hence, the reports show a client's cross-borrowing situation at the point in time when he applies for an EDYFICAR loan.

In consequence, the dataset should have contained cross-borrowing information for 547 clients and the 1574 times when they applied for the EDYFICAR loans in the sample. Unfortunately however, information was available only for 354 clients and 1070 points in time when those clients applied for an EDYFICAR loan.

The resulting data set contained information on

- 547 EDYFICAR clients,
- their 1574 EDYFICAR loans taken since 01.01.2006,
- their punctuality in paying the 16880 instalments of those 1574 loans, and
- cross-borrowing information for 354 clients and 1070 points in time when they applied for an EDYFICAR loan.

A list of the collected variables has been provided in the methodology chapter.

The sample size had been chosen based on several considerations. First, the sample should be large enough to obtain a variety of clients, loans and loan strategies. Second, the researcher knew from her experience in the preliminary study that data for 550 clients would result in a very comprehensive dataset. Also, she knew that she would have to go through each single line in the dataset in detail to ensure that different loan strategies were accounted for when calculating the repayment performance measure. Hence, she had to take her limited resources into account when deciding on the sample size. Third, the sample size had to be agreed upon with the EDYFICAR data specialist who had to provide the data on top of this normal workload.

Note that an average measure per client for cross-borrowing *and* repayment performance could be calculated for 352 clients only. Hence, the analysis on cross-borrowing and repayment performance was performed for five or three out of 1000 clients in the sampling frame respectively. This limits the generalisability of the study despite the fact that the sampling procedure was unbiased and despite the variety of clients and loans in the sample.

7.4 Methods

After the data was collected from the EDYFICAR database, it was not yet in the right format to conduct the analysis and considerable work was needed to restructure the data. In addition, new variables had to be calculated from other variables. For instance, as will be described in detail below, measures for the repayment performance were calculated based on detailed information on each client's payments. Once the data was in the right format and all variables were calculated, a range of different analyses was performed using the IBM SPSS Statistics software.

7.4.1 Describing the data

In a first step, descriptive analyses were conducted to get a detailed understanding of the dataset. This was necessary since the dataset was comprehensive, containing a large number of cases and a large number of variables. Since the interest of this work was in the client (and not for instance in single loans), the unit of observation wherever possible was the client.

To begin with, client attributes were examined using frequency analyses as well as cross-tabulations and graphs. For instance, it was analysed

- in which sectors the microentrepreneurs were active,

- how gender, civil status and age were distributed,
- which level of education clients had,
- which risk rating clients were given by EDYFICAR, and
- which over-indebtedness ratio clients had.

What followed was the descriptive analysis of loan and indebtedness information per client. For this purpose, average measures were calculated to analyse, for instance,

- the average loan amount per client of the EDYFICAR loans,
- the average number of loans in the financial system (with and without EDYFICAR loans) per client,
- the average number of creditors in the financial system (with and without EDYFICAR) per client,
- the average amount of debt in the financial system per client.

Again, frequency analyses were used, as well as graphs and descriptive measures such as mean, median, standard deviation, etc.

For the loan amount and debt, a real average value per client was calculated in US$ and prices as of January 2006. Therefore, first the consumer price index from the Peruvian Central bank was used to account for inflation and convert to prices as of January 2006 and then the average exchange rate of January 2006 was used to convert into US$.

The descriptive analysis ended with analyses on the loan level for certain variables, for which the client perspective was not useful, such as the disbursement year of loans, maturity, interest rate, loan cycle and loan status (which will be explained in detail below).

7.4.2 Identifying cross-borrowers

After the detailed description and exploration of the dataset, cross-borrowers and exclusive clients were compared along certain variables to determine whether there were significant differences between the groups.

As defined before, for this study a microentrepreneur was considered a cross-borrower if he had more than one loan from more than one lender simultaneously. As becomes clear from the definition, the fact that loans were taken from *different* lenders is important, since the research did not aim to understand why clients took loans but the research aimed to understand why clients engaged with different lenders and how that affected them.

In the sample these clients could generally be identified by looking at the average number of non-EDYFICAR loans per client, the average number of non-EDYFICAR creditors per client or the average amount of non-EDYFICAR debt when applying for an EDYFICAR loan.

The researcher decided not to use the measure of non-EDYFICAR debt since she intended to assess the impact of cross-borrowing on the clients' indebtedness, which is why indebtedness should be a dependent variable.

With regard to the number of loans or creditors, it was found in the descriptive analysis that in most cases clients had one loan per lender. In consequence, the number of non-EDYFICAR loans and non-EDYFICAR creditors was almost always the same, which is why generally either measure could have been taken. Since one variable had to be chosen, the researcher decided to use the number of non-EDYFICAR loans to measure cross-borrowing. She considered this most suitable since the complexity of a loan portfolio as well as the indebtedness is determined by the number of loans rather than by the number of creditors.

Note that the number of non-EDYFICAR loans – in contrast to the number of loans including EDYFICAR loans – was chosen since this number defines the degree of *cross*-borrowing. In addition, as was explained before, in many cases (67% of all loans in the sample) new EDYFICAR loans were used to repay previous ones. Hence, in those cases EDYFICAR loans as displayed in the SBS reports were actually not active anymore when the relevant loan was disbursed. It therefore would have been wrong to include them in the number of loans.

As mentioned above, information on cross-borrowing was available for 354 clients only. The average measures for these 354 clients were based on between one and 17 observations per client. While in 65% of the relevant cases (231) at least two observations were available, in 35% (123) only one observation was given. This means that for 123 clients, the cross-borrowing measure used in the analysis was no actual average measure, but it was based on only one observation. This is unfortunate, since it is preferable to use measures of the same nature, i.e. it would have been preferable to have average measures for all clients, ideally based on the same number of observations. However, the available data did not provide this.

7.4.3 Comparing cross-borrowers and exclusive clients

In a first step, cross-borrowers and exclusive clients were compared along a number of client characteristics, i.e. along a number of categorical variables, namely

- gender,
- age group,
- civil-status,
- sector, and
- risk class.

A Chi Square test was used, since this is the appropriate test to explore the relationship between two categorical variables, like for instance between gender (male/female) and borrowing behaviour (exclusive client/cross borrower).

The H_0 hypothesis in a Chi Square test is that there is no relationship between the variables. The test compares the observed number of cases in each category to the number that would be expected if there was no relationship. The observed numbers of cases are reflected in contingency tables, as shown in table 11. The expected values were calculated by the software. For instance, in this example 190 of 354 clients (54%) are female. So, if there was no relationship between the variables it would be expected that 54% of cross-borrowers are female.

Table 11: Example for a contingency table

Gender	**Cross-borrower**	**Exclusive client**	**Total**
female	123	67	190
male	104	60	164
Total	227	127	354

The test statistic is a chi-square random variable and measures the distance of the observed values and expected values for the entire table. Using the Chi-Square distribution table and taking into account the degrees of freedom (which is (rows-1)*(colums-1)), the corresponding p-value for the calculated Chi-Square value can be found. The p-value is the estimated probability of rejecting the H_0 hypothesis when that hypothesis is true (type I error) (Lind et al., 2011; Pallant, 2010). When using the SPSS software, a Pearson Chi-Square value and a corresponding p-value are computed automatically. In this study, a confidence level of 95% was usually chosen, that means if the p-value was <0.05, the H_0 hypothesis was rejected and a significant association between the variables assumed.

If the contingency table is a 2x2 table, as in the case above, there is a risk of overestimating the significance of findings, which is the result of underlying assumptions about the chi-squared distribution. Therefore, in these cases a correction is needed to avoid this overestimation by increasing the computed p-value. In the study, Yates' Correction for Continuity was used (Lind et al., 2011; Pallant, 2010).

The limitation of the Chi-Square test is that it cannot be used when more than 20% of cells have expected frequencies of less than 5 (Lind et al., 2011).

Apart from the statistical significance, the effect size is of interest, which is also referred to as 'strength of association' and which gives information on the magnitude of the difference between groups (Pallant, 2010, p. 210). Depending on the test, different measures are usually used to calculate the effect size. As recommended by Pallant (2010), the following effect size statistics, which were computed by SPSS together with the test results, were used in Chi-square tests

- phi coefficient for 2x2 tables,
- Cramer's V for larger tables.

Using the effect size statistics, the researcher could classify the effect size into small, medium and large, whereby the classification depends on the statistic and size of the table. For the phi coefficient, Cohen's (1998) criteria was used as cited in Pallant (2010), according to which a phi of 0.1 means a small effect, 0.3 means a medium effect and 0.5 means a large effect. For Cramer's V, the criteria of Pallant (2010, p. 220) were used. Here, at first the following two values had to be calculated

- Number of categories in the row-variables - 1
- Number of categories in the column variable - 1.

From these values, the smaller value was picked and according to this value, the criteria were chosen:

- Value=1: 0.01 means small effect, 0.3 means medium, 0.5 means large
- Value=2: 0.07 means small, 0.21 means medium, 0.35 means large
- Value=3: 0.06 means small, 0.17 means medium, 0.29 means large.

As became clear, to compare cross-borrowers and exclusive clients a number of tests were performed using the same data. Thereby, the researcher faced an increased risk of type 1 errors. A type 1 error means that the H_0 hypothesis is rejected despite being true. In other words, it means that significance of findings is over-estimated which causes the researcher to wrongly identify significant differences between groups where there are none. To avoid this over-estimation of significance a Bonferroni adjustment can be done. Therefore, a more stringent confidence-level can be set as a threshold to determine significance, or in other words, a lower p-value is needed to classify findings as significant. This more stringent value can be obtained by dividing the initial p-value that was aimed for (usually 0.05) by the number of tests conducted (Pallant, 2010). This correction was considered in the study as presented in the results section of this chapter.

7.4.4 Cross-borrowing and indebtedness

In a next step, the relationship between borrowing behaviour and indebtedness was assessed. Therefore, cross-borrowers and exclusive clients were grouped again and compared regarding their

- average real debt in the financial system,
- average real loan amount with EDYFICAR,
- average interest rate paid per dollar borrowed from EDYFICAR.

As becomes clear from those variables, the association of cross-borrowing and indebtedness could only be assessed for absolute indebtedness measures. Cross-borrowing could not be related to objective over-indebtedness measures (which put monthly repayment obligations in relation to income) since no reliable income information was available. Neither could it be related to subjective over-indebtedness as defined by Schicks (2013a) since no information was available on the sacrifices clients had to take to fulfil their repayment obligations. Implications of this shortcoming will be discussed in the discussion section of this chapter.

In contrast to the client characteristics, the debt related variables are continuous variables. Hence, the appropriate tests to compare cross-borrowers and exclusive clients with regard to these variables are the independent-samples t-test if the continuous, dependent variable is normally distributed or the Mann-Whitney U Test if this is not the case (Pallant, 2010).

To test for normal distribution the SPSS software was used that provides ‘normality plots with tests’. The output from this procedure contains different graphs and statistics that give information on the distribution of a variable. In the study, usually the Kolmogorov-Smirnov statistic was used, which indicates a normal distribution if the p-value is higher than 0.05 (95% confidence level), i.e. when the result is non-significant (Pallant, 2010).

Since the Kolmogorov-Smirnov test is restrictive and finds normal distribution only when it is close to perfectly normal, always the normal Q-Q-Plot and the histogram of a distribution were assessed in addition. Thereby, in some cases described below, a reasonably normal distribution was found that allowed using parametric tests even in cases where the Kolmogorov-Smirnov did not find normality. A reasonably normal distribution was assumed when the histogram showed the typical bell shape and when in the Q-Q plot the line of the observed values were sufficiently close to the expected values of a normal distribution.

Since all continuous variables under consideration in this section were not normally distributed, Mann-Whitney U tests were used to compare exclusive clients and cross-borrowers. The Mann-Whitney U test is the non-parametric alternative to the t-test and while the t-test compares means of a variable for two groups, the Mann-Whitney U test compares medians (Pallant, 2010). For instance, the test was used to compare the medians of the average real debt per client in the financial system for cross-borrowers and exclusive clients.

Again, the H_0 hypothesis is that there is no significant difference in the medians of the two groups or, in other words, that there is no relationship between the variables. Since in this study the sample size was >30, the test statistic is assumed to follow the z-distribution, i.e. a normal distribution (Pallant, 2010). Again, SPSS computed the test statistic, in this case a z-value, and the corresponding p-value. A significant difference in the medians of the two groups was assumed if the p-value was <0.5.

As before, the effect size had to be determined to assess the magnitude of the difference. For Mann-Whitney U tests this was done using a value of r that was calculated as follows: r = z / square root of N where N = total number of cases (Pallant, 2010). Thereby the criteria of Cohen (1988) as cited in Pallant (2010) where used to classify the effect as a small effect for r=0.1, a medium effect for r=0.3 or a large effect for r=0.5.

To complement the tests described so far, the relationship between cross-borrowing and indebtedness was also assessed using graphs and a Spearman's correlation test. Spearman's test had to be used since the indebtedness variables were not normally distributed. Spearman's Rank Order Correlation is the nonparametric pendant to the Pearson product-moment correlation and it is used to assess the association between two ranked variables, assuming that the relationship between the two variables is monotonic (Pallant, 2010).

When using SPSS, the test statistic Spearman's rho and the corresponding p-value are computed. Spearman's rho can range from -1 to 1, and is interpreted as follows (Lind et al., 2011)

- 0.00 - 0.19 very weak correlation,
- 0.20 - 0.39 weak correlation,
- 0.40 - 0.59 moderate correlation,
- 0.60 - 0.79 strong correlation,
- 0.80 - 1.00 very strong correlation.

7.4.5 Cross-borrowing and repayment performance

In the next section of the quantitative analysis, the relationship between borrowing behaviour and repayment performance was examined. The objective was to understand if cross-borrowing had an impact on the repayment performance.

Measuring the repayment performance

In a first step, the measure for the repayment performance had to be chosen. The objective was to use a measure that is as precise as possible, i.e. based on as much information as possible. Therefore, the study used a measure suggested by Vogelgesang (2003), namely the average number of days overdue per payment.

To calculate the measure, the number of scheduled payments (NP) was collected as well as the scheduled payment dates (SPD) and the dates when payments were actually made (APD). This allowed calculating the number of days overdue (DO) for each payment (APD-SPD), with a negative result indicating that the payment was made before its scheduled due date. By summing up the DOs for each payment and dividing the sum by NP, the average number of days overdue (ADO) could be calculated as shown in the following equation. For the average to be meaningful, loans with less than three[34] payments were excluded.

$$ADO = \frac{\sum_{1}^{NP} DO}{NP}$$

The advantage of this measure is that it reduces the influence of the number of scheduled payments by using an average per payment. This impact can never be fully eliminated. For instance, a client who needs to repay 1000 Soles in ten months has to pay twice as much per month as the client with 20 scheduled payments (leaving the impact on the interests aside in this simplified example). And the higher the payment, the more difficult it is to accumulate the amount and the more likely are delays. To fully eliminate this effect, only loans with the same loan amount, the same interest rate and the same number of scheduled payments could be compared, which would lead to a large number of sub-samples with the disadvantage of small sample sizes. Also, the impact of different repayment schedules in the case of EDYFICAR is limited by the fact that the number of payments is agreed upon between the client and EDYFICAR. Also, each client in the sample repays monthly, which is an advantage in comparison to Vogelgesang's sample that also contained weekly and fortnightly schedules. So, despite the

[34] Note that Vogelgesang excluded loans with less than six scheduled payments. However, her sample contained loans with weekly and fortnightly payments. In this study, all repayment schedules were based on monthly payments and it would not be reasonable to exclude all loans with a maturity of less than six months, since also shorter durations are common for microloans.

awareness that repayment schedules matter, the measure was used to compare repayment performances of loans with different schedules.

Since the main interest in this study is in the client perspective rather than in the loan perspective, again average measures of the repayment performance per client were calculated. This was done by summing up the ADOs of a client and dividing the sum by the client's number of loans in the sample, as shown in the following equation.

$$CADO = \frac{\sum_{1}^{Number\ of\ loans} ADO}{Number\ of\ loans}$$

With regard to the repayment performance, the use of average measures per client had several advantages. First, it allowed taking the client perspective. Second, using average measures was necessary to take the clients' loan strategies into account. When a client rolled-over debt from one loan to a subsequent loan, analysing the first loan separately from the second loan would lead to wrong conclusion. Looking at average measures instead, solved this issue since all loans of a client were considered. Third, client characteristics that could not be observed, like for instance being a responsible person, were likely to impact the repayment behaviour. Since the data panel of loans was unbalanced (i.e. some clients were represented with more loans than others) the characteristics of those clients would be overrepresented in the loan perspective and could hardly be controlled for. And fourth, external events that could not be observed, like for instance illness, were likely to impact the repayment performance. So, having information on more than one loan per client was an advantage since building the average over several loans reduced the impact of those external events and thus contributed to assess the actual impact of cross-borrowing.

Having said that, unfortunately, for 192 clients out of the 497 clients for which repayment information was given, only one loan was available to calculate the repayment measure. For the other clients, the average measure was based on between two and 18 loans.

This limitation, however, is of minor importance since the main analysis regarding cross-borrowing and repayment performance was based on a sub-sample of 352[35] clients for whom information on cross-borrowing and repayment performance was available. In this sub-sample the repayment measure for 86.4 percent of the clients was based on at least two observations and for more than half of them (56.8%) it was based on at least three observations.

When calculating the repayment measure per client, challenges arose from the fact that clients followed complex loan strategies. This complexity had to be accounted for by adapting the measure in certain cases, as will be described in detail below.

Exploring the repayment performance

After the repayment measure for each client had been calculated, a number of statistical tests were performed to assess the relationship between borrowing behaviour and the repayment performance.

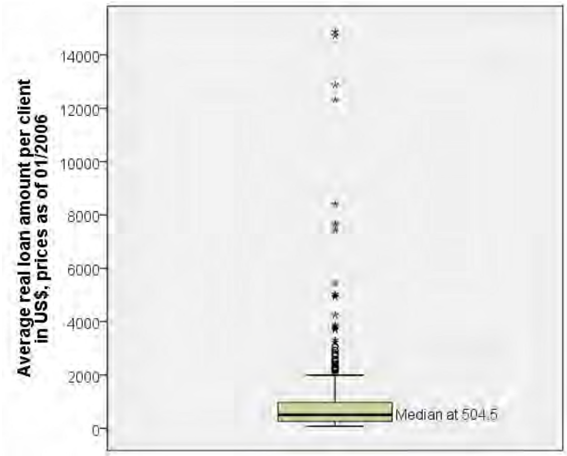
In a first step, the repayment performance of the clients in the sample was explored. This could be done for the 497 clients for whom data on the repayment performance was available. This sub-sample of clients was denominated sub-sample 1.

Descriptive measures as minimum, maximum, mean, median and standard deviation were calculated and the boxplot was generated. Those procedures allowed understanding the data and gave insights into the clients' repayment behaviour.

A boxplot is a graph that shows the distribution of the values of a variable, as in the example below. In the graph, the box is the interquartile range that contains 50% of the cases, while the whiskers go out to the largest and smallest value that SPSS does not consider outliers. Outliers (indicated with an °) in SPSS are cases that extend more than 1.5 box lengths from the edge of the box and extreme outliers (indicated with an *) are cases that extend more than three box lengths from the edge (Pallant, 2010). The line in the box shows the median.

[35] Note that information on cross-borrowing was available for 354 clients, but for two out of them no repayment information was given.

Figure 7: Example for a boxplot



To ensure that potential measurement errors did not distort the analyses, outliers were examined closer by looking at a number of clients in detail to understand the reasons for extreme values. Since it was found, that outliers were not a consequence of measurement errors but of specific client situations, outliers were not generally eliminated for all the analyses. However, when useful they could be eliminated for single analyses.

Sub-samples used for the analyses

The impact of cross-borrowing on the repayment performance was assessed based on different sub-samples. Sub-samples had to be used where complete information was unavailable for part of the clients.

The first sub-sample contained all 352 clients for which an average repayment measure *and* an average measure for cross-borrowing, i.e. the average number of non-EDYFICAR loans in the financial system per client, were available. In this sub-sample building averages was reasonable, since in most cases at least two observations were available. As mentioned before, when calculating the average repayment measure, for 86% percent of the clients at least two observations and for more than half of them (57%) at least three observations were available. When calculating the measure for cross-borrowing, for 65% of the clients at least two and for 55% at least three observations were available.

While building averages has certain advantages mentioned above, their use also means that part of the information gets lost. To ensure that the use of averages did not distort the findings, the analysis was repeated with another sub-sample (denominated sub-sample 3) that contained only each client's latest loan in the sample. This analysis was based on 246 clients/loans for which all relevant information was given. Hence, in this analysis no average measures were built, but for each client only one loan was considered.

In addition, the researcher wanted to make sure that outliers did not distort the results. She therefore performed all analyses with and without outliers.

Table 12 gives an overview of existing sub-samples and the corresponding sub-sets of the repayment performance measure. The table also contains information on the distribution of the repayment performance variable in the relevant sub-set. Details on these distributions will be provided in the relevant sections.

Table 12: Sub-samples and repayment measure sub-sets in the quantitative study

Sub-sample	**Number of clients**	**Repayment measure sub-sets**	**Distribution**
1: All clients, for which CADO is available	497	CADO_1	Not normal
1a: Sub-sample 1 minus the outliers of sub-sample 1	405	CADO_1a	Reasonably normal
2: All clients, for which CADO *and* information on cross-borrowing is available	352	CADO_2	Not normal
2a: Sub-sample 2 minus the outliers of sub-sample 2	291	CADO_2a	Reasonably normal
3: Latest loans of all clients, as long as information on repayment performance and cross-borrowing is available	246	ADO	Not normal
3a: Sub-sample 3 minus the outliers of sub-sample 3	219	ADO_a	Reasonably normal

Considering all loans of a client in the sample

The analysis based on all loans of a client in the sample could be done for the 352 clients in sub-sample 2, out of which 127 clients were exclusive borrowers and 225 clients were cross-borrowers.

In a first step, exclusive clients and cross-borrowers were compared with regard to their repayment performance. A Mann-Whitney U test was used since the continuous dependent variable (repayment performance) was not normally distributed.

Subsequently, the researcher wanted to rule out a possible distorting effect caused by the outliers. Therefore, outliers were eliminated and the groups were compared again. This time, independent-samples t-tests could be used since after the elimination of the outliers, the repayment performance measure was reasonably normally distributed.

The t-test is the parametric pendant to the Mann-Whitney U test and compares the means of the dependent variable for two groups. Using SPSS the t-statistic and corresponding p-value were generated and a significant difference in the means of the repayment performance measure for exclusive clients and cross-borrowers was assumed when the p-value was $<=0.05$. The effect size in the t-test was assessed using the measure of eta squared which is calculated as t2/(t2 + N1 + N2 -2) and which was interpreted as follows based on Cohen (1988) as cited in Pallant (2010): Eta squared of 0.01 means small effect, 0.06 means moderate effect and 0.14 means large effect.

The procedures to compare groups of cross-borrowers and exclusive clients were furthermore repeated with different thresholds dividing the groups as will become clear in the results section.

To complement the analyses done so far, graphs were used to plot the medians of the repayment performance measure against the number of non-EDYFICAR loans per client. This gave additional insight in how the repayment performance measure developed dependent on the borrowing behaviour. Additionally, the proportion of late payers (CADO>0) per cross-borrowing group (average number of non-EDYICAR loans) was determined.

To further examine what had been found so far a Spearman Rank Order Correlation was run on the average number of non-EDYFICAR loans per client (AvLoFSLE) and the clients' repayment performance with and without outliers (CADO_2 and CADO_2a). Spearman's correlation test had to be used since the assumptions of the Pearson's correlation test had not been met. Concretely, the variables were not normally distributed when outliers of the repayment performance were included. Also, with or without outliers the assumption of homoscedasticity was not met, meaning that the variability in scores for variable X was not similar at all values of variable Y, as could be found in the scatterplots (Pallant, 2010).

Considering the clients' latest loans in the sample

So far, the impact of cross-borrowing had been assessed using average measures per client to take all of a client's loans in the sample into account.

In a next step, only the clients' latest loans in the sample were considered to avoid possible distortions arising from the use of averages. In this analysis, 246 clients (sub-sample 3) could be considered for whom data was available on the number of non-EDYFICAR loans when applying for their latest loan in the sample as well as on the repayment performance for this loan.

The tests performed with focus on the latest loans were similar to the ones before, i.e. tests were performed to compare the repayment performance of exclusive clients and cross-borrowers and graphical analysis was used.

In addition, Spearman's correlation was used to assess whether the number of the clients' non-EDYFICAR loans in the system when applying for their latest loan (LoF-SLE) was correlated to their repayment performance in that loan with and without outliers (ADO_3 and ADO_3a).

7.4.6 Indebtedness and repayment performance

From the tests performed on the association between cross-borrowing and indebtedness and cross-borrowing and repayment performance, indirect conclusion could be drawn on the association between indebtedness and the repayment performance.

Nevertheless, additional Spearman's correlation tests were performed to examine if there were correlations between a clients' indebtedness in the financial system (with or without debt in EDYFICAR) and the repayment performance (with or without outliers) when focusing on all loans of a client in the sample or on the clients' latest loans only.

7.5 Description of the dataset

When describing the dataset it could generally be referred to clients or loans. Thus, two perspectives could be taken. Since the objective of the study was to analyse the clients' behaviour, the client perspective was used as often as possible. However, sometimes it was necessary to do analyses from the loan perspective. This will become clear in the following sections. The descriptions will state clearly which perspective is taken.

7.5.1 Clients

Sector

EDYFICAR assigns its clients a sector according to their main business activity. From the clients in the sample, the largest group (43%) operated in the commercial sector (Table 13). The microbusinesses of these clients consisted of shops or market stores where they sold different types of goods, such as food, clothes etc. The second largest group in the sample (29%) were clients working in the service sector. The activities subsumed in this sector include a large number of different services, ranging from running an internet café to offering cosmetic treatments or repairs. It further includes transport services as well as renting out living or business space. For 19% of the clients the sector is not specified. For these clients, the main activity was either unknown or could not be assigned to one of the other sectors. This group furthermore contained clients receiving a salary, i.e. clients that were employed rather than being microentrepreneurs. The remaining 9% of clients worked in the production sector, which contains all activities that generate a good, such as the fabrication of clothes, furniture, etc. It furthermore comprises agricultural activities.

As becomes clear here, in the sample only sectors were represented that could be found in Lima and in consequence, the agricultural sector was not part of the sample. This constitutes a limitation in the generalisability of the study as will be explained in the discussion section.

It is noteworthy that there can be inaccuracies in the assignment of the sectors. For instance, the renting out of commercial space (e.g. renting out a shop) can be subsumed under the commercial sector or the service sector. However, the inaccuracies are not presumed to change general conclusions.

Table 13: Number of clients per commercial sector

Sector	Number of clients	Percentage of clients
commerce	233	43%
no specific sector	102	19%
production	51	9%
service	161	29%
Total	547	100%

To assess how representative this distribution was, it was compared to a snapshot of the EDYFICAR Lima database as of 16.12.2011. Thereby it was found that the distribution of the sectors in the sample was similar to overall database, in which 47% of the clients worked in the commercial sector, 15% had no sector assigned, 9% worked in the production sector and 29% worked in the service sector.

Gender

52% of the clients in the sample were female and 48% were male. The gender distribution in the different sectors varied considerably (Table 14). While 72% of the clients in the commercial sector were women, only 33% in the service sector were female.

Table 14: Gender distribution per commercial sector

Sector	Gender of clients per sector		Total
	female	**male**	
commerce	167	66	233
	72%	28%	100%
no specific sector	41	61	102
	40%	60%	100%
production	24	27	51
	47%	53%	100%
service	53	108	161
	33%	67%	100%
Total	285	262	547
	52%	48%	100%

The gender distribution of the sample was well in line with the distribution in the overall EDYFICAR client base, in which 48% of all clients were female in 2011 (Financiera EDYFICAR S.A., 2011). As becomes clear from this distribution, EDYFICAR is not especially targeting women but clients from both genders.

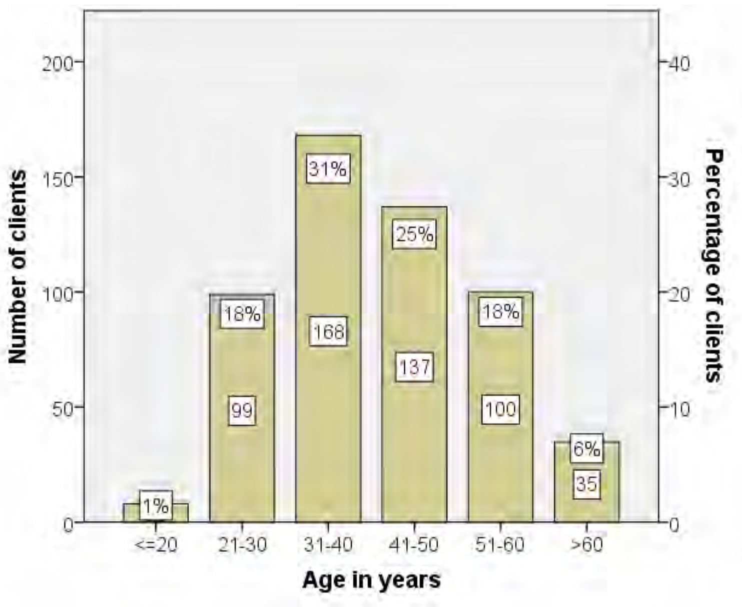
Civil status

27% of the clients in the sample were married, while 70% were single. Furthermore, the sample contained nine divorced and eight widowed clients. The lowest fraction of married clients was found in the production sector (22%), whereas the highest fraction was in the service sector (28%). As was confirmed by EDYFICAR, the civil status distribution of the sample also was in line with the distribution in the overall EDYFICAR client base.

Age

When the sample was taken, the youngest client in the sample was 19 years old and the oldest client 74. Half the clients (50%) were 40 or younger and three quarters (75%) were 50 or younger (Figure 8). Given that EDYFICAR disburses loans to microentrepreneurs, i.e. to people in the productive age, and given that EDYFICAR strongly emphasises bank penetration, i.e. the provision of loans to people who have not had formal loans before, this age structure is not surprising.

Figure 8: Number of clients per age group



Education

The education level of the clients, which could be measured by their highest educational degree, was very homogeneous. Almost all clients (98%) had finished secondary school and no further differentiation within this group was possible. The remaining clients in the sample had left the education system after the primary school (1%) or had studied at a technical school (1%). Only two persons in the sample had studied at university.

Client rating

To categorise the clients in terms of risk EDYFICAR uses a client rating system with a scale similar to the one used by the international rating agencies. The risk class assigned to a client depends on the reliability the client has demonstrated in the financial system in the past as well as on the client's current indebtedness in the system, whereby the debt as well as the number of loans is taken into account.

A+ categorises the less risky clients while 'risky' categorises the most risky clients. Clients who have not had former loans are consequently labelled as 'new', whereby this stands for the lack of historical information rather than for an actual risk class. A client has the label 'new' for six months before he is moved to another risk category.

In the sample, 12% of the clients were in A+, 7% in A, 19% in C1, 25% in C2, 13% were considered risky and 23% were new clients. However, there were differences across sectors as shown in table 15. While in the service sector 24% of the clients were in A+ or A, this fraction was only 17% in the commercial sector. The highest fraction of risky clients was in the production sector with 24%.

Table 15: Number of clients per sector and risk class

	Risk classes						Total
Sector	**A+**	**A**	**C1**	**C2**	**risky**	**new**	
commerce	27	12	42	70	29	53	233
	12%	5%	18%	30%	12%	23%	100%
no specific sector	13	8	17	25	10	29	102
	13%	8%	17%	25%	10%	28%	100%
production	7	4	10	7	12	11	51
	14%	8%	20%	14%	24%	22%	100%
service	21	17	33	36	22	32	161
	13%	11%	20%	22%	14%	20%	100%
	68	41	102	138	73	125	547
Total	12%	7%	19%	25%	13%	23%	100%

Over-indebtedness ratio

In recent years, in the Peruvian financial market there has been a stronger emphasis on customer protection, especially regarding the topic of over-indebtedness. Therefore, the SBS requires the financial institutions to introduce measures of over-indebtedness which they need to report for each client. Since the concept of over-indebtedness is related to a client's ability to repay his debt, income has to be considered in the over-indebtedness measure. To this purpose, EDYFICAR has developed its own measure, which is calculated as follows:

$$\text{Over-indebtedness ratio} = \frac{(\text{debt in the financial system - mortgage})/12}{\text{monthly payment capacity.}}$$

The enumerator in the function measures the payment a borrower has to make each month to repay his debt. The mortgage is subtracted from the debt in the system, since it is a long-term liability (and therefore should not be divided by 12 as will be explained later). Furthermore it can be argued that usually a property, i.e. a house or flat, is existent in the cases where there is a mortgage. And since this property is not taken into account when calculating the payment capacity one can argue that the mortgage does not need to be taken into account when calculating the monthly repayments. EDYFICAR is aware of the fact that this approach has weaknesses since it mixes the concepts of cash outflows (monthly payments to be made) and fixed assets (property like houses or flats) but it still lends itself as a simplified measure to assess over-indebtedness. The reason for dividing the enumerator by 12 is the underlying assumption that the loans have an average maturity of 12 months. This assumption fits to the EDYFICAR loans in the sample, since more than half of them (52%) have a maturity of 10 to 12 months. So, when the debt in the financial system is looked up in the existing databases (which can either be the database of the SBS or the databases of private credit bureaus), the assumption is that in the following 12 months this debt will be repaid evenly.

As has been explained in the qualitative part of the study, the monthly payment capacity is usually estimated by the loan officer together with the client. Therefore, on a very detailed level, all personal and business expenditures are estimated as well as the client's income. The difference between income and expenditures is the maximum payment capacity, since that is the maximum of what a client could pay each month to cancel debt. EDYFICAR only gives loans until the repayment of a client's debt reaches 80% of the client's repayment capacity.

The dataset contained the latest available over-indebtedness ratio for each client, which was either as of February 2011 or December 2011, depending on when the latest ratio was calculated. For 40 clients the ratio is missing, as it was not available in the data systems. It was not possible to obtain a time series of the indebtedness-ratios since historical values could not be extracted from the system.

Three clients had a ratio of 0 in the sample. Since all of them had debt, a ratio of 0 could only occur when the client's debt in the system equalled his mortgage. As it was not likely that this should coincidentally be the case for three clients, their over-indebtedness ratio was considered an error and eliminated.

When analysing the remaining 504 observations, it was found that the average over-indebtedness ratio was 0.72. However, for the distribution of the values the median was the more appropriate measure to look at and it was at 0.45. Almost half of the clients (46%) had a ratio of less than 0.4. This means that the monthly payments to repay their debt made up only 40% of their payment capacity. 82% of the clients in the sample had a ratio of <= 1, i.e. their payment capacity still covered the required monthly repayments. The remaining 18% had a ratio >1, which according to EDYFICAR's definition means that they were over-indebted (Table 16).

Table 16: Number of clients per over-indebtedness ratio cluster

Over-indebtedness ratio	N° of clients	Valid Percent	Cum. Percent
<=0.20	102	20	20
0.21-0.40	128	25	46
0.41-0.60	95	19	64
0.61-0.80	59	12	76
0.81-1.00	28	6	82
1.01-2.00	56	11	93
2.01-3.00	21	4	97
3.01-4.00	9	2	99
>4	6	1	100
Total	504	100	
Missing	43		
Total	547		

Differences across the sectors were moderate. In all sectors between 53% and 67% of the clients had a ration of <=0.5 and between 79% and 86% had a ratio of <=1. This means that in all sectors, for more than three quarters of the clients the monthly repayment of their debt was lower than their repayment capacity (Table 17).

Table 17: Number of clients per sector and over-indebtedness ratio cluster

	Over-indebtedness ratio cluster					Total
Sector	**<=0.50**	**0.51-1.00**	**<=1**	**1.01-2.00**	**>2**	
commerce	113	56	169	28	17	214
	53%	26%	79%	13%	8%	100%
no specific sector	59	21	80	9	4	93
	63%	23%	86%	10%	4%	100%
production	32	9	41	6	1	48
	67%	19%	85%	13%	2%	100%
service	84	38	122	13	14	149
	56%	26%	82%	9%	9%	100%
Total	288	124	412	56	36	504
	57%	25%	82%	11%	7%	100%

Since there was no time series available for the over-indebtedness ratio, it was not possible to undertake an historical assessment.

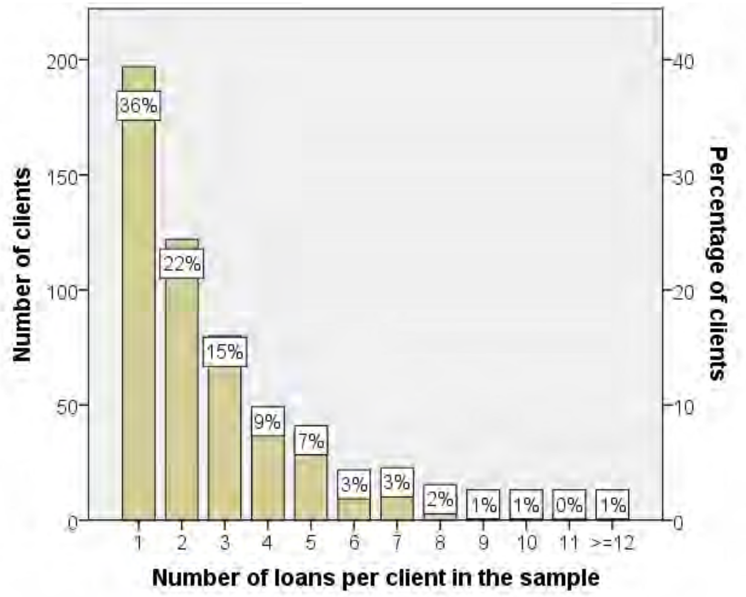
7.5.2 Loans per client

To keep the focus on the client as much as possible, average measures for the loans per client were computed as described in the following section.

Number of loans per client in the sample

The sample contained 1574 loans taken by 547 clients in the relevant time span, whereby 82% of all clients in the sample had taken four EDYFICAR loans or less in the relevant time span (Figure 9).

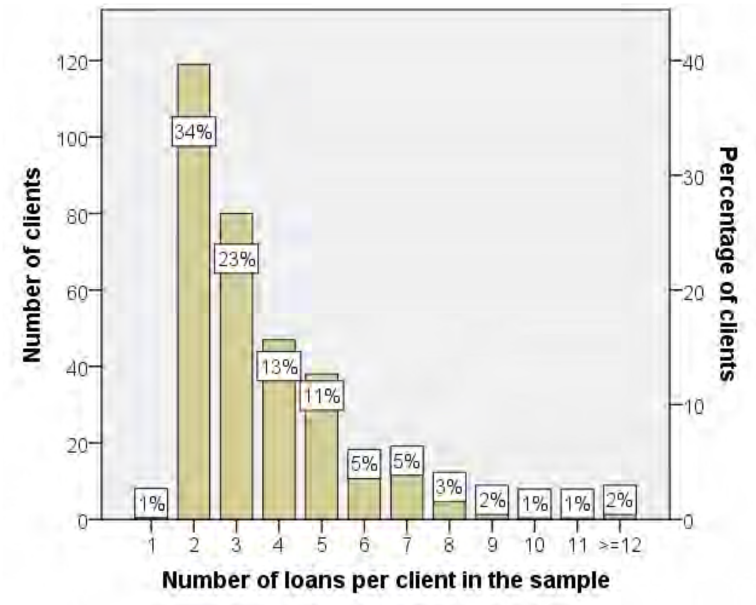
Figure 9: Number of loans per client



Women in the sample on average took slightly more loans (3.0) than men (2.8) and married clients more (3.1) than single (2.8).

Note that roughly one third (36%) of the clients in the sample were represented with only one loan. Hence, when constructing average measures per client, no real average could be built for these clients but the analysis was based on one loan only. The importance of this shortcoming for the main findings is limited however, since the main analysis on cross-borrowing and repayment performance was based on a sub-sample of 352 clients, for whom all relevant information was available. Out of those 352 clients, only five (1%) were represented with one loan and 65% were represented with more than two loans. This resulted from the fact, that the clients with only one loan in the sample were the newest EDYFICAR clients and for those clients information on cross-borrowing was often lacking. In the sub-sample of those 352 clients, 99% were represented with two loans or more, which made building averages a reasonable procedure (Figure 10).

Figure 10: Number of loans per client (with complete information)



Average loan amount per client

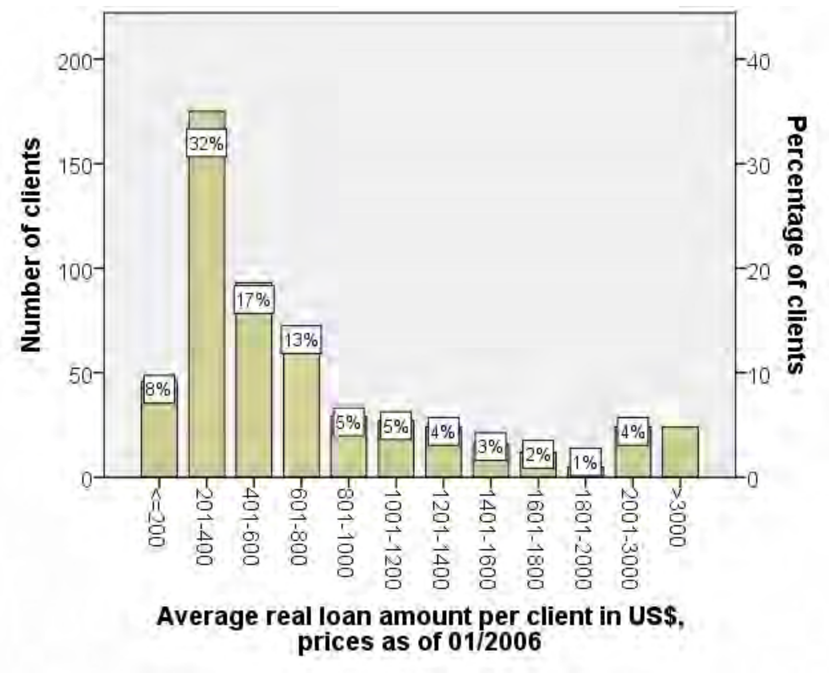
For each client the average size of loans in the sample was calculated in US$ and prices as of January 2006. The mean of the average loan amount per client was US$ 918, the median was US$ 504 (Table 18). The average loan amounts ranged between US$ 77 and US$ 14,872. Note that the minimum and maximum are not the values for the smallest or largest loan in the sample. Instead, they are the values for the smallest and largest average loan amount per client, i.e. in these analyses in a first step the average loan size per client has been calculated and in a second step the statistics of these averages as shown in the table were computed.

Table 18: Average real loan amount per client

Descriptive measures for the average real loan amount per client in prices as of 01/2006	**US$**
Mean	918
Median	504
Std. Deviation	1466.7
Minimum	77
Maximum	14872

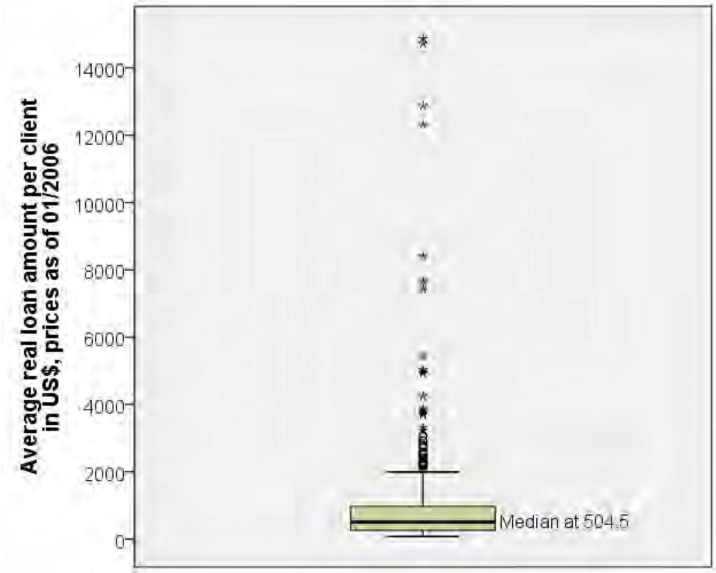
Since 40% of the clients had taken loans with an average loan amount of US$ 400 or less in prices as of January 2006, the distribution had a positive skew, i.e. the mean is larger than the median (Figure 11).

Figure 11: Average real loan amount per client



In addition, the boxplot shows that the distribution had a large spread (Figure 12). Note however, that the spread may be caused by the fact that some clients (36%) were represented with only one loan. If this single loan was large, it appears as an extreme value in the boxplot because the client had no other loan in the sample that could bring the average loan size on a more balanced level. Nevertheless, the existence of loans with very large amounts up to almost US$ 15.000 mirrored the fact that microfinance in Peru has become relatively commercialised and the spread of the distribution mirrored that a wide range of customers with different economic backgrounds are served.

Figure 12: Boxplot of the average real loan amount per client



The average loan size per client differed among sectors (Table 19). For the existence of extreme values in the distribution, the median was the more appropriate measure to look at. While the median was US$ 747 in the production sector, it was only US$ 363 for clients that did not have a sector assigned to them. That clients in the production sector took loans with relatively higher amounts may be due to the fact that the activities in the production sector are capital intense, since they require the purchase of inputs and/or production tools before the microentrepreneur can start working. At the same time clients in the production sector and commercial sector often have assets to back up loan as for instance building materials, stores or merchandise. Therefore, it is easier for them to obtain larger loans than for their peers.

Note again that the measures in the following tables are descriptive measures of the average loan amounts in US$ in prices as of January 2006. That means that the mean in this table is the mean of the average loan amounts taken by the clients per sector.

Table 19: Average real loan amount per client and sector

Aver. real loan amount per client and sector in US$, prices as of 01/06					
Sector	**N° of clients**	**Mean**	**Median**	**Min**	**Max**
Commerce	233	1026	532	123	14872
No specific sector	102	502	363	124	2177
Production	51	1138	747	125	12321
Services	161	956	509	77	14719
Total	547				

In the sample, clients that were 30 years or younger had on average smaller loans than clients over 30 (Table 20). This is likely to be caused by the fact that younger clients generally have less of a credit history to prove reliability, which is why they usually start off with smaller loans. When they repay those loans in time, MFIs use progressive lending and disburse larger amounts at a later point in time.

Table 20: Average real loan amount per client and age group

Aver. real loan amount per client and age group in US$, prices as of 01/06					
Age	**N° of clients**	**Mean**	**Median**	**Min**	**Max**
<=20	8	337	254	124	759
21-30	99	619	379	124	5029
31-40	168	1013	559	123	14872
41-50	137	959	504	124	14719
51-60	100	1054	611	123	12321
>60	35	894	547	77	3750
Total	547				

Differences in the average loan sizes across gender were not remarkable with the mean for females being at US$ 852 and the median at US$ 493, while the values for men were slightly higher with a mean of US$ 990 and a median of US$ 517.

However, there was a difference between married and single clients, namely that married clients had taken larger loans (Table 21), which again is likely to be caused by the fact that for married clients it is easier to obtain larger loans since there are two people responsible for the repayment.

Table 21: Average real loan amount per client and civil status

Aver. real loan amount per client and civil status in US$, prices as of 01/06					
Civ. Stat.	**N° of clients**	**Mean**	**Median**	**Min**	**Max**
Married	145	1105	650	77	12321
Single	385	853	447	123	14872
Divorced	9	766	421	198	2177
Widowed	8	839	284	206	4251
Total	547				

Since EDYFICAR uses dynamic incentives, i.e. it gives out larger loans to clients that proved reliable in the past, it was not surprising that clients with more loans in the sample had larger average loan amounts (Table 22). Again, the median is the right measure to look at due to the existence of extreme values.

Table 22: Average real loan amount per client and number of loans

Aver. real loan amount per client and n° of loans in US$, prices as of 01/06					
N° of loans	**N° of clients**	**Mean**	**Median**	**Min**	**Max**
1	197	852	373	77	12877
2	122	783	440	126	14719
3	80	1155	510	150	14872
4	47	838	722	226	2744
>4	101	1060	759	132	5442
Total	547				

Average number of loans in the financial system

As mentioned before, when a client applies for a loan, EDYFICAR analyses the client's indebtedness in the financial system using reports provided by the credit bureau of the SBS. As the reports become available with a delay of two months, the reports show the client's situation in the financial system two months prior[36] to applying for an EDYFICAR loan. Since the reports are drawn each time a client applies for a loan, the sample

[36] For the ease of reading, the fact that there is a two months time gap will not be repeated in the remainder of the dissertation.

was supposed to contain information out of 1574 reports. Unfortunately, information was missing in 504 cases. Why this information was missing is unknown by EDYFICAR and the researcher.

Table 23 shows the average number of loans – including EDYFICAR loans – in the financial system each client had when applying for an EDYFICAR loan. Only 12 clients out of the 354 clients under consideration had on average 0 loans. That means that 97% had at least in one occasion another loan when applying for an EDYFICAR loan.

Table 23: Average number of loans per client

Average n° of loans per client in the fin. system	N° of clients	Percent	Cumulative Percent
0	12	3	3
0.1-0.5	10	3	6
0.6-1.0	132	37	44
1.1-1.5	45	13	56
1.6-2.0	77	22	78
2.1-2.5	22	6	84
2.6-3.0	34	10	94
>3	22	6	100
Total	354	100	

(Analysis undertaken only for the 354 clients with data available)

Since cross-borrowing refers to borrowing from different lenders, table 24 shows the average number of non-EDYFICAR loans per client in the SBS reports. That is, it shows how many loans from creditors other than EDYIFICAR the 354 clients had when applying for an EDYFICAR loan. It was found that 127 clients (36%) did not have loans from non-EDYFICAR sources. When comparing this to the previous table, it becomes clear that 115 of those clients did have EDYFICAR loans however, which is why in that previous table only 12 clients were found with no loans. That means in turn, 64% of the clients under consideration had at least in one occasion a loan from a different lender when applying for an EDYFICAR loan. For 27% the value is even higher than one and for 8% it is higher than two. These numbers show the importance of cross-borrowing in the Peruvian financial system. Also, they show that a large part of the clients in the sample (115) already applied for a new loan in EDYFICAR when they were still paying of a previous EDYFICAR loan.

Table 24: Average number of non-EDYFICAR loans per client

Average n° of non-EDYFICAR loans per client in the fin. system	N° of clients	Percent	Cumulative Percent
0	127	36	36
0.1-0.5	50	14	50
0.6-1.0	83	23	73
1.1-1.5	25	7	81
1.6-2.0	41	12	92
2.1-2.5	7	2	94
2.6-3.0	14	4	98
>3	7	2	100
Total	354	100	

Average number of creditors in the financial system

A client can have more than one loan from one lender, which means that the number of loans does not necessarily equal the number of creditors. However, table 25 shows that differences in the average numbers of loans and average number of creditors prior to taking a EDYFICAR loan are relatively small. While 44% of the clients under consideration had on average one loan in the system or less, 45% of the clients had one creditor or less. And while 22% had more than two loans in the system, this fraction was 19% when looking at other creditors. Hence, in most cases the clients under consideration had one other loan per lender.

Table 25: Average number of creditors per client

Average n° of creditors per client in the fin. system	N° of clients	Percent	Cumulative Percent
0	12	3	3
0.1-0.5	10	3	6
0.6-1.0	138	39	45
1.1-1.5	47	13	58
1.6-2.0	80	23	81
2.1-2.5	21	6	87
2.6-3.0	40	11	98
>3	6	2	100
Total	354	100	

The same hold true when looking at non-EDYFICAR creditors. There, 74% of the clients under consideration had one loan or less with 76% having one creditor or less (Table 26). And 8% had more than two loans with 3% being in that cluster when looking at the creditors.

This finding is important when deciding on the variable to be used to measure cross-borrowing as will be explained more in detail below.

Table 26: Average number of non-EDYFICAR creditors per client

Average n° of non-EDYFICAR creditors per client in the fin. system	N° of clients	Percent	Cumulative Percent
0	127	36	36
0.1-0.5	51	14	50
0.6-1.0	91	26	76
1.1-1.5	33	9	85
1.6-2.0	40	11	97
2.1-2.5	6	2	98
2.6-3.0	5	1	100
>3	1	0	100
Total	354	100	

Average real amount of debt in the financial system

Table 27 shows the average amount of debt that each of the 354 clients had when applying for an EDYFICAR loan in dollar and prices as of January 2006. More than half of the clients (53%) had more than US$ 400 to repay and 21% had to repay even more than US% 1400.

Table 27: Average real debt in the financial system per client

Average real amount of debt in fin. system in US$, prices as of 01/06	N° of clients	Percent	Cumulative Percent
0	12	3	3
1-200	91	26	29
201-400	62	18	47
401-600	45	13	59
601-800	29	8	68
801-1000	15	4	72
1001-1200	15	4	76
1201-1400	12	3	79
1401-1600	8	2	82
1601-1800	7	2	84
1801-2000	3	1	84
2001-3000	27	8	92
>3000	28	8	100
Total	354	100	

Again, in the context of cross-borrowing it was interesting to see the amount of debt per client outside EDYFICAR, which is shown in table 28. Even without considering the debt of each client in EDYFICAR, still almost half the clients (47%) owed more than US$ 200 when applying for an EDYFICAR loan and almost one fifth (19%) had to repay more than US$ 1000.

When considering that in the last quarter of 2011, the average wage[37] in Lima was approximately US$ 470, these amounts are considerable (Peruvian Times 2012).

Table 28: Average real non-EDYFCAR debt in the financial system per client

Average amount of non-EDYFICAR debt in fin. system in US$, prices as of 01/06	N° of clients	Percent	Cumulative Percent
0	127	36	36
1-200	59	17	53
201-400	40	11	64
401-600	31	9	73
601-800	12	3	76
801-1000	18	5	81
1001-1200	11	3	84
1201-1400	7	2	86
1401-1600	3	1	87
1601-1800	10	3	90
1801-2000	2	1	90
2001-3000	18	5	95
>3000	16	5	100
Total	354	100	

As can be seen from the analyses of loans, creditors and debt in the financial system, a large number of clients were already indebted when applying for an EDYFICAR loan. The interesting question is whether this fact had an influence on the client's repayment performance with EDYFICAR. This question will be looked at below.

7.5.3 Loans

In the following part of the text the structure of the loans will be described. Note that this will only be done for variables, for which a description on a client level is not useful. For instance, there cannot be an average of the disbursement year of loans.

[37] Microentrepreneurs do not usually receive salaries but have their income generated from their business activities. However, a quantification of the average income for microentrepreneurs could not be found and the average salary allows getting a feeling for how much debt per client there was.

Disbursement years of loans in the sample

After the clients for the sample were randomly chosen, their EDYFICAR loans since 01.01.2006 were looked up. Table 29 shows the distribution of the disbursement years of those loans. Since the sampling frame consisted of clients with loans disbursed in 2010 and 2011 and since older loans were only added if these clients had taken former loans, the number of loans per disbursement year increased with the disbursement year.

Table 29: Disbursement year of the loans in the quantitative sample

Disbursement Year of loans	Frequency	Percent	Cum. Percent
2006	83	5	5
2007	123	8	13
2008	170	11	24
2009	228	14	38
2010	446	28	67
2011	524	33	100
Total	1574	100	

Maturity of the loans

As shown in table 30, the maturity of the loans in the sample was in most of the cases (88%) no longer than one year and 28% of the loans were to be repaid within six months. The fact that the loans are rather short-term is typical for microloans and eases the planning for the borrower.

Table 30: Maturity of the loans in the quantitative sample

Maturity in months	Frequency	Percent	Cum. Percent
<=3	40	3	3
4-6	397	25	28
7-9	131	8	36
10-12	819	52	88
13-18	116	7	95
19-24	56	4	99
25	15	1	100
Total	1574	100	

Interest rates

The annual interest rate in percent seemed high with almost half of the clients in the sample (49%) having to pay between 41% and 50% p.a. and another fifth of the clients (22%) having to pay even more than 50% of interest p.a. (Table 31). However, in this context it must be remembered that the maturity of the loan are rather short with 88% of all loans in the sample having a maturity of less than 12 months. Hence, interests do not usually accumulate over long periods. Also, the interest rate reflects the risk of default for each client and the fact that microentrepreneurs often lack assets to back up their loans. In addition, the borrowers' alternative would usually be informal loans, which are either even more expensive – in the case of moneylenders – or go along with other disadvantages described in the qualitative study – in the case of family loans, juntas or banquitos. Last but not least, inflation reduces the real interest burden.

Table 31: Interest rate p.a. of the loans in the quantitative sample

Annual interest rate [%]	Frequency	Percent	Cum. Percent
<=20	7	0	0
21-30	92	6	6
31-40	363	23	29
41-50	766	49	78
51-60	346	22	100
Total	1574	100	

Status of loans in the sample

For the way the sampling was done, the sample contained active and repaid loans (Table 32).

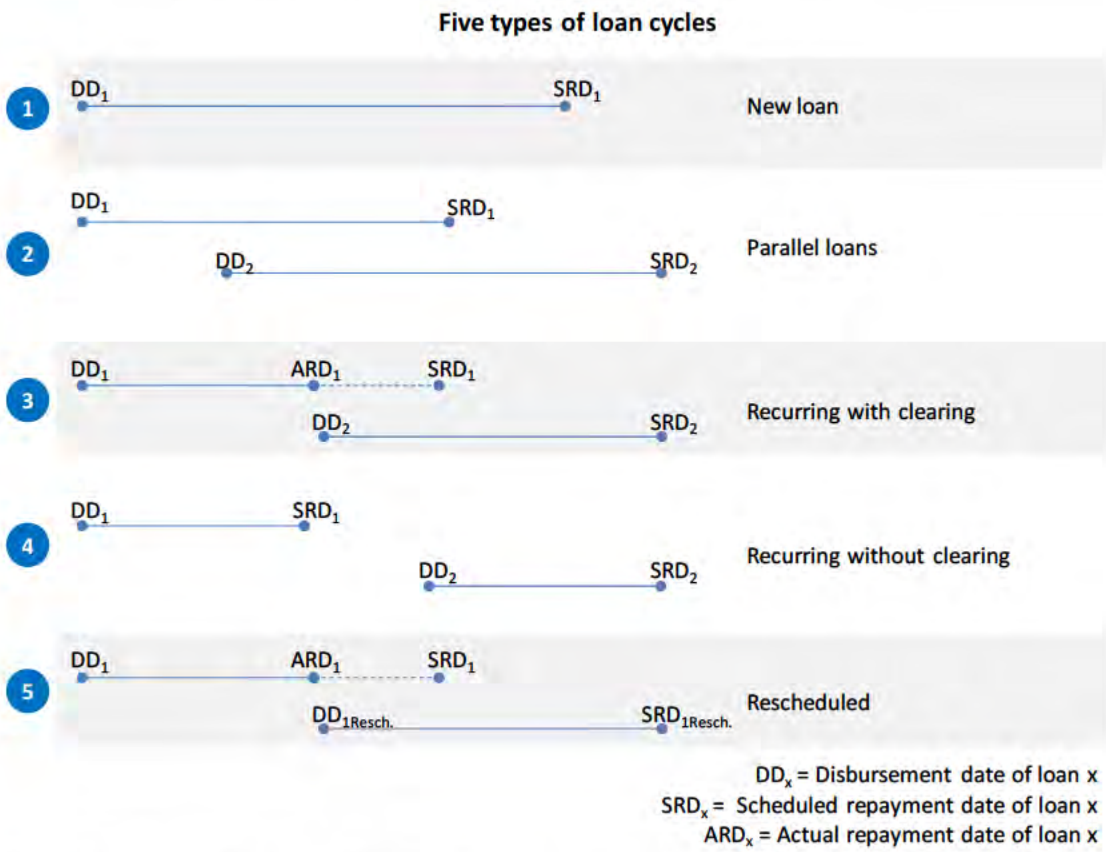
Table 32: Status of the loans in the quantitative sample

Loan Status	Frequency	Percent	Cum. Percent
active	435	28	28
repaid	1139	72	100
Total	1574	100	

Loan cycle

In contrast to the status of the loans, the cycle describes the relationship of a client's loans to each other. As will become clear later, the cycle is crucial when it comes to measures for the repayment performance. There are five different cycles that can be assigned to each loan. Figure 13 illustrates the different loan cycles using an example of a client with one or two loans.

Figure 13: Five different loan cycles for loans in the quant. sample



First, a loan could be *new (NL)*, i.e. it was the first EDYFICAR loan a client had taken.

Second, a loan could be a *parallel loan (PL)*, i.e. a client took a new loan while a previous loan was still active ($DD_2 < SRD_1$), whereby the two loans ran in parallel for a period of time. In this case, the client continued to repay both loans according to their initially agreed upon repayment schedules, which means that he temporarily made two payments each month.

Third, a loan could be a *recurring loan with clearing (RwC)*. As in the case of the parallel loan, the disbursement date of the second loan was before the scheduled repayment date of the first loan ($DD_2 < SRD_1$). However, in contrast to the parallel loan, here part of the loan amount of the second loan was used to repay the first loan on the day when the second loan was disbursed ($ARD_1=DD_2< SRD_1$). This means that the client continued to only repay the second loan.

Fourth, a loan could be *recurring without clearing (Rw/oC)*, which means that the client received a second loan after having repaid the first one normally. In this case there was a time gap between the first loan and the second loan.

Fifth, a loan could be *rescheduled (RsL)*, which would usually be the case when a client had problems to fulfil the monthly repayment obligations. In this case EDYFICAR and the client could agree upon rescheduling the loan at point in time T. The client would then receive a second loan with the amount equal to what was left to repay from the first loan. He would use this loan to repay loan 1 completely and would then continue repaying loan 2 with a new repayment schedule. Note that this case is similar to the case of the recurring loans with clearing. However, in this case the client did not actually receive a new loan with a new loan amount but his outstanding balance of the first loan was rescheduled using a second loan.

Table 33 shows the distribution of the loan cycles in the sample. One third of the loans (32%) were new, so the clients had no EDYFICAR loans. In two thirds of the cases, the clients had an EDYFICAR loan before taking the respective loan. Note that this was a consequence of the sampling, since for each sampled client the loans between 01.01.2006 and 16.12.2011 were looked up.

281 loans were recurring with clearing. This was important when looking at the client's repayment performance because the loans prior to these ones regularly were repaid long before their due date, namely when the new loans were disbursed. However, this did not mean that the clients actually paid off their debt but they rather rolled part of it over to a new loan as will be described in more detail in the section on the repayment performance.

Table 33: Cycle of the loans in the quantitative sample

Loan Cycle	Frequency	Percent	Cum. Percent
New (NL)	506	32	32
Parallel (PL)	261	17	49
Recurring with clearing (RwC)	281	18	67
Recurring without clearing (Rw/oC)	521	33	100
Rescheduled (RsL)	5	0	100
Total	1574	100	

As became clear from the loan cycle, in the case of parallel loans, recurring loans with clearing and rescheduled loans there is an overlap of loans. In the case of parallel loans, two loans actually run parallel to each other with the client repaying both of them separately. In the case of recurring loans with clearing and rescheduled loans, the first loan is repaid on the day the second loan is disbursed, so they do not actually run in parallel. However, the initially planned repayment date of loan 1 was after the disbursement date of loan 2 ($D_2<R_1$). Therefore, the loans would have run in parallel if it was not for the fact that loan 1 was repaid in advance.

7.6 Differences between cross-borrowers and exclusive clients

As introduced in the methods section of this chapter, cross-borrowers were identified via the clients' average number of non-EDYFICAR loans in the financial system (AvLoFSLE).

It was found that for 127 clients this average was zero, meaning that each time when these clients applied for an EDYFICAR loan they were NOT indebted with any other lender.

This does not mean that these clients had never been cross-borrowers in their lives since it is not known if they cross-borrowed at another point in time or whether they cross-borrowed from EDYFICAR and an informal lender not supervised by the SBS. However, it can be said that in the relevant time span the 127 clients were not cross-borrowing from formal lenders when applying for an EDYFICAR loan. It is therefore interesting to look at the differences between these clients – for the ease of reading referred to as exclusive clients (127) – and the clients that on average had >0 non-EDYFICAR loans – for the ease of reading referred to as cross-borrowers (227).

In a first step, it was assessed whether cross-borrowers were significantly different from exclusive clients in a number of demographic variables. Or in other words, it was assessed whether clients with specific characteristics were more likely to cross-borrow than others.

Chi-square tests for independence were conducted to determine whether there was an association between cross-borrowing and

- gender,
- age group,
- civil-status,
- sector,
- risk class.

The proportion of males that cross-borrowed (63%) was not found to be significantly different from the proportion of females (65%) (with Yates Correction, p=0.88, phi=0.01) and there was no significant association between the age group and the borrowing behaviour either (p=0.13, Cramer's V=0.14). However, the clients in the youngest age group, between 21 and 30 years, had the lowest fraction of cross-borrowers (49%), while in the other groups the fractions were between 66% and 71%. As had been mentioned before this is likely to be caused by fact that younger clients often lack a credit history that would enable them to cross-borrow.

When looking at the civil status, divorced and widowed clients had to be eliminated from the analyses, since otherwise the chi-square assumption of the minimum expected cell frequency, which should be 5 or greater, would have been violated. Therefore, the analysis was done with single and married clients only (N=341) and no significant association was found between civil status and borrowing behaviour (with Yates correction, p=0.63, phi=0.03). While 67% of the married clients cross-borrowed, the proportion was 63% for single clients.

In contrast, a significant association was found between the sector and borrowing behaviour (p=0.01), however the effect size was only small to medium (Cramer's V=0.19). Table 34 shows the percentages of clients from each sector that cross-borrowed or not, with the commercial sector being the one with the highest fraction of cross-borrowers and the clients with no specific sector being the ones with the lowest fraction.

Table 34: Fraction of cross-borrowers per commercial sector

Sector		**N° of cross-borrowers**	**N° of exclusive borrowers**	**Total**
commerce	Frequency	111	45	156
	% within sector	71%	29%	100%
no specific sector	Frequency	24	30	54
	% within sector	44%	56%	100%
production	Frequency	20	13	33
	% within sector	61%	39%	100%
service	Frequency	72	39	111
	% within sector	65%	35%	100%
Total	Frequency	227	127	354
	% within sector	64%	36%	100%

A possible explanation for this finding would be that microentrepreneurs in the commercial sector have a relatively high variability in their need for capital since they regularly have to stock merchandise, often with seasonal changes (like for instance winter or summer clothes). It might therefore be useful for them to work with different lenders and different loans. On the other end, as was mentioned before, clients with no specific sector assigned to them are likely to be the ones for which it is most difficult to obtain several loans at a time. Also, since employees receiving salaries belong to this group, they may also have the lowest need to cross-borrow.

However, it is important to acknowledge that the effect size of the association between cross-borrowing and the sector was small, which limits the practical meaning. And in addition, the assignation of a sector to a client is not always clear, since microentrepreneurs regularly earn their income with different activities, which do not necessarily belong to the same sector.

A significant association was further found between a client's risk class and the borrowing behaviour ($p=0.01$) again with a small to medium effect (Cramer's $V=0.22$). The highest fraction of cross-borrowers was found in the C-ratings (64% in C1 and 76% in

C2) and among the risky clients (68%) (Table 35). The lowest fraction was in the group of new clients (45%), which was likely to be caused by the fact that these clients did not yet have access to many different loan sources. This association between risk class and borrowing behaviour is a consequence of the fact that a client's borrowing strategy is considered when determining the risk class and it is therefore not surprising.

Table 35: Fraction of cross-borrowers per risk class

Risk class		**N° of cross-borrowers**	**N° of exclusive borrowers**	**Total**
A	Frequency	20	14	34
	% within risk class	59%	41%	100%
A+	Frequency	32	32	64
	% within risk class	50%	50%	100%
C1	Frequency	53	30	83
	% within risk class	64%	36%	100%
C2	Frequency	83	26	109
	% within risk class	76%	24%	100%
new	Frequency	9	11	20
	% within risk class	45%	55%	100%
risky	Frequency	30	14	44
	% within risk class	68%	32%	100%
Total	Frequency	227	127	354
	% within risk class	64%	36%	100%

Since several tests to compare groups with the same data had been done in this section, a Bonferroni adjustment was considered to ensure that the significance of the findings was not over-estimated (Pallant, 2010). For this, the required significance level was divided by the number of tests, which was in this case eight (including three tests of the next section). Hence, while a significance level of 95% would usually be strived for or an alpha level of 0.05, a p-value of 0.006 was used. By doing so, a more conservative significance level was set as a threshold and an over-estimation of significance was avoided. Even with this correction, the findings mentioned here were still significant since the p-value in the analysis of the sectors was 0.005 before rounding and 0.006 in the analysis of the risk class.

To sum up, it can be said that there was no significant association between either gender, or age group, or civil status and borrowing behaviour. The relationship between sector and borrowing behaviour was significant but the effect was only small to medium, which limits the practical meaning of the finding.

In other words, cross-borrowers can be of either gender, from different age groups, of different civil status and from different sectors. This shows again how important it is that the loan officer gets to know each client well because easily observable variables do not give insights in a client's borrowing behaviour.

The significant association between the risk class and borrowing behaviour with a medium to strong effect was no surprise, since the borrowing behaviour is taken into account when assigning a risk class.

7.7 Relation between cross-borrowing and indebtedness

In a next step, the relation between cross-borrowing and indebtedness was assessed. As mentioned before, for data availability reasons, cross-borrowing could only be related to absolute indebtedness measures but not to objective or subjective over-indebtedness measures. The implications of this shortcoming are discussed in the discussion section of this chapter.

To assess the relation of cross-borrowing and indebtedness, cross-borrowers and exclusive clients were compared regarding their

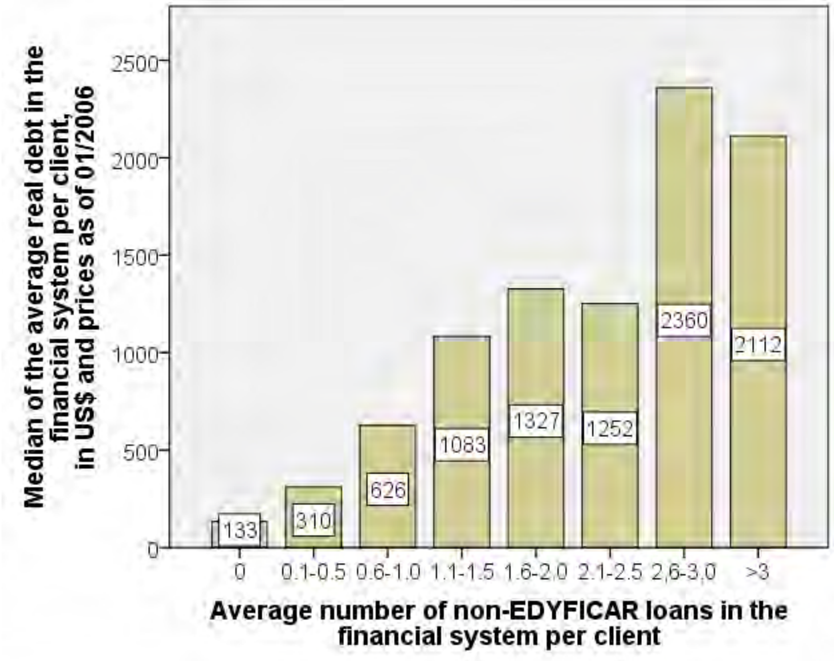
- average real debt in the financial system,
- average real loan amount with EDYFICAR,
- average interest rate paid per dollar borrowed from EDYFICAR.

The variable average real debt in the financial system (AvRD) was found not to be normally distributed (Kolmogorov-Smirnov statistic with $p<0.001$), which is why a Mann-Whitney U test was conducted.

The test showed a significant difference in the medians of the AvRD for cross-borrowers (Md=US$ 730, n=227) and exclusive clients (Md=US$ 133, n=127, $z=-11.7$, $p<0.001$), whereby the effect was very large with $r=0.62$.

When plotting the number of non-EDYFICAR loans against the median of the average real debt per client in the financial system (AvRD) an increasing trend was found, meaning that the clients' indebtedness in the financial system increased with the number of non-EDYFICAR loans in the system (Figure 14). The reason why the two groups (2.1-2.5 and >3) fell out of this trend is likely to be that these groups contained only 7 individuals.

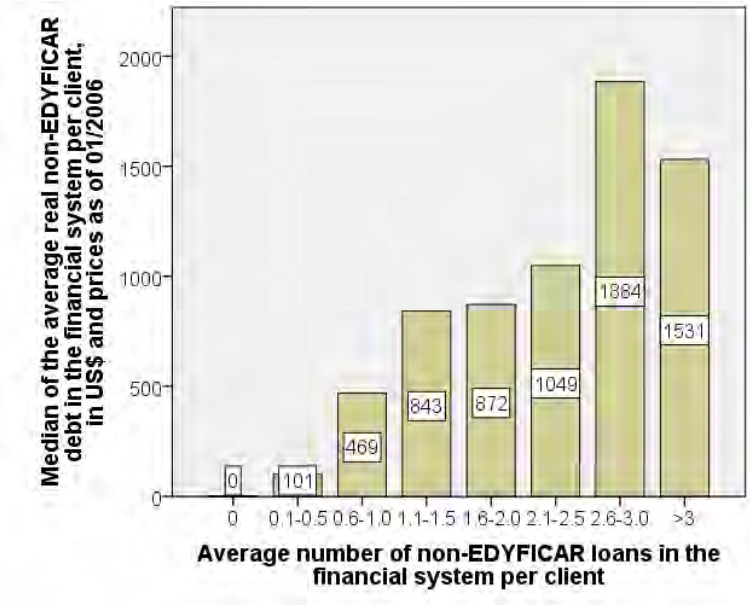
Figure 14: Average real debt and number of non-EDYFICAR loans



The Spearman's correlation test, chosen for the fact that the indebtedness variable AvRD was not normally distributed, found a highly significant correlation between a client's average debt in the financial system (AvRD) and cross-borrowing, measured in the average number of non-EDYFICAR loans (AvLoFSLE) with a correlation coefficient of 0.71 at a significance level of 99% ($p<0.001$).

A positive trend was also found when plotting the number of non-EDYFICAR loans (AvLoFSLE) against the median of the average real non-EDYFICAR debt per client in the system (AvRDLE) (Figure 15). Note that the median for clients with zero non-EDYFICAR loans is zero, as they have no non-EDYFICAR loans and consequently no non-EDYFICAR debt.

Figure 15: Average real non-EDYFICAR debt and non-EDYFICAR loans



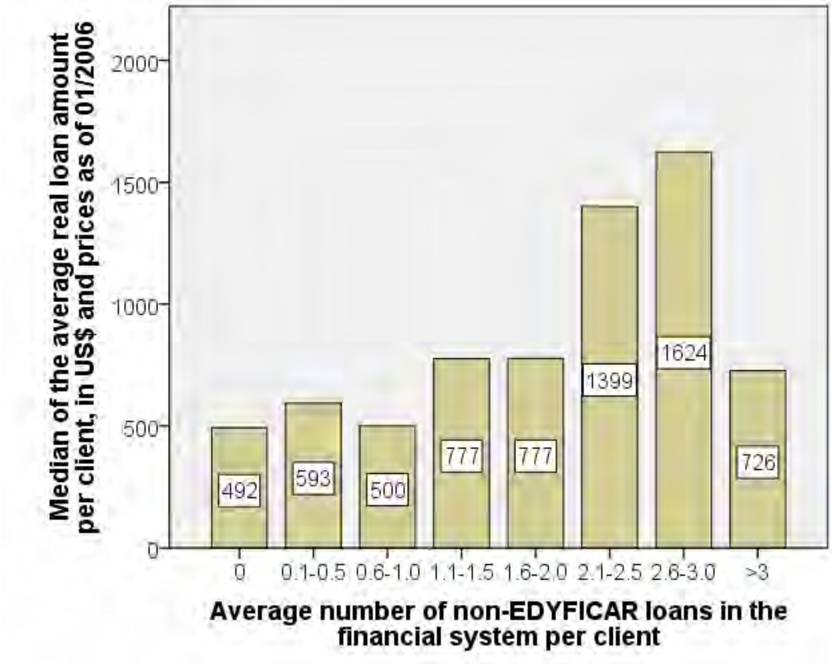
The relationship between the average number of non-EDYFICAR loans (AvLoFSLE) and the average non-EDYFICAR debt (AvRDLE) per client was also confirmed by a Spearman's correlation coefficient of 0.89 at a confidence level of 99% ($p<0.001$).

These results were in line with the qualitative part of the study finding that clients combined loans from different formal lenders mainly to obtain larger loan amounts, which leads to higher indebtedness. If they combined loans mainly for other reasons, like for instance to optimise their loan structure or interest burden, there should not have been a significant association between cross-borrowing and debt in the financial system.

The variable average real loan amount with EDYFICAR (AvRLA) was also found to be not normally distributed (Kolmogorov-Smirnov statistic with $p<0.001$), so again a Mann-Whitney U test was performed. A significant difference in the medians was found for cross-borrowers (Md=US$ 609, n=227) and exclusive clients (Md=US$ 492, n=127, z=-3.0, $p<0.001$). Here, the effect size was small to medium with r=0.16.

Like before, a generally increasing trend was found when plotting the number of non-EDYFICAR loans against the median of the AvRLA (Figure 16). However, this trend was not consistent and in consequence the Spearman's test found no correlation (coefficient of 0.2 at a confidence level of 99%).

Figure 16: Average real loan amount and number of non-EDYFICAR loans



As this finding showed cross-borrowers did not only have higher debt in the financial system through combining loans from different lenders, but they were also able to obtain larger loan amounts from their single lenders, in this case from EDYFICAR. However, the average real loan amount did not monotonically increase with the degree of cross-borrowing, which is why no correlation was found. This is likely to be caused by the fact that EDYFICAR takes cross-borrowing into account when assessing a client's risk profile, so that clients with a high degree of cross-borrowing may not be disbursed large loan amounts.

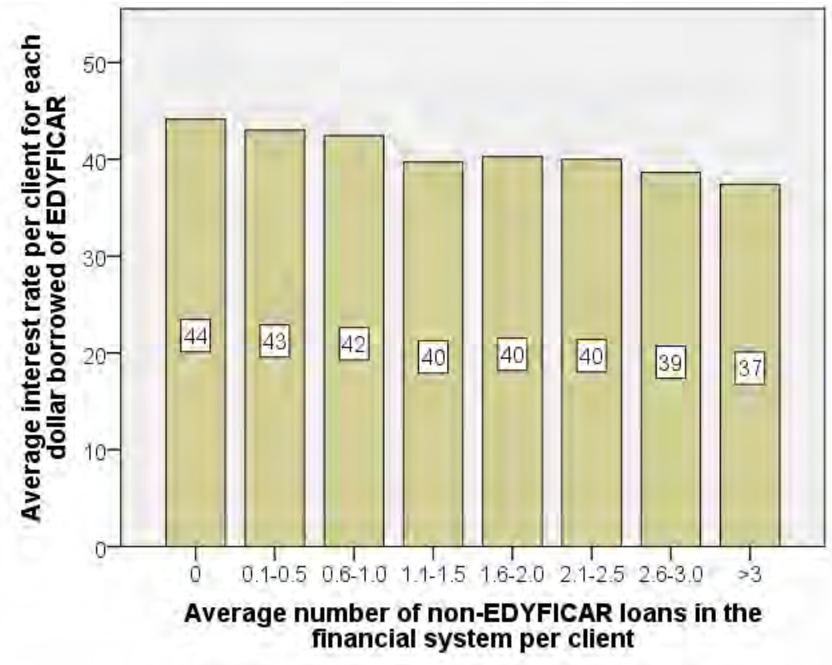
This finding was in line with findings from the qualitative part of the study. On the one hand, lenders can access the credit history of a borrower easily and only clients that proved to be reliable in the past can obtain loans from different lenders. At the same time, those clients are the ones that receive larger loans from each single lender. However, when clients show a high degree of cross-borrowing, lenders become cautious and may not be willing to further disburse large loan amounts.

Since the indebtedness of a client is not only determined by the loan amount but also by the interest rate, the average interest rate paid per dollar borrowed (AvIR) in loans from EDYFICAR was assessed in a next step. Since the variable was found not to be normally distributed (Kolmogorov-Smirnov statistic with $p<0.001$), another Mann-Whitney

U test was conducted. Interestingly, it was found that cross-borrowers on average paid less interest on each dollar borrowed from EDYFICAR (Md=43% p.a., n=227) than exclusive clients (MD=45% p.a., n=127, z=-3.4, p<0.001), whereby the effect again was small to medium with r=0.18.

Figure 17 shows the association in the bar chart. Despite the fact that the bar chart seemed to show a trend, the Spearman test found no correlation between the variables (coefficient of -0.2 at a 99% confidence level).

Figure 17: Average interest rate and non-EDYFICAR loans



Generally, there should be two effects on the interest rate that run in opposite directions. On the one hand, cross-borrowers are the more experienced borrowers that proved to be reliable in the past, which should lead to a relatively lower interest rate. But on the other hand, the fact that these clients owe to several institutions increases their riskiness, which should increase the interest rate they pay.

That cross-borrowers paid on average lower interest rates showed that the first effect outweighed the second one in the sample, while the effect size was small to medium and there was no correlation. A possible explanation for this could be that up to a certain limit, the first effect overweighs but when a client is indebted with too many institutions the second effect becomes stronger and leads to an increase of the interest rate.

Note that here, as in the previous section, significant findings in the tests that compared groups would still have been significant if a Bonferroni adjustment had been used.

To sum up, the fact that cross-borrowers on average were significantly more indebted in the financial system than exclusive clients was in line with the finding from the qualitative study that clients combined formal loan sources in order to obtain higher loan amounts.

Also, cross-borrowers had larger loans from EDYFICAR, which was likely to be the consequence of the fact that the clients that were able to cross-borrow were the ones that proved reliable in the past, which enabled them to take larger loans from each single lender.

Interestingly, cross-borrowers paid less interest on each dollar borrowed which was likely to be caused by the fact that those borrowers were experienced and had a good credit history. And apart from that the strong competition in the financial market may prompt lenders to reduce interest rates, especially for clients that have already established relationships to other lenders.

7.8 Repayment performance of clients in the sample

To assess the impact of cross-borrowing on the repayment performance, in a first step the repayment measure, i.e. the average number of days overdue, had to be calculated for each client as was described in the methods section.

When doing so, the researcher found that the loan strategies of the clients had to be taken into account to ensure that the repayment performance measure was calculated correctly.

The next sections will describe the challenges that arose from clients' loan strategies and how this had to be reflected in the calculation of the repayment performance measure. Afterwards, the repayment performance of clients in the sample will be explored.

7.8.1 Challenges resulting from complex loan strategies

When analysing the preliminary sample it was found that the repayment measure (ADO) for many loans was highly negative, indicating that these loans were repaid long before their due dates. When looking deeper into that, it was further found that most of these loans were repaid on the same day that a subsequent EDYFICAR loan was disbursed, indicating that there was a connection between the two loans. It was because of this preliminary finding that the loan cycle was collected in the final sample and as will become clear from the example in the next section, this needs to be taken into account when analysing the repayment performance.

Table 36 shows an extract from the sample, containing part of the information on one specific client. This client was represented in the sample with six loans 1-6. The loans were disbursed between 08.01.07 and 25.10.11 (DD). Loans 1-5 had a maturity of twelve months and loan 6 had a maturity of 24 months which is why the scheduled repayment dates for the loans 1-6 (SRD) were twelve and 24 months, respectively after their disbursement date.

Note that for loans 3 and 4 the due date of the loan was not at the same day of the month as the disbursement date (for instance, loan 3 run from 06.11.08 to 20.11.09), which is because the clients can usually chose the day of the month that is most convenient for them to make the payment. This allows the clients aligning payment dates with income dates.

Given that clients make one payment each month, the number of scheduled payments for loans 1-5 and loan 6 were 12 and 24, respectively. In column ARD the actual repayment dates of the loans are shown. The next two columns show the cycle and status of the loans and to the further right the average days overdue for each payment are indicated.

The client started working with EDYFICAR in 2007 and received the first EDYFICAR loan (the cycle is new) on 08.01.07, which he was supposed to repay by 08.01.08. He repaid the loan reliably with delays per payment between zero and seven days. The last payment of the loan was made on 18.12.07, which was 21 days before the due date and the same day that loan 2 was disbursed. This indicates that the client repaid the loan early in order to receive a subsequent loan. The fact that it was repaid in December gives reason to believe that the client needed the second loan partially for Christmas expenses.

From what was discussed above, loan 2 should be indicated as recurring with clearing since apparently money from the second loan was used to repay the first one. Instead, it is indicated as recurring without clearing. Why is that? A loan is usually indicated as recurring with clearing when EDYFICAR automatically (i.e. via accounting transactions) uses part of a subsequent loan to fully repay the previous one. In this case the client is not disbursed the full amount of the second loan, but only what is left after automatically repaying the first one. In other cases, the client is disbursed the full amount of the second loan and asked to go to the counter to repay the first loan manually. In this case, like in the example, the subsequent loan is indicated as recurring without clearing. From what the researcher concludes from her interviews with EDYFICAR's staff, the loan officer makes the decision on which procedure is used.

After repaying his first loan, the client received the second EDYFICAR loan on 18.12.07. He repaid this loan reliably with between 1 and 7 days overdue per payment and made the last payment two days after the due date on 20.12.08.

While the second loan was still active, the third loan was disbursed on 06.11.08. Since the former loan was still running, this loan is indicated as a parallel loan. The third loan was repaid on the 28.08.09, which was 84 days before the due date and the same date that loan 4 was disbursed. Hence, loan 4 is recurring with clearing.

Loan 4 was repaid ten days before its due date on 27.08.10 which is when loan 5, again recurring with clearing, was disbursed. Loan 5 was repaid reliably with the last payment made five days after the due date and independently from loan 5, loan 6 was disbursed on 25.10.11. Since the sampling was done in December 2011, repayment information for loan 6 was only available for the first payment since the following payments were to be made after the sampling.

Table 36: Example for a client's loan strategy in the quantitative sample

LOAN	DD	SRD	NP	ARD	CYCLE	STATUS	DO1	DO2	DO3	DO4	DO5	DO6	DO7	DO8	DO9	DO10	DO11	DO12	DO13-24
1	08.01.07	08.01.08	12	**18.12.07**	New	Repaid	0	7	2	6	1	0	3	3	3	4	0	-21	
2	**18.12.07**	18.12.08	12	20.12.08	Rw/oC	Repaid	3	2	1	3	1	1	6	2	7	3	1	2	
3	06.11.08	20.11.09	12	**28.08.09**	Paralel	Repaid	6	3	3	3	4	0	4	2	5	-24	-53	-84	
4	**28.08.09**	06.09.10	12	**27.08.10**	RwC	Repaid	2	5	6	6	4	6	3	5	4	4	6	-10	
5	**27.08.10**	27.08.11	12	01.09.11	RwC	Repaid	0	0	-1	0	0	0	1	2	3	3	5	5	
6	25.10.11	25.10.13	24	25.10.13	Rw/oC	Active	1	Future	Future	Future	Future	Future	Future	Future	Future	Future	Future	Future	Future

7.8.2 Calculating the repayment performance per client

From the example of loan strategies outlined in the previous section, some important lessons could be learned for the calculation of the repayment performance per client.

First, the loans of one client in the sample cannot necessarily be treated as separate observations. Instead, in some cases several loans belong to one logical loan cycle. For instance, loans 3 and 4 in the example are not actually two separate loans (nor are 1 and 2 or 4 and 5), but loan 3 ran over into loan 4. Consequently, part of the debt of loan 3 was rolled over to loan 4 and repaid during the maturity of loan 4. To be more concrete in this case: according to the repayment information in the data set, on 28.08.09 the client still had to repay 1605 Soles from loan 3. This amount was repaid with money from loan 4, which caused him to repay these 1605 Soles during the maturity of loan 4. Why is this essential? If loan 3 was looked at alone, it would have to be said that this loan was repaid 84 days before its due date on 28.08.09. However, this is not true, because on 28.08.09 the client still had debt of 1605 Soles from this loan, which he rolled over to loan 4. Hence, loan 3 was not actually fully repaid on 28.08.09. This is important for the further analyses but also in a wider context. MFIs regularly report repayment rates of between 95% and 100%. However, if the carry-over of debt from one loan to another is common, these figures may not reflect the true story.

Second, when calculating the ADO, which has been introduced in the methods section, modification was necessary when a loan was repaid in advance with debt from a subsequent EDYFICAR loan. For instance, according to the formula presented above the ADO for loan 3 would be (6+3+3+3+4+0+4+2+5-24-53-84)/12 = -11, meaning that the client on average made each payment 11 days prior to the due date of that payment. However, this was not the case. Instead, the client made the first nine payments with an average of (6+3+3+3+4+0+4+2+5)/9 = 3.3 days delay and then repaid the rest of the debt with part of the subsequent loan. Therefore, when a loan was repaid in advance with debt from a subsequent EDYFICAR loan, the ADO is calculated based on the payments made before the disbursement of that subsequent loan. Hence, the modified formula for the ADOm looks as follows, with NP (ARD) indicating that only the payments until the actual repayment date of the loan are taken into account instead of all scheduled payments.

$$ADOm = \frac{\sum_{1}^{NP(ARD)} DO}{NP(ARD)}$$

This modified formula for the ADO was used for 449[38] loans in the sample that 1) were repaid prior to their due date *and* 2) were repaid on the exact date that a subsequent EDYFICAR loan was disbursed. Note that 449 is not equal to the sum of recurring with clearing (281) and rescheduled loans (5) since in some cases the subsequent loans were labelled recurring without clearing as in the case of loan 2 from the example. And in other cases, the subsequent loans were sometimes labelled parallel if there was a third loan in the sample that ran parallel to this subsequent loan. Again, for the average to be meaningful, loans were excluded if their ADO_m contained less than three payments, which was the case for 37 loans.

The following is worth mentioning regarding the interpretation of the ADO_m. As shown above, the ADO_m for loan 3 meant that the loan was repaid with an average delay of 3.3 days per payment. However, this is not entirely true because after the nine payments under consideration there was still debt of 1605 Soles which was rolled over to loan 4. So, the interpretation of the ADO_m is more difficult. However, the sample contained all EDYFICAR loans of a client since 01.01.2006, so if the client rolled over debt in this time span, the subsequent loan would still be part of the sample. Only if debt would be rolled-over to a loan that either has future payments or was not part of the sample at all, the information on the remaining debt would not be available. In the example, the debt that was rolled over from loan 3 to loan 4, was part of loan 4 for which the repayment information was given. So, if the client defaulted on that part of the debt, this would be found in the information of loan 4. This information would only be lacked if the client had constantly carried debt forward and defaulted after the sampling. However, in this case the default would be a future event with respect to the point in time when the sampling was done and would naturally not be part of the study. Therefore, the limitation of the ADO_m needs to be kept in mind, but does not constitute a major issue for the analysis.

[38] In 15 additional cases, a subsequent loan was disbursed on the repayment date of a loan. However that first loan was not repaid in advance. Hence, the ADO had not to be modified.

A third lesson learnt from the example is that some loans contained future payments, for which the DOs were unknown. This was the case for 433 loans. One way to deal with these loans would be to eliminate them from the analysis but then valuable information would be lost in many cases just because part of the loan's payment was due after the sampling. To avoid this loss of information, the researcher decided to keep the loans in the analyses using the ADO_m to calculate the repayment performance for payments already made. However, 156 of those loans had to be eliminated since for the ADO_m less than three payments could have been taken into account.

Table 37 shows, based on the discussion above, which measure was used for how many loans. Note that in the remainder of the text, starting with the next section, for the ease of reading, ADO and ADO_m will both be referred to as ADO.

Table 37: Repayment measures for loans in the quantitative sample

Characteristics of loans	**Measure for repay-ment performance**	**Frequency***
Loans that were not repaid in advance due to a subsequent EDY loan and that had no future payments	ADO	690 =692-2
Loans that were repaid in advance due to a subsequent EDY loan	ADOm	412 =449-37
Loans that had future payments	ADOm	277 =433-156
Loans that were eliminated from the analyses for having less than three relevant payments	n/a	195 =2+37+156
Total		1574

*The frequency is the number of such loans in the sample minus the ones that had to be excluded from the analyses because less than three payments could be considered in the average.

Since the main interest in this study is in the client perspective rather than in the loan perspective, again average measures of the repayment performance per client were calculated. The average days overdue per client will be denominated CADO. The fact that 195 loans were eliminated from the study meant that for 50 clients no CADO could be calculated since for these clients no loan was included in the study.

7.8.3 Exploring the repayment performance per client

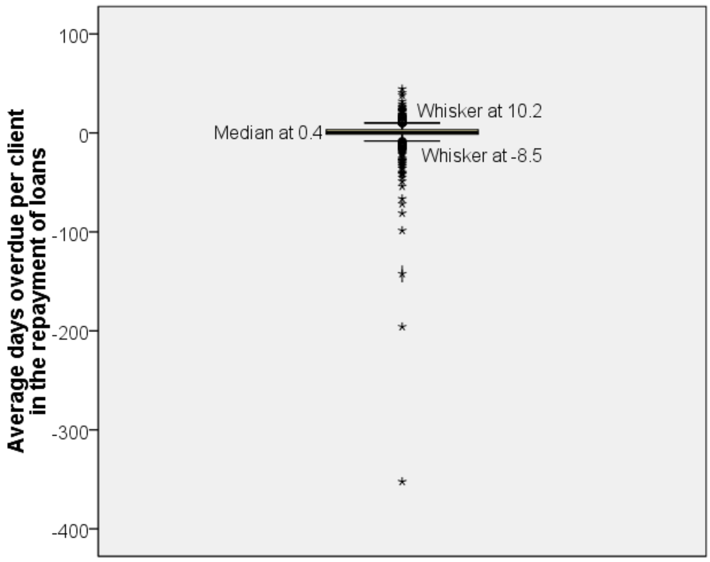
In a first step the values for the repayment measure were explored and it was found that the values ranged between a minimum of -352.3 and a maximum of 44.4 days with the mean being at -2.0 and the median being at 0.4 (Table 38). Consequently, the standard deviation is large with 22.9.

Table 38: Descriptive statistics of the repayment measures per client

	N	Minimum	Maximum	Mean	Median	Std. Deviation
CADO	497	-352.3	44.4	-2.0	0.4	22.9

For the extreme spread from the minimum to the maximum, the boxplot was looked at (Figure 18). The length of the box in the graph is the variable's interquartile range that contains 50% of the cases. The whiskers go out to the largest and smallest values that SPSS does not interpret as outliers. Outliers in SPSS are cases that extend more than 1.5 box lengths from the edge of the box (indicated with an °). Extreme outliers are cases that extend more than three box-lengths from the edge of the box (indicated with a *) (Pallant, 2010).

Figure 18: Boxplot of the repayment measures



In the boxplot SPSS identified all values as outliers that were <=-8.5 or >=10.2, which was true for 92 cases or 18.5% of the clients under consideration. While it was true that these values are extreme in the sense that they are quite different from the remainder of the values, 18.5% indicates that such values were not rare.

To understand where the extreme values came from, the reasons for the most extreme outliers of -142.3, -195.8 and -352.3 will be outlined.

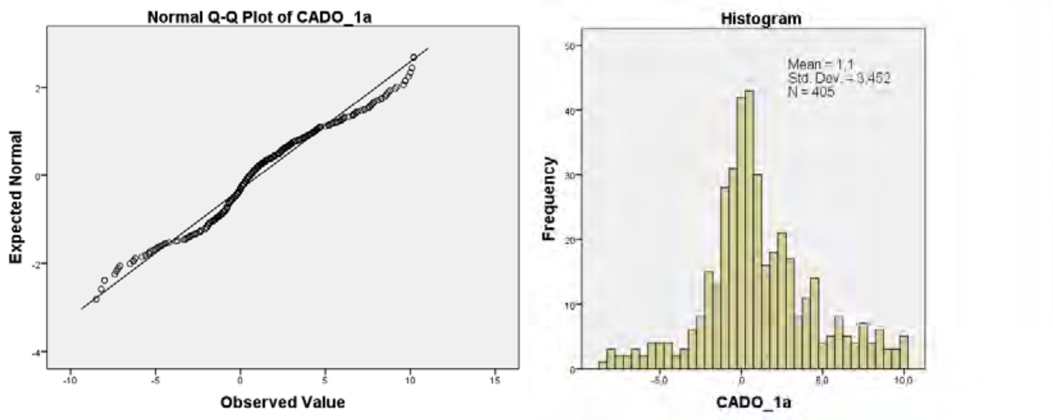
In the first case (CADO=-142.3) the client was represented with only one EDYFICAR loan in the sample, which had a maturity of 36 months. From the repayment data it became clear that the loan was repaid in advance after 15 months. The former 14 payments were made with an average delay of 19.6 days. The data did not reveal why the loan was repaid in advance, all that is known is that it was not repaid with money from a subsequent EDYFICAR loan. Generally, the researcher could have used the ADOm for this loan to receive a more moderate measure of the repayment performance. However, the reason for using the ADOm in some cases was that those loans were repaid using subsequent EDYFICAR loans, which is why the researcher knew that the ADO would not be appropriate in these cases. However, here the data does not give further information on why the loan was repaid in advance. It could be because of a subsequent loan from another bank but it could also be for other reasons, like for instance that the client suddenly came to a large amount of money through selling an asset. Therefore, using the ADOm here would have been speculation since relevant information is lacking that would justify the modification of the repayment measure.

In the next case (CADO=-195.8), the situation was similar. Again, the client was represented with only one loan in the sample, which had a maturity of 17 months, but was repaid in advance after two and a half months. Again, it is not known why the loan was repaid in advance. In the third case (CADO=-352.3), again the client was represented with only one loan in the sample and completely repaid this loan, which was supposed to last for 24 months, after less than one months.

Since the extreme values were a result of specific client situations instead of being measurement errors, they were not eliminated from the analysis at this stage. Instead, the researcher had to keep in mind that extreme values existed and had to decide for each of the following analyses separately how to deal with those outliers.

For the existence of the outliers, the CADO for the 497 clients (denominated CADO_1)[39] was not normally distributed (Kolmogorov-Smirnov statistic with p<0.001). However, when the outliers were eliminated (CADO_1a) the histogram and detrended normal Q-Q plots showed a reasonably normal distribution (Figure 19).

Figure 19: Normal distribution of the repayment measure for sub-sample 1a



7.9 Relation between cross-borrowing and repayment performance

As introduced in the methods section, the impact of cross-borrowing on the repayment performance was assessed based on different sub-samples.

The first sub-sample (denominated sub-sample 2) contained all 352 clients for which an average repayment measure *and* an average measure for cross-borrowing, i.e. the average number of non-EDYFICAR loans in the financial system per client, were available.

To ensure that the use of averages did not distort the findings, the analysis was complemented with analyses on another sub-sample (denominated sub-sample 3) that contained only each client's latest loan in the sample. This analysis was based on 246 clients/loans for which all relevant information was given.

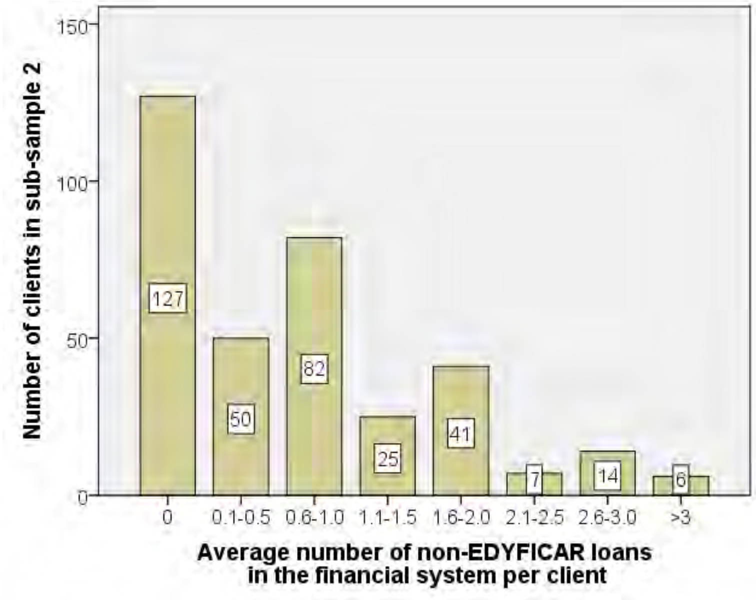
In addition, the researcher wanted to make sure that outliers did not distort the results. She therefore performed all analyses with and without outliers.

[39] CADO_1 stands for CADO of sub-sample 1 which contains all clients for which the CADO is available (n=497), while CADO_1a stands for the sub-sample resulting when outliers are eliminated from subsample 1 (n=405).

7.9.1 Considering all loans of a client in the sample

From the 352 clients under consideration in this analysis, 127 clients were exclusive borrowers (AvLoFSLE=0) and 225 clients were cross-borrowers. The distribution of those clients according to cross-borrowing groups is shown in figure 20.

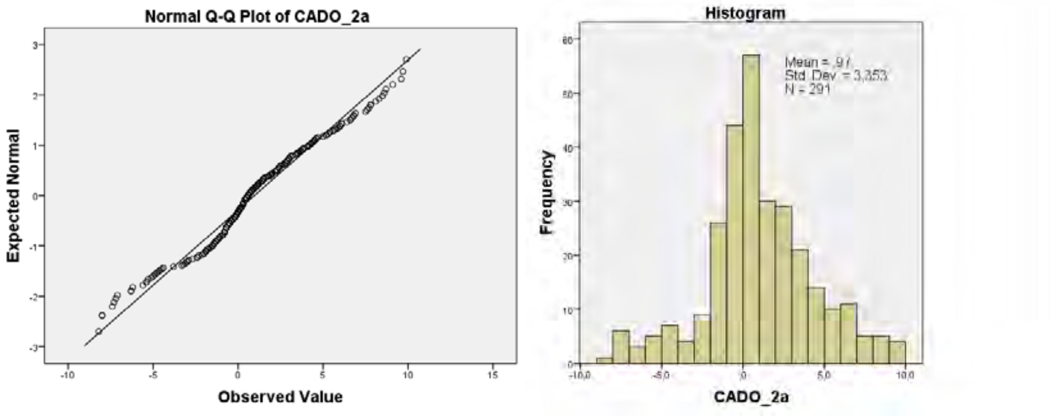
Figure 20: Number of clients in sub-sample 2 per cross-borrowing cluster



When exploring the repayment measure for this sub-sample (CADO_2) a number of outliers was found, which caused the distribution to be not normal (Kolmogorov-Smirnov statistic with $p<0.001$).

For CADO_2, SPSS considered all values as outliers that were either <=-9.3 or >=9.9, which was true for 61 clients. By eliminating the respective clients from the sample, sub-sample 2a was obtained with CADO_2a, which was reasonably normal distributed (Figure 21).

Figure 21: Normal distribution of the repayment measure for sub-sample 2a



To examine the relationship between cross-borrowing and repayment performance, difference analyses were conducted.

Comparing cross-borrowers and exclusive clients

In a first step, the two groups of cross-borrowers and exclusive clients were compared with regard to their repayment performance, using a Mann-Whitney U Test. The test found no significant difference (p=0.9) in the medians of CADO_2 for cross-borrowers (Md=0.4) and exclusive clients (Md=0.2).

The researcher wanted to understand if this result was caused by the way clients were grouped. So far exclusive borrowers were the ones that on average had 0 loans from NON-EDYFICAR lenders when applying for an EDYFICAR loan, which was true for 127 clients. But in addition there were 50 clients who on average had 0.1-0.5 and 82 clients that on average had 0.6-1.0 loans from other lenders. This means that these clients had in maximum one occasion had a loan from another lender when applying for an EDYFICAR loan. The researcher conducted another Mann-Whitney U Test grouping all clients that had an AvLoFSLE of <=1 together (259 clients) and comparing them to the clients that had an AvLoFSLE of >1 (93 clients). Again, the Mann-Whitney U test found no significant difference (p=0.5) in the medians of the CADO for cross-borrowers (Md=0.3) and exclusive clients (Md=0.3).

To make sure that a possible relationship was not lost because of a distorting impact of outliers, independent-samples t-tests were conducted with CADO_2a. For the first test the initial grouping was used, whereby in this sub-sample 105 clients were exclusive clients while 186 clients were cross-borrowers. No significant difference was found (p=0.5) with the mean for cross-borrowers being 0.9 and the mean for exclusive clients being 1.1.

In a second test, again clients with an AvLoFSLE of <=1 (210 clients) and clients with an AvLoFSLE of >1 were grouped together (81 clients). Like before, no significant difference was found (p=0.3) with the mean for cross-borrowers being 0.6 and the mean for exclusive clients being 1.1.

Table 39 gives an overview of the tests performed to compare both groups.

Table 39: Tests performed on cross-borrowing and repayment performance (cross-borrowers defined as AvLoFSLE >0 or >1)

Sample	2	Mann-Whitney U test – *not significant*	Mann-Whitney U test – *not significant*
	2a	independent-samples t-test – *not significant*	independent-samples t-test – *not significant*
		Exclusive is AvLoF-SLE=0	Exclusive is AvLoF-SLE<=1
		Grouping	

From these tests, it could be concluded that there was no significant difference in the average repayment performance of exclusive borrowers and cross-borrowers.

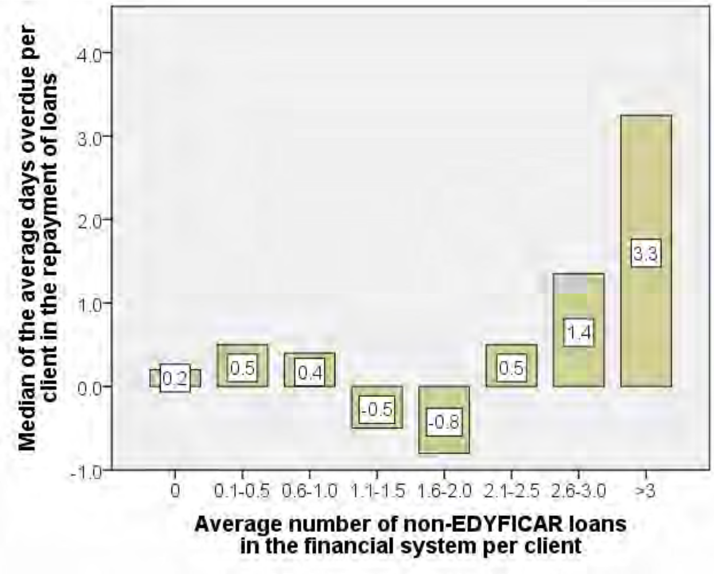
Assessing the repayment performance medians

In a next step, the medians of the repayment performance (CADO_2 and CADO_2a) were looked at for different cross-borrowing groups (Figures 22 and 23).

While no clear trend could be found, the medians of the repayment measures were considerably higher for clients that had on average more than 2.5 non-EDYFICAR loans in the financial system. Hence, it seemed that those clients repaid worse than their peers.

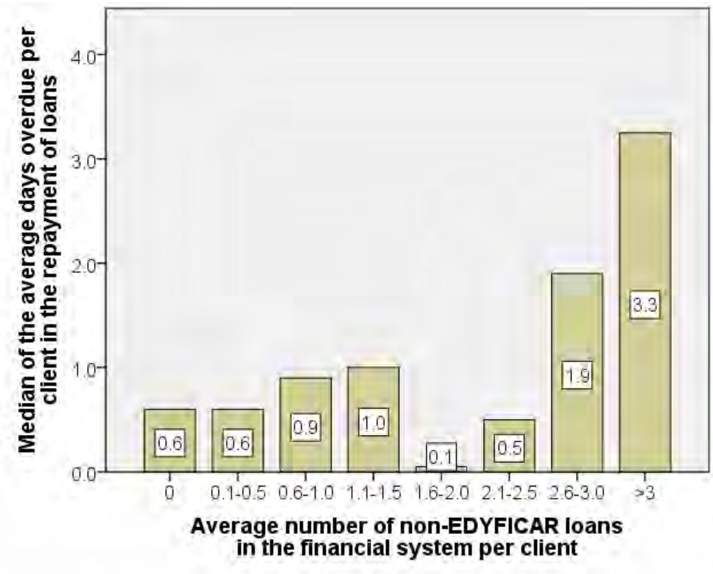
Since only seven individuals belonged to the group with 2.1-2.5 loans from other lenders, the median of this group was not very meaningful. Therefore, it was not clear whether the repayment performance declined with more than two or more than 2.5 non-EDYFICAR loans.

Figure 22: Cross-borrowing and repayment performance for sub-sample 2



(Analysis performed for the 352 clients in sub-sample 2)

Figure 23: Cross-borrowing and repayment performance for sub-sample 2a



(Analysis performed for the 291 clients in sub-sample 2a)

Late payers versus punctual payers

To rule out that early repayments distorted the results, in a next step only the proportion of late payers in the different cross-borrowing groups was looked at.

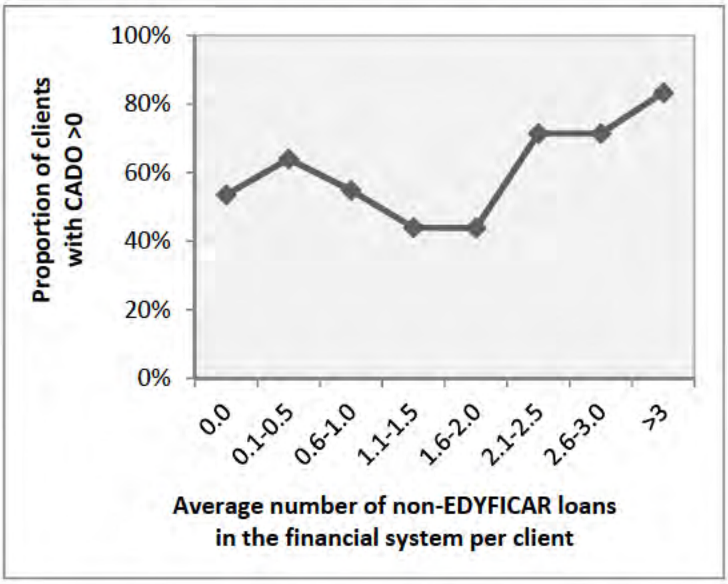
In contrast to the analyses performed before, here the magnitude of an early payment or a delay did not play a role but there were only two groups: late payers (CADO>0) and punctual payers (CADO<=0).

Again, no clear trend was shown but in the groups of clients with more than two non-EDYFICAR loans the proportion of late payers was considerably higher than in the other groups (Table 40, Figure 24).

Table 40: Proportion of clients with CADO>0 per cross-borrowing group

AvLoFSLE	N° of clients	Clients with CADO>0	Percentage
0	127	68	54%
0.1-0.5	50	32	64%
0.6-1.0	82	45	55%
1.1-1.5	25	11	44%
1.6-2.0	41	18	44%
2.1-2.5	7	5	71%
2.6-3.0	14	10	71%
>3	6	5	83%
	352	194	55%

Figure 24: Proportion of clients with CADO>0 per cross-borrowing group



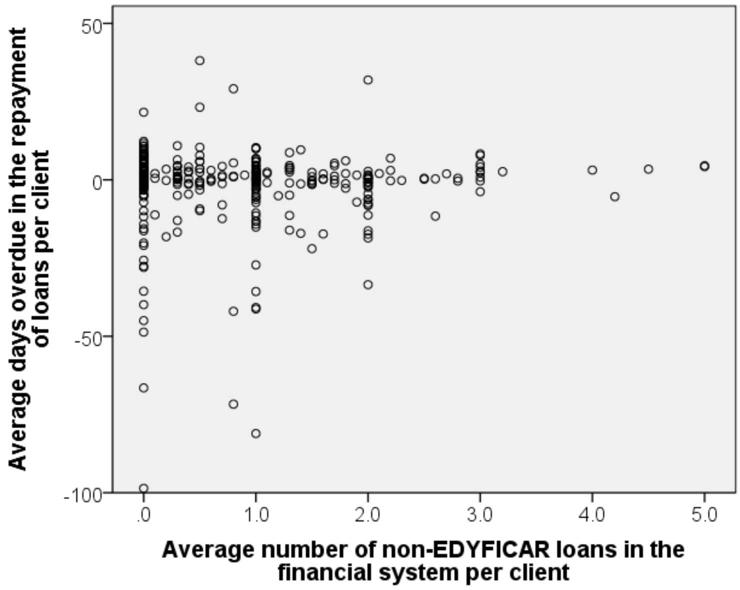
To sum up, so far it had been found that there was no clear association between cross-borrowing and the repayment performance. However, clients that on average borrowed from more than 2.0 or 2.5 non-EDYFICAR lenders seemed to repay worse than their peers.

Correlation analysis

To examine this further, a correlation analysis was performed on the average number of non-EDYICAR loans per client (AvLoFSLE) and the average repayment performance per client with (CADO_2).

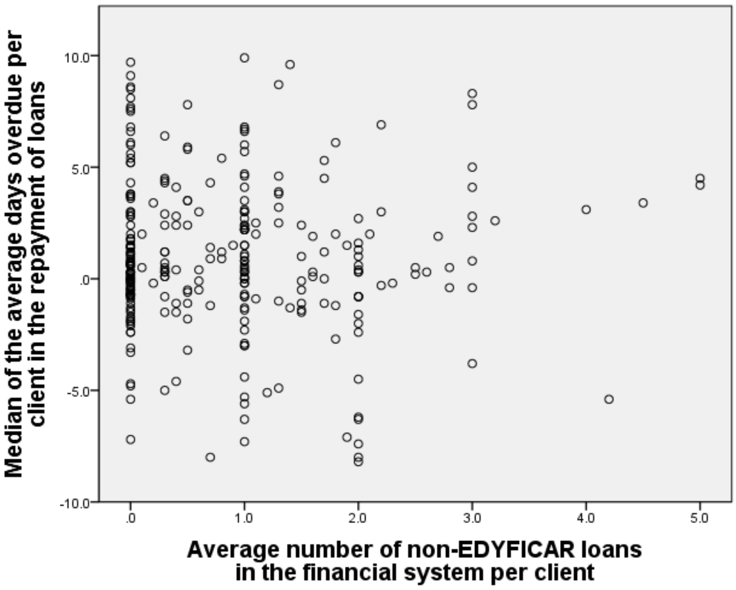
First, the scatterplots including the outliers of the repayment measure (CADO_2, Figure 25) and excluding outliers (CADO_2a, Figure 26) were looked at, which showed already that there was no correlation between the two variables.

Figure 25: Scatterplot of cross-borrowing and repayment performance (average measure per client, sub-sample 2)



(Analysis performed for 352 clients for whom data on cross-borrowing and repayment is available)

Figure 26: Scatterplot of cross-borrowing and repayment performance (average measure per client, sub-sample 2a)



(Analysis performed for 291 clients after eliminating outliers from the 352 clients for whom data on cross-borrowing and repayment is available)

For the sake of completeness, correlation tests were performed anyway. Spearman's correlation test had to be used instead of the Pearson's correlation test, since the assumptions of the Pearson's test were not met, as had been explained in the methods section. The tests were performed for the sub-samples and variables used in the above scatterplots and the results were as follows

- Spearman's rho of -0.02 for the correlation of the average number of non-EDYICAR loans per client (AvLoFSLE) and the average repayment performance per client, including outliers, (CADO_2) (n=352),
- Spearman's rho of -0.01 for the correlation of the average number of non-EDYICAR loans per client (AvLoFSLE) and the average repayment performance per client, excluding outliers, (CADO_2a) (n=291),

Hence, the tests confirmed that there was no correlation between cross-borrowing and the repayment performance.

Threshold of more than two other loans

To further assess the importance of the threshold of two or 2.5 non-EDYFICAR loans, the clients were grouped again.

First, the threshold for exclusive borrowers was set to be AvLoFSLE<=2 and then AvLoFSLE<=2.5. Like before, for each grouping a Mann-Whitney U test with CADO_2 was performed and an independent-samples t-test with CADO_2a.

The shortcoming in this analysis was unfortunately that with the new grouping, the number of cross-borrowers in the test was small, ranging between 19 and 27 only. The results of the Mann-Whitney U tests showed a significant difference between clients with AvLoFSLE<=2.0 or 2.5 and their peers, with p=0.03 or 0.04, respectively. However the effects were small with r=0.1 in both cases. The t-tests were significant at a 90% level with p=0.1 and small effects with eta squared=0.01 in both cases. Table 41 summarises the results.

Table 41: Tests performed on cross-borrowing and repayment performance (cross-borrowers defined as AvLoFSLE >2.0 or >2.5)

Sample		
2	Mann-Whitney U • Cross-borrowers: n=27, Md= 2.0 • Excl. clients: n=325, Md=0.3 • Total: 352 Significant with p=0.03 Small effect with r=0.1	Mann-Whitney U • Cross-borrowers: n=20, Md=2.5 • Excl. clients: n=332, Md=0.3 • Total: 352 Significant with p=0.04 Small effect with r=0.1
2a	Independent-samples t-test • Cross-borrowers: n=26, Mn=2.1 • Excl.clients: n=265, Mn=0.9 • Total: 291 Significant at 90%-level with p=0.1 Small effect with eta squared=0.01	Independent-samples t-test • Cross-borrowers: n=19, Mn=2.2 • Excl. clients: n=272, Mn=0.9 • Total: 291 Significant at 90%-level with p=0.1 Small effect with eta squared=0.01
	Exclusive is AvLoFSLE<=2.0	Exclusive is AvLoFSLE<=2.5
	Grouping	

From these tests, it could be conclude that borrowers with an AvLOFSLE>2.0 had a repayment performance significantly worse than their peers, whereby the effect size was small in each of the tests. Also, since in these tests the groups of cross-borrowers were small, it is doubtful whether this finding can be generalised.

Summary

To sum up, no correlation was found between cross-borrowing and the repayment performance. However, when clients on average had more than two loans from non-EDYFICAR lenders they were found to repay worse than their peers.

Interestingly, this finding was in line with an internal policy of EDYFICAR saying that the institution normally does not grant loans to clients that already have loans from more than two other lenders. Or, in other words EDYFICAR does not grant loans if they are no more than the client's third lender.

The finding was furthermore in line with the qualitative part of the study. There, it was found that cross-borrowing regularly led to increased debt in the financial system (as was also found when comparing exclusive clients and cross-borrowers with regards to their debt), which could lead to critical indebtedness levels in which each small movement of income or expenditure could cause repayment problems. From what was found here, it seemed that clients could handle cross-borrowing up to having two non-EDYFICAR loans. When passing this level, however, cross-borrowing is likely to negatively impact the clients' repayment behaviour.

7.9.2 Considering each client's latest loan in the sample

To ensure that the use of averages did not distort the findings, complementary analyses were performed that considered only the client's latest loan in the sample.

Shortcomings of this approach were that a number of loans had to be eliminated since less than three payments could be considered for the ADO. In addition, focusing on single loans meant that a client's loan strategy was ignored. However, as a complementary analysis, the focus on the latest loans was considered useful.

Comparing cross-borrowers and exclusive clients

In this analysis, 246 clients could be considered for whom a repayment measure as well as information on cross-borrowing was available for their latest loan. From these clients, 93 were exclusive borrowers (LoFSLE=0) and 153 were cross-borrowers (LoFSLE>0).

Table 42 shows the number of non-EDYFICAR loans (LoFSLE) the clients had when applying for their latest EDYFICAR loan.

Table 42: Number of non-EDYFICAR loans when applying for latest loan

LoFSLE	**Frequency**	**Percent**	**Cum. Percent**
0	93	38	38
1	88	36	74
2	36	15	88
3	17	7	95
>3	12	5	100
Total	246	100	

The relevant repayment measures (ADO_3) had a range from -390 to 110 and SPSS considered values as outliers if they were <=-12 or >=17, which was true for 27 cases.

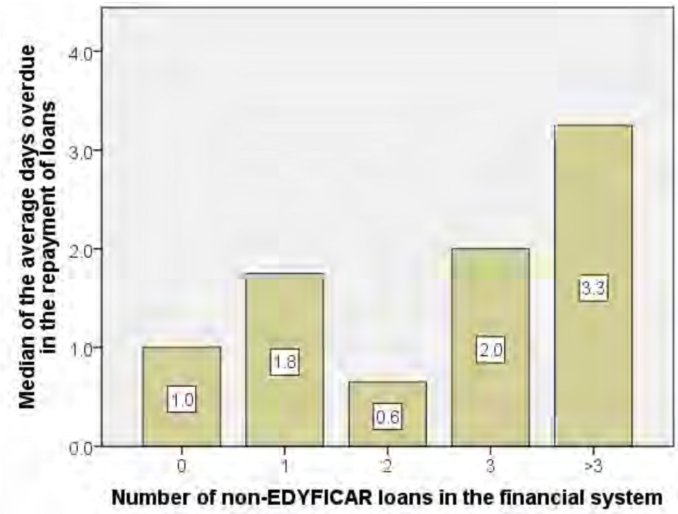
The repayment measure was not normally distributed when outliers were included (ADO_3), as was concluded from a Kolmogorov-Smirnov statistic with $p<0.001$ and a normal Q-Q-Plot that clearly showed the not normal distribution. Therefore, a Mann-Whitney U Test (n=246) was performed, which could not find a significant difference (p=0.7) in the medians of the repayment performance for exclusive clients (n=93, Md=1.0) and cross-borrowers (n=153, Md=1.5).

When outliers were eliminated the normal Q-Q-plot showed a reasonable normal distribution of the repayment measure (ADO_3a). Consequently, an independent-samples t-test could be performed (n=219), which again did not find a significant difference (p=0.3) between the repayment performance of exclusive clients (n=83, Mn=3) and cross-borrowers (n=136, Mn=2.4).

Assessing the repayment performance medians

When plotting the median of the repayment measure against the number of non-EDYFCAR loans, no clear trend could be found, but clients with more than two non-EDYFICAR loans seemed to repay worse than their peers (Figure 27 and Figure 28 for no outliers considered).

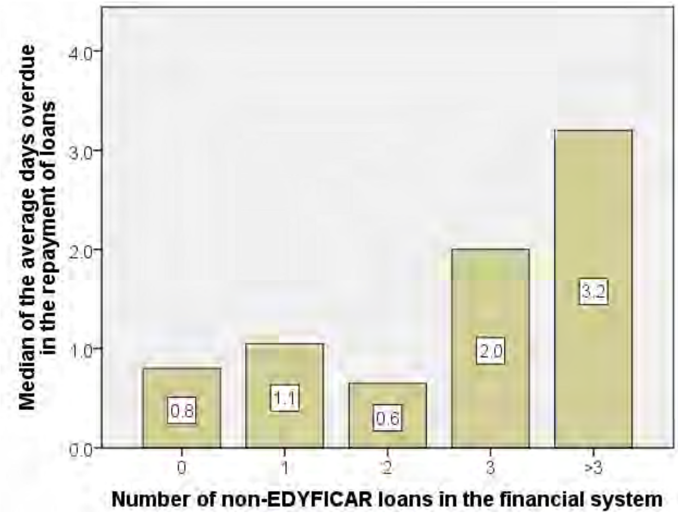
Figure 27: Cross-borrowing and repaym. perform. (latest loan, incl. outliers)



N° of non-EDYFICAR loans in the fin. sys.	Number of clients
0	93
1	88
2	36
3	17
>3	12
Total	246

(Analyses performed for 246 clients for whom data was available)

Figure 28: Cross-borrowing and repaym. perform. (latest loan, excl. outliers)



N° of non-EDYFICAR loans in the fin. sys.	Number of clients
0	83
1	76
2	34
3	15
>3	11
Total	219

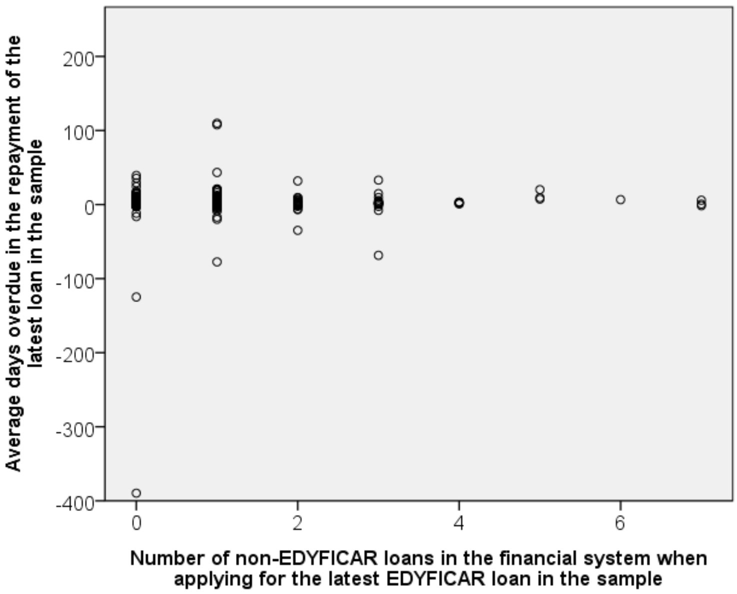
(Analyses performed for 219 clients after eliminating outliers of the 246 clients included above)

Correlation analysis

Correlation analyses were performed on the number of non-EDYFICAR loans when applying for the latest loan in the sample (LoFSLE) and the performance when repaying that loan with (ADO_3) or without outliers (ADO_3a).

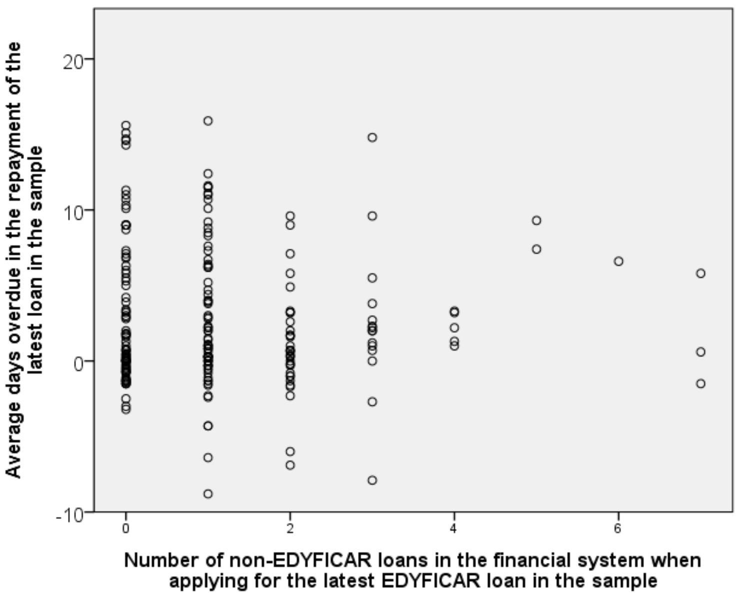
At first, the scatterplots were examined, which already showed that there was no association between cross-borrowing and the repayment performance (Figure 29 and Figure 30).

Figure 29: Scatterplot of cross-borrowing and repayment performance (latest loan per client, incl. outliers)



(Analysis performed for 246 clients for whom data on cross-borrowing and repayment of their latest loan is available)

Figure 30: Scatterplot of cross-borrowing and repayment performance (latest loans, excl. outliers)



(Analysis performed for 219 clients after eliminating outliers from the 246 clients for whom data on cross-borrowing and repayment of their latest loan is available)

For the sake of completeness, Spearman's correlation analysis was performed anyway, which came to the following results:

- Spearman's rho of 0.01 for the correlation of the number of non-EDYFICAR loans when applying for the latest loan in the sample (LoFSLE) and the performance when repaying that loan, including outliers, (ADO) (n=246),
- Spearman's rho of 0.00 for the correlation of the number of non-EDYFICAR loans when applying for the latest loan in the sample (LoFSLE) and the performance when repaying that loan, excluding outliers, (ADO) (n=219).

Hence, as in the analysis using average measures per client, no correlation between cross-borrowing and repayment performance was found when focusing on each client's latest loan in the sample.

Threshold of more than two other loans

It was also examined whether in this sub-sample the threshold of two other loans played a role. But, when grouping the clients in two groups with LoFSLE<=2 and >2, no significant difference could be found neither with (p=0.3) or without outliers (p=0.7).

When including outliers, 217 clients were found to have less than two non-EDYFICAR loans while 29 clients had more than that. Hence, the group of cross-borrowers was small when using two non-EDYFICAR loans as a threshold, which limits the relevance of this finding. This was even more the case when excluding outliers, since in this case 193 clients with less than two non-EDYFICAR loans could be considered and 26 clients with more than that.

Summary

The analyses with focus on the latest loan confirmed that there was no correlation between cross-borrowing and the repayment performance. When plotting the medians of the repayment performance against the cross-borrowing groups, it seemed that clients with more than two other loans performed worse than their peers. However, no significant difference could be found when comparing borrowers with <=2 non-EDYFICAR loans and borrowers with >2 non-EDYFICAR loans.

7.10 Relation between indebtedness and repayment performance

From the above analyses it became clear that there was no clear association between cross-borrowing and the repayment performance. It was also found that the indebtedness in the financial system was positively correlated to the number of non-EDYFICAR loans. This meant that cross-borrowers were the more indebted clients but not necessarily the ones that repaid worse.

From these findings it could be concluded indirectly, that there should not be a correlation between the indebtedness in the financial system and the repayment performance.

To examine the relationship between indebtedness and repayment performance further, focusing on all loans of a client in the sample, Spearman's correlation tests were performed with the following results:

- Spearman's rho of 0.1 for the correlation of the average real debt in the financial system per client (AvRD) and the repayment performance per client, including outliers, (CADO_2) (n=352),
- Spearman's rho of 0.02 for the correlation of the average real debt in the financial system per client (AvRD) and the repayment performance per client, excluding outliers, (CADO_2a) (n=291).

Spearman tests had to be used since the indebtedness variable (AvRD) was not normally distributed.

The tests confirmed that, in addition to the fact that there was no correlation between cross-borrowing and the repayment performance, there also was no correlation between a client's indebtedness in the financial system and the repayment performance (with or without outliers).

For the sake of completeness, the correlation of indebtedness and repayment performance was also performed when focusing on the clients' latest loans in the sample. The following results were found:

- Spearman's rho of 0.01 for the correlation of debt in the financial system when applying for the latest loan in the sample (RD) and the performance when repaying that loan, including outliers, (ADO) (n=246),

- Spearman's rho of 0.01 for the correlation of debt in the financial system when applying for the latest loan in the sample (RD) and the performance when repaying that loan, excluding outliers, (ADOa) (n=219).

Hence, when focusing on each client's latest loan in the sample, no correlation between the clients' indebtedness in the financial system and the repayment of the loan (with or without outliers) could be found either.

7.11 Discussion

The purpose of the quantitative analysis was to complement the qualitative study by assessing the impact of cross-borrowing on the repayment performance. Related to this, the relationship between cross-borrowing and indebtedness was assessed. Furthermore, cross-borrowers and exclusive clients were compared along a number of demographic variables.

Data provided by EDYFICAR was used that included data on client characteristics, details of the clients' EDYFICAR loans since 01.01.2006, their repayment performance with those loans and their cross-borrowing situation in the formal financial system when they applied for the selected EDYFICAR loans.

Cross-borrowing was measured in the average number of non-EDYFICAR loans per borrower (AvLoFSLE) according to the SBS reports. Indebtedness was measured in absolute terms as average real debt in the financial system (AvRD) and average real loan amount with EDYFICAR (AvRLA) per borrower. Also, the average interest rate paid per dollar borrowed from EDYFICAR (AvIR) was looked at. The repayment performance was measured in the average number of days overdue in the repayment of a loan (ADO). The impact of cross-borrowing on a client's repayment performance was assessed taking all loans of a client into account as well as focusing on each client's latest loan in the sample.

The quantitative analysis had a number of shortcomings that resulted mainly from the available data.

First, the SBS reports used to assess a client's cross-borrowing situation only contained information on formal loans but no information on 1) informal loans and 2) formal or informal savings and insurance. Hence, the data did not allow assessing a client's overall financial situation but it only showed part of the microentrepreneurs' complex financial reality.

With regard to the research objectives of the quantitative study, this had the following implications: First, the 127 exclusive clients in the study may have had additional informal loans that were not reflected in the data. In that case, they would have been cross-borrowers and their real debt would have been higher than reflected in the data. Furthermore, their informal loans could have had an unobserved impact on their repayment performance. For instance, the informal loans might have deteriorated the clients' repayment performance in their EDYFICAR loans since they increased the repayment burden. Or, they might have improved the clients' repayment performance in their EDYFICAR loans when clients used them to make their payments to EDYFICAR or to increase their income. Second, clients may have had unobserved savings/assets, which would reduce their net debt. Unfortunately, those cases would not be reflected in the study.

Second, information on the clients' repayment performance was available for the selected EDYFICAR loans only. As a result, the relation between cross-borrowing and repayment performance could only be assessed for the repayment of EDYFICAR loans. This is a limitation especially when clients recycle loans. For instance, if a client had taken a new formal or informal loan to repay an EDYFICAR loan, the data would only mirror the punctual repayment of the EDYFICAR loan. In contrast, possible subsequent problems in the repayment of the new loan would not be represented. Hence, the data is limited when it comes to identifying possible vicious circles of over-indebtedness.

Third, cross-borrowing could only be related to a client's absolute debt measures (e.g. total debt in the formal financial system) but not to a client's debt/income ratio or repayment capacity. Income data was collected but missing for 125 clients. In the remaining cases, it was found (as had been found in the preliminary study as well) that for some clients income information was on a monthly base and for other clients it was on an annual base. Unfortunately, it was not clear in which cases the income information referred to one month and in which cases it referred to one year. In addition, no information on the clients' personal expenses or business expenses was given. Hence, even if the income data would have been of good quality, the calculation of the repayment capacity or net income would have been impossible.

In consequence, the clients' indebtedness could only be assessed in absolute terms but their debt could not be related to their income. Hence, while it was found that cross-borrowers had a significantly higher debt in the financial system than their peers and significantly larger loan amounts in EDYFICAR, it was not known whether their debt-to-income ratio was higher than the one of the exclusive clients. Unfortunately, the EDYFICAR over-indebtedness ratio was not suitable to examine the association between cross-borrowing and over-indebtedness either, since the cross-borrowing information and the indebtedness ratio were not measured at the same point in time.

Note however, that if cross-borrowers had a low debt-to-income ratio, they would not need to turn to different lenders to obtain larger loan amounts since they could normally obtain further credit from their existing lender. Thus, the fact that cross-borrowers were found to combine loans from different formal lenders to obtain more credit suggests that their debt-to-income ratio is so high that single lenders are unwilling to disburse further credit.

Fourth, information on cross-borrowing was available for 354 out of 547 clients only. It was unclear why data for the remaining clients was missing and it could not be found in discussions with the EDYFICAR data specialist either. It is likely that for some clients information was missing because they had not had formal loans in the past and therefore were not part of the SBS database. Hence, there is a risk that cross-borrowers were over-represented in the sub-sample of the 354 clients for which cross-borrowing information was available. This assumption is fostered by the fact that 105 (54%) of the 193 clients, for which cross-borrowing information was missing, were labelled 'new' in EDYFICAR's credit risk assignments. However, the fact that cross-borrowers were over-represented in the analysis of cross-borrowing and indebtedness or repayment information should not have distorted the findings, since the number of 127 exclusive clients was still large enough to assume a variety of clients in this group.

Fifth, in the quantitative analysis a mixture of the client perspective and the institutional perspective had to be taken. The client perspective was taken since the observation unit used for the analysis was the client (and not a loan). However, the data contained only what EDYFICAR and SBS reported. This does not only refer to the lack of information on informal loans, savings and insurance but also on other aspects. For instance, a client might have faced considerable problems to make payments and might have suffered from sacrifices that impacted the well-being. Those problems, however, would not be reflected in the data as long as payments were made on time. This means at the same time, that the relation between cross-borrowing and subjective over-indebtedness could not be assessed in the quantitative study, since no information on sacrifices was available.

Sixth, data was available on the individual client level but not on the household level. This is a shortcoming since in many cases different members of a household have joint finances, meaning that they take financial decisions together and that they combine their incomes to repay their loans. However, this shortcoming in the data is of minor importance since in Peru husbands or wives usually have to sign for the loans of their spouses, which would then appear in their SBS reports as well. In consequence, when assessing the repayment capacity of a microentrepreneur, loan officers usually take the financial situation of the spouses into account. Hence, although data was collected on the individual level, indirectly the household perspective was at least partially considered.

Seventh, there was a misalignment in the points in time/periods of time that data referred to. Information on a client's situation in the financial system was only given for every point in time when the client applied for a new EDYFICAR loan. In addition, there was the time gap of two months, i.e. the actual point in time for which information was available was two months prior to applying for a new EDYFICAR loan. This means that the researcher could not observe how the clients' cross-borrowing situation changed over time. For some analyses this did not matter. For instance, when assessing the impact of cross-borrowing on a client's indebtedness, the values of the considered variables referred to the same date since they were both taken from the SBS report. In contrast, when assessing the impact of cross-borrowing on the repayment performance, the cross-borrowing situation was available for a point in time only while the repayment performance referred to a period of time. Under certain circumstances, this misalignment could have been misleading. For instance, it might be that a client was a cross-borrower when applying for an EDYFICAR loan, but that he repaid the other loans before the EDYFICAR loan was disbursed. In that case, in the analysis of cross-borrowing and repayment performance he would have been considered a cross-borrower although he was an exclusive client when the repayment period began.

Eighth, the data did not allow assessing causalities, i.e. if a correlation between cross-borrowing and repayment performance would have been found, the causality would not have been clear from the data alone. This shortcoming is common for quantitative analysis and makes qualitative studies indispensible.

Despite those shortcomings, the quantitative study was useful to complement the qualitative study since the researcher was aware of the shortcomings and was therefore careful not to draw wrong conclusions.

7.12 Conclusion

It was found that clients often followed complex borrowing strategies. Even from one lender they could have more than one loan in parallel and in addition to that loans regularly went over into subsequent loans, meaning that the client rolled over debt from one loan to another, resulting in one logical loan cycle consisting of several loans. This finding was important since it showed that the loan strategy of a client needed to be taken into account when assessing the repayment performance since otherwise wrong conclusions might be drawn.

It was further found that exclusive clients and cross-borrowers were not significantly different with regard to gender, age group or civil status, and the association between sector and borrowing behaviour was weak. It could therefore be concluded that those client characteristics do not give insight in a client's borrowing behaviour. In consequence, it is important that loan officers know their clients to understand how they work with MFIs and what that means for their risk profile. This finding was in line with the qualitative study that stressed the importance of a close relationship between the loan officer and the clients.

Due to data limitation reasons, only absolute debt measures could be related to cross-borrowing and it was found that cross-borrowers had a significantly higher debt in the financial system than their peers. The debt increased with the number of non-EDYFICAR loans in the financial system and a strong positive correlation was found. This confirmed the finding from the qualitative study that clients mainly combine loans from several formal lenders to obtain larger loan amounts. Would they combine loans for other reasons, e.g. to optimise the product structure in their loan portfolio, there should be no association between cross-borrowing and the indebtedness in the financial system. The fact that cross-borrowing increased the clients' debt was also found in other studies (Chaudhury and Matin, 2002; Maurer and Pytkowska, 2011; Pytkowska and Spannuth, 2012b).

In addition, cross-borrowers had on average significantly larger loans from EDYFICAR than their peers. This is likely to be caused by the transparency in the market and the fact that clients are only able to cross-borrow when they proved reliable in the past and reliable clients are also the ones that receive larger loans from single lenders.

Interestingly, cross-borrowers were found to pay significantly lower interest rates on each dollar borrowed from EDYFICAR than exclusive clients. This finding suggests that the fact that a client proved reliable in the past outweighed the effect that a client with more liabilities is generally riskier. Also, the competition in the market may prompt lenders to offer relatively lower interest rates.

With regard to the repayment performance, no clear association between cross-borrowing and the repayment performance could be found. This was true when using average measures per client as well as when focusing on each client's latest loan in the sample. This finding was interesting since it stands in contrast to the findings of a number of other studies that reported a negative impact of cross-borrowing on the repayment performance (McIntosh et al., 2005; Chaudhury and Matin, 2002; Burki, 2009; Maurer and Pytkowska, 2011; Pytkowska and Spannuth, 2012b; Chen et al., 2010). However, it was in line with the few studies that report no negative impact (Krishnaswamy, 2007; Vogelgesang, 2003; Khalily and Faridi, 2011; Schicks, 2013b). Also, it fitted to the finding from the qualitative study that cross-borrowing is neither a necessary nor a sufficient condition for repayment problems.

However, clients with more than two non-EDYFICAR loans in the financial system seemed to repay worse than their peers, whereby a significant difference was found when focusing on average measures per client only. While the existence of small groups and effects limits the generalisability of this finding, it was in line with internal policies of EDYFICAR and the qualitative study.

In the qualitative study it was found that cross-borrowing can lead to exceedingly high indebtedness levels, in which even small movements of income or expenditure can cause repayment problems, whereby client characteristics and external factors play an important role as well. From the quantitative result it could be concluded that the level of indebtedness was especially critical when a client had more than two other loans from non-EDYFICAR lenders. It was found that in most cases the number of non-EDYFICAR loans equalled the number of non-EDYFICAR lenders and interestingly, EDYFICAR has a policy that they normally only lend to clients when they are at most the client's third lender. Hence, from their experience EDYFICAR also considers it to be critical when a client works with more than two other lenders.

To sum up, the findings in the quantitative study confirmed the qualitative findings well: borrowers seem to combine loans from formal lenders in order to obtain larger loan amounts which leads to increased debt. While this does not necessarily cause repayment problems, it becomes critical when the debt reaches exceedingly high levels, in which small movements of income or expenditures cause a financial misbalance. The quantitative study suggests that these exceedingly high levels of debt are more likely to be reached when clients have more than two non-EDYFICAR loans when borrowing from EDYFICAR. Nevertheless, it cannot be said that cross-borrowing necessarily causes repayment problems and no correlation was found. This is likely to be caused by the fact that the transparency in the market is high and the credit bureaus effectively allow lenders to indentify the more reliable borrowers. This may well be the major difference between Peru and the other markets in which former studies reported a negative impact of cross-borrowing on the repayment performance.

CHAPTER 8: CONCLUSION

This chapter combines the findings from the qualitative and the quantitative study and is structured as follows. First, the introduction gives an overview of what was done in this research (8.1). Then, key findings will be summarised (8.2) and limitations of the study highlighted (8.3). Subsequently, implications and the need for further research will be indicated (8.4).

8.1 Introduction

When the first MFIs started their operations in the 1970s, their objective was to alleviate poverty and increase well-being through financial inclusion, i.e. through offering formal financial services to low-income people that were formerly excluded from these services.

Since then, the microfinance industry has grown immensely and in some regions of the world microfinance markets today are highly competitive and even overheated, which has resulted in repayment crises and discussions on customer protection.

One phenomenon that raises concerns in this context is cross-borrowing, i.e. the fact that in the highly competitive markets borrowers regularly take loans from different lenders simultaneously.

Despite the fact that there is no universal definition of cross-borrowing and a limited understanding of its reasons and impact, it is feared that cross-borrowing leads to over-indebtedness, thus harming the borrowers' well-being and the stability of the microfinance sector.

However, the sparse empirical evidence is not quite so clear. The reasons for cross-borrowing are diverse (Diaz et al., 2011; Venkata and Veena, 2010; Faruqee and Khalily, 2011; Chaudhury and Matin, 2002; Krishnaswamy, 2007; Burki, 2009; Kamath et al., 2010; Collins et al., 2009) and so is its impact on the borrowers' repayment performance (Krishnaswamy, 2007; Vogelgesang, 2003; Maurer and Pytkowska, 2011; Pytkowska and Spannuth, 2012b; Gonzales, 2008; Chaudhury and Matin, 2002; Schicks, 2013b). With regard to the impact of cross-borrowing on the borrowers' well-being, hardly any evidence is available.

This study aimed to contribute to the understanding of cross-borrowing from the clients' perspective and from its reasons to its impact. A deeper understanding of the phenomenon would contribute to close an academic knowledge gap and is important for the different stakeholders in microfinance.

Combining qualitative and quantitative analysis and focusing on Lima in Peru, the study aimed to answer the following research questions:

1. What is cross-borrowing?
2. Why do some clients cross-borrow?
3. Are some microentrepreneurs more likely to cross-borrow than others?
4. How does cross-borrowing affect the borrowers' repayment performance?
5. How does cross-borrowing impact on the borrowers' subjective well-being?

8.2 Key findings

Key findings of the study are presented along the research questions.

8.2.1 Forms of cross-borrowing

In this study, a broad definition of cross-borrowing was used which takes different providers of financial services into account and according to which a microentrepreneur is cross-borrowing when he has more than one loan from more than one formal or informal lender simultaneously.

The study found that cross-borrowers not only combine loans from different formal lenders, including credit card debt, but they frequently use additional informal loans from moneylenders, juntas (and less frequently banquitos) or family and friends. In consequence, when analysing cross-borrowing all loan sources should be considered, and focusing on loans from MFIs only, as done in several studies (Mpogole et al., 2012; Chen et al., 2010; McIntosh et al., 2005; Pytkowska and Spannuth, 2012b; Chaudhury and Matin, 2002; Krishnaswamy, 2007; Pytkowska and Spannuth, 2012a; Vogelgesang, 2003), can only reveal part of a microentrepreneur's financial reality.

The finding that cross-borrowing is prevalent in Peru is especially interesting since effective credit bureaus are in place and thus in Peru cross-borrowing cannot be considered a consequence of a low degree of information sharing between lenders as suggested by other studies (McIntosh et al., 2005; Chaudhury and Matin, 2002; Economist Intelligence Unit, 2012).

However, even the effective credit bureaus in Peru are unable to fully eliminate information asymmetries between borrowers and lenders, since they contain information on formal loans only, but no information on savings, insurance and informal loans. In consequence, the data provided does not allow the lender to fully assess a borrower's financial situation. To close this gap, microfinance loan officers regularly collect further information directly from the microentrepreneur in order to estimate his repayment capacity.

Another finding of the study was that loan strategies of microentrepreneurs are sophisticated. In the formal loan segment, borrowers frequently have active loans outstanding when applying for a new loan and/or have parallel loans within one institution, i.e. they have more than one loan outstanding at a time from the same MFI. In addition, in some cases several subsequent loans within one institution belong to one logical loan cycle and debt from one loan is rolled over to the next one. Furthermore, some microentrepreneurs were found to constantly shift money back and forth between moneylenders, juntas, family or friends and credit accounts.

Hence, it can be said that cross-borrowing leads to highly complex loan strategies and financial portfolios with different compositions, which depend mainly on the borrowers' reasons for cross-borrowing and their access to different types of lenders.

This complexity makes it difficult to assess a microentrepreneur's borrowing strategy, financial situation and repayment performance in quantitative terms only. For instance, what might seem as a repaid loan at first glance might actually be a loan that has been refinanced, so that debt has been rolled over to a new loan with a different repayment schedule. Or, a client may take a loan from a moneylender to overcome a time gap until receiving money from the junta to repay a formal loan. It is thus important to assess a client's situation in depth.

It was further found that cross-borrowing was only one aspect of the microentrepreneurs' complex financial reality, which was additionally dominated by uncertainties and vulnerability to crises. While uncertainties and vulnerability have already been discussed by other authors (Collins et al., 2009), this study showed that cross-borrowing increases the resulting challenges. In a cross-borrowing situation the microentrepreneurs' flexibility to react to unexpected events or crises is reduced since in any case repayment obligations resulting from their loans need to be fulfilled. In addition, in the event of repayment problems, cross-borrowers have to come to terms with different lenders.

Hence, when assessing the impact of cross-borrowing, a broader context needs to be taken into account, which includes especially the fact that microentrepreneurs regularly lack savings and insurance to help them deal with uncertainties and crises.

8.2.2 Reasons for cross-borrowing

The main feature of cross-borrowing is that clients engage with different lenders at the same time. Hence, when analysing the reasons for cross-borrowing it is not enough to examine why a client applied for further credit (as done for instance in Diaz et al., 2011), but it needs to be understood why a client applied for further credit from a *new* lender.

Generally, it could be differentiated between supply-side driven and demand-side driven cross-borrowing. Supply-side driven means that a client cross-borrowed because he was offered the opportunity by the lender although he did not actually look for it. Demand-side driven cross-borrowing means that the client actively sought loans from additional lenders.

While incidences of supply-side driven cross-borrowing were found in the interviews, they were not the majority. Nevertheless, all interviewees in the qualitative study reported that they were actively offered new formal loans in times with a good credit history. Also, especially regarding credit cards the interviewees spoke of an intense push from the supply side, including cases where microentrepreneurs were constantly called by credit card companies or had credit cards sent to their homes without having requested them.

In the informal loan segment, supply-side driven cross-borrowing may occur when moneylenders offer loans to microentrepreneurs. However, borrowers were aware of the fact that those loans were expensive, which is why they did not tend to use them without needing them.

Although supply-side driven cross-borrowing was not found to be common, the push from the supply side to sell more loans is seen critically by the researcher, since it requires a lot of discipline from the microentrepreneurs to resist constant loan offers.

With regard to demand-side driven cross-borrowing, it was found that reasons to combine various loans varied with the different types of loans.

The interviews revealed that borrowers combined formal loans mainly to obtain larger loan amounts, which they could not obtain from a single formal lender. This was often a successful strategy since loan officers from different institutions estimated the client's repayment capacity differently. Thereby, repayment capacities were estimated overly optimistically when loan officers were interested in selling another loan and when they relied on the assumption that who repaid well in the past, will repay well in the future. In addition, the most experienced microentrepreneurs have learned how to manipulate the estimations by overstating their income, which is often possible in an informal context where detailed documentation of revenues and cost is not always available.

In addition, other reasons for demand-side driven formal cross-borrowing were the followings:

- financial products not obtainable from the existing lender;
- lower interest rate;
- establishing relations with several lenders;
- faster loan provision.

Regarding the combination of formal loans with informal loans and/or credit card debt it was found that clients followed those borrowing strategies mainly to overcome short-term money shortages or to deal with crises. In those cases, informal loans or credit card debt were frequently used since this credit was fast and easily obtainable.
A special case are loans from juntas, which microentrepreneurs use for different reasons While some see the junta as an opportunity to obtain interest free loans, others use it as a mean to save. In any case, for many microentrepreneurs participating in a junta is seen as a tradition and the commitment is usually long-term. Hence, loans from the junta are not necessarily always sought actively, but are sometimes just the consequence of a long-term participation.

8.2.3 Differences between exclusive clients and cross-borrowers

The interviews revealed that cross-borrowers are often experienced in handling loans. This is especially true for formal cross-borrowing, as access to several formal loans normally requires a good credit history in the formal financial system. In contrast, access to a combination of formal loans and informal loans is normally possible for financially inexperienced borrowers as well. They can start taking small loans from formal lenders to enter a progressive lending scheme and may have access to informal loans at the same time. However, many financially inexperienced microentrepreneurs refrain from a combination of different loans in order to prevent problems and negative consequences. An exception may be the borrowers who do not intend to repay their debt in the first place, but those were not found to be the majority.

Apart from that, in the quantitative study cross-borrowers and exclusive clients were found to be not significantly different from each other with regard to gender, age, or civil status. A significant association was found between sector and borrowing behaviour but the effect size was only small to medium, which limits the practical meaning of the finding. In other words, cross-borrowers can be of either gender, age or civil status and they may be operating in different business sectors.

The finding that cross-borrowers and exclusive clients did not significantly differ in easily observable demographic variables complements the findings of Chaudhury and Matin (2002) in Bangladesh, where a means test did not find significant differences in the socio-economic profiles[40] of BRAC-only households and overlapping households. Hence, neither demographic variables nor the socio-economic profile allow inferences regarding the borrowing behaviour.

As a consequence of cross-borrowing, cross-borrowers were found to be more indebted than their peers as will be described in more detail below.

[40] The socio-economic variables measured were the land owned per household, the percentage of landless households in the two groups, the percentage of chronically deficit households and the percentage of surplus households.

8.2.4 Impact on the repayment performance

In contrast to other existing studies (Mpogole et al., 2012; Chaudhury and Matin, 2002; Krishnaswamy, 2007), this study assessed the impact of cross-borrowing on the repayment performance in-depth by looking at the different possible impact pathways and other influencing factors, which were first examined in the qualitative study.

First, existing literature suggests that competition and cross-borrowing can deteriorate a borrower's repayment performance by reducing the effectiveness of the tool of dynamic incentives (Armendáriz de Aghion and Morduch, 2010; Hoff and Stiglitz, 1998; McIntosh and Wydick, 2005). The core argument here is that borrowers are less motivated to repay a loan in time when they know that in case of a delay or default, loans from other lenders will be available. In contrast to these suggestions from the literature, for Peru, this study did not find evidence of a decline in the repayment performance caused by this pathway, but the interviews revealed that all borrowers were motivated to repay their loans. This is likely to be due to the high transparency in the Peruvian financial market and the fact that delays and defaults with one lender are visible to other lenders.

It is noteworthy however, that there may have been a self selection bias in the qualitative sample, since borrowers that were unwilling to repay their loans and that did not mind harming the relationship to their lender may not have been reachable or willing to participate in an interview. Hence, it is possible that those borrowers were under-represented in the sample.

Second, organisational challenges resulting from complex loan portfolios including the management of different payments dates and locations were not found to negatively impact on the repayment performance either. In this context, the fact that cross-borrowers are usually financially experienced microentrepreneurs is likely to play a role.

Third, since cross-borrowing in most cases is a strategy to either obtain larger loan amounts from formal lenders or to overcome short-term money shortages, it regularly increases a borrower's debt.

For formal loans, this was also confirmed in the quantitative study, where cross-borrowers were found to have significantly larger loan amounts in EDYFICAR and a significantly higher debt in the financial system. Also, cross-borrowing and a client's debt (with and without debt from EDYFICAR) were found to be strongly correlated.

This finding is in line with results from other studies (Pytkowska and Spannuth, 2012a; Pytkowska and Spannuth, 2012b; Maurer and Pytkowska, 2011), but it is not clear how it relates to the finding of Faruquee and Khalily (2011) that cross-borrowing in Bangladesh increased the borrowers' net-wealth, since the value of the interviewees' entire assets (including for instance their houses, production machines, etc.) could not be assessed. However, it was found that most of them lacked savings, which is a sign for a low net wealth. Hence, further research would be needed to assess the impact of cross-borrowing on the microentrepreneurs' net wealth and income.

The increased indebtedness resulting from cross-borrowing was found to lead to repayment problems when exceedingly high indebtedness levels are reached, in which every small movement of income or expenditure causes a financial misbalance. In these cases, borrowers are only able to fully meet their repayment obligations when their personal situation and their businesses develop ideally.

Fourth, it was found that cross-borrowing can increase a borrower's flexibility in the repayment of his debt as it allows aligning the repayment schedule of the overall debt to cash inflows and outflows. For instance, some borrowers used their credit card to overcome a time gap between receiving money from the junta and making a payment to a formal lender. In some cases, this increased flexibility can lead to an improved repayment performance. However, this pathway is double-edged and can turn into a vicious circle of over-indebtedness in other cases.

Fifth, cross-borrowing was found to improve the repayment performance when borrowers successfully invest their additional credit to increase their income over-proportionately to their expenditures (including the payments to amortise their debt).

Based on those findings it can be said that cross-borrowing is neither a necessary nor a sufficient condition for repayment problems. However, the study found evidence for a deterioration of the repayment performance when clients reached exceedingly high indebtedness levels, which they could only manage successfully when their businesses and personal situations developed ideally. Thus, the impact of cross-borrowing on a client's repayment performance depends also on borrower characteristics (e.g. reliability or business skills) and external factors (e.g. illness or the development of a business sector).

After examining the different impact pathways in the qualitative study, a quantitative analysis was conducted to assess whether the data confirmed the qualitative findings. In the quantitative study, it was found that cross-borrowing and the repayment performance were not correlated and that cross-borrowers did not show significantly more delays in the repayment of their loans than their peers. Hence, the quantitative data confirmed that cross-borrowing does not necessarily result in a deterioration of the repayment performance.

However, there was evidence that borrowers with more than two loans from other lenders showed a worse repayment performance than their peers, which may be considered as a confirmation of the finding that repayment problems arise when cross-borrowing leads to exceedingly high indebtedness levels (according to the quantitative data reached with more than two non-EDYFICAR loans). In these cases, the combination of cross-borrowing, uncertainties and vulnerability to crises can result in a situation of severe financial misbalance, as microentrepreneurs regularly lack savings and insurance to deal with unforeseen events.

The findings of this study regarding the impact of cross-borrowing on the repayment performance complement other existing studies in that they show the different pathways that can lead to different impacts on the repayment performance, depending on borrower characteristics and external events (Mpogole et al., 2012; Schicks, 2013b; McIntosh et al., 2005; Chaudhury and Matin, 2002; Krishnaswamy, 2007; Vogelgesang, 2003).

8.2.5 Impact on the well-being

There are different pathways how cross-borrowing can impact on the subjective well-being, which were assessed in the qualitative study.

First, it was found that cross-borrowing negatively impacts on the well-being when it goes along with over-indebtedness as defined by Schicks (2013a). In these cases cross-borrowers either constantly struggle to meet their repayment deadlines or they have to make significant sacrifices to meet them.

In the interviews, over-indebted borrowers spoke about how they were constantly thinking about their debt, how they felt depressed and desperate, and how their debt affected their relation to family and friends. Those negative consequences were aggravated by the fact that loan officers sometimes executed a lot of pressure in the collection process, which included constant visits of the borrower and his family, embarrassing him in front of neighbours, and threatening to seize his home or workshop.

In some cases, repayment problems were the start of a vicious circle and intensified over-indebtedness since borrowers had to turn to moneylenders or their credit card to (partially) fulfil existing repayment obligations. This vicious circle often resulted in a further deterioration of the borrower’s well-being.

In addition, borrowers had to make concrete sacrifices to meet their repayment obligations, which included the reduction of consumption, the postponing of investments, the abandonment of savings and insurance, the reduction of health expenses, and in one case the microentrepreneur had to take her daughter out of the private school to save the fees. However, when the debt was high, those sacrifices were not even enough to solve repayment problems.

This finding goes beyond the results in Diaz et al. (2011), where 75% of the interviewees admitted that a mental burden resulted from cross-borrowing, since it shows that in addition sacrifices can have a concrete and tangible impact on well-being.

It was further found that a situation of subjective over-indebtedness is especially difficult for cross-borrowers. First, in the case of repayment problems cross-borrowers have to come to terms with different lenders. This makes the rescheduling of loans more difficult as each lender tries to get the most from what the borrower is able to repay. Second, for the same reason loan officers often execute more pressure when they know that a borrower with a delay in his payments is owing to other lenders as well.

However, the study also showed that cross-borrowing does not have a negative impact on a client’s well-being when it does not go along with subjective over-indebtedness. Instead, in this case, it can be an engine for growth and greater well-being as the additional credit can be used to increase income and wealth. But, as mentioned before, client characteristics and external events matter in this context.

8.3 Limitations of the study

The limitations of the qualitative and quantitative analysis have been discussed in detail in the discussion sections of the respective chapters.

From the researcher's perspective the most important limitation is that the findings cannot be generalised to microentrepreneurs in different contexts. This includes especially that they cannot necessarily be transferred to 1) rural areas or less densely populated cities or 2) to less competitive or less transparent financial markets or 3) to a different cultural context. This limitation does not mean that findings cannot be transferred at all, but every transfer needs to be thought through carefully to assess how differences in the new context might affect conclusions drawn in this study.

The fact that the study subjects were clients, loan officers or managers of EDYFICAR only (except for the two interviewed managers of Mibanco and Interbank), also matters for the generalisability of the study. However, from the point of view of the researcher, this is a minor issue for the following reasons: first, all interviewed clients were cross-borrowers, i.e. they were not only clients of EDYFICAR but also of other formal financial institutions as well. Second, from what the clients reported, EDYFICAR did not differ significantly from other formal MFIs of a similar size in the range of products or the modus operandi in their business. Thus, the researcher is confident that findings hold true for clients of other formal MFIs in a similar context.

In the quantitative analysis, another major limitation is that no causalities could be assessed with the available data and methods used. Furthermore, the data did not contain information on how a client's cross-borrowing situation changed during the period of an EDYFICAR loan. Ideally however, the cross-borrowing situation at each point in time would have been put into relation to the repayment performance at the same point in time.

While these limitations are important they are not exclusive to this study but frequently found in other studies of the same nature as well (Chaudhury and Matin, 2002; Diaz et al., 2011; Krishnaswamy, 2007).

8.4 Implications and areas for further research

This research found that even in highly transparent markets, cross-borrowing is common and despite the fact that the overall amount of a client's formal debt is visible to formal lenders, they continue disbursing loans to clients that are already indebted. Thereby, a borrower's repayment capacity is often estimated overly optimistically, when loan officers are incentivised to give further credit and microentrepreneurs have learned how to manipulate the estimates. In addition, borrowers regularly have loans from informal sources, which are not represented in the database of the credit bureau.

For many microentrepreneurs, this results in highly complex loan portfolios and increased debt levels, and management of the same is a challenge. Further, microentrepreneurs often lack savings and insurance and thus have no mechanisms to deal with uncertainties or crises. Thus, whether a cross-borrowing situation is managed well, does not only depend on the borrower, but also on external factors, such as the development of the market he operates in or his health condition. In consequence, it is fair to say that competition in the financial markets and resulting cross-borrowing put microentrepreneurs in an increasingly challenging financial situation.

For microentrepreneurs who manage a cross-borrowing situation well, i.e. for those who use their loans for additional income generation that exceeds the additional costs, while at the same time being untroubled by crises, it can be an engine for growth or greater well-being. However, for others it may result in over-indebtedness, repayment problems and a deterioration of their subjective well-being.

In the most severe cases, cross-borrowing can destroy a borrower's financial basis, which can have a long-lasting impact on his economic growth and severe indirect consequences. For instance, defaulted microentrepreneurs may not be able to keep their businesses running to generate further income. In consequence, they may be unable to ensure that basic needs are met, for instance health expenditures or the education of their children. In addition, their relationship with family and friends may be affected, which increases the mental burden they bear. In some cases, it can take years for the microentrepreneurs to recover from this crisis.

In consequence, it is important to protect the borrowers from the negative consequences of cross-borrowing, while at the same time avoiding unnecessary credit rationing.

In the opinion of this researcher, one important step in that direction is increasing the microentrepreneurs' financial literacy, to enable them to fully understand the consequences of their financial decisions. While in Peru financial education has already been included in the curricula of different schools, courses for adults need to be provided as well. Further research should be conducted on how financial literacy can be increased most effectively in the Peruvian context, thereby focusing on the questions a) who (which institutions) should provide the training and b) which contents, tailored to the Peruvian context, should be taught. Related to this, it should further be examined what role the loan officer can play as an advisor to the client. Thereby, conflicts of interests between the MFI, the loan officer and the client need to be accounted for. For instance, while the interest of the MFI may be sustainable growth, the interest of the loan officer may be the highest possible salary and the interest of the client a fast and easy loan, which is not necessarily always easy to align.

In addition to that, in the opinion of the researcher, microentrepreneurs should be provided with suitable tools (especially savings and insurance products) that help them managing their increasingly complex financial situation. Therefore, further research is necessary to identify the most effective tools in the Peruvian context and to determine the most suitable ways for their provision and distribution.

Furthermore, the researcher considers important that MFIs commit to responsible lending, which includes especially that borrowers are not pushed into over-indebtedness by unrealistic estimates of their repayment performance. Further research should be done to define suitable incentive schemes that take a loan-officer's long-term results into account. In addition, the effectiveness of codes of conduct should be examined and it should be determined how effective agreements among lenders could look like in the Peruvian context. Also, the role of the supervisor and funders in guaranteeing responsible lending should be analysed further.

Related to responsible lending, another finding of the study calls for more research: From the quantitative study, it seemed that exceedingly high indebtedness levels were reached when a borrower had more than two loans from other lenders, i.e. at least three loans in total. This finding was in line with an internal policy of EDYFICAR stating that they usually do not disburse loans when they are not at most the borrower's third lender. The finding goes beyond what was found in other studies (McIntosh et al., 2005;

Chaudhury and Matin, 2002; Burki, 2009; Maurer and Pytkowska, 2011; Pytkowska and Spannuth, 2012b; Chen et al., 2010; Krishnaswamy, 2007; Schicks, 2013b; Vogelgesang, 2003) since it suggests a threshold of number of loans, beyond which cross-borrowing negatively impacts on the repayment performance and well-being. Further research should be conducted to examine the importance of this threshold and it should be assessed whether it would be useful to consider it in the regulation of the Peruvian microfinance sector.

Lastly, the fact that Peru has not yet experienced a repayment crisis despite the highly competitive markets and high degree of cross-borrowing suggests that lenders use the credit bureaus to successfully identify reliable clients that are able to handle a cross-borrowing situation. The implications of this finding for other countries deserve further research.

To conclude, after years of focusing on growth in microfinance, the global microfinance industry now needs to ensure that negative consequences of the resulting competition in the microfinance markets, such as over-indebtedness and a deterioration of the borrowers' well-being, are avoided. Thereby, it is important to remember the greater objective of the movement and to really focus on the borrowers' needs. This dissertation hopes to contribute to this task by analysing one consequence of the increased competition, namely cross-borrowing, in-depth and from the clients' perspective. It thereby aims to close a knowledge gap and to add to the understanding of the phenomenon, so that the different stakeholders can develop suitable measures to avoid that cross-borrowing harms microentrepreneurs and lenders.

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APPENDICES

Appendix 1: Activities during first field stay in July/August 2011

Activity	Participants
Introduction and management interview	Introductory meeting in the EDYFICAR headquarter General Manager Risk management and data analyses expert Miriam Matzanke (Researcher) Dr. Ana Marr (Researcher/first supervisor)
Management interview	Interview with the head of the EDYFICAR branch in San Juan de Miraflores
Focus group discussion	Focus group discussion with four loan officers of this branch
Client interviews	One-on-one interviews with nine EDYFICAR clients in San Juan de Miraflores
Meeting on data availability	Meeting with risk expert to discuss the availability of data
Repeated client interviews	Second meeting with two clients and third meeting with one of them to gain a better understanding of their situation
Field day	Field day during which the researcher accompanied a loan officer during his daily work, i.e. she attended meetings between the loan officer and his clients in the clients' houses or working places and she was further shown how loan applications were processed in the EDYFICAR office
Data screening	Day which the researcher spent in the EDYFICAR headquarter to screen available data in the EDYFICAR systems

Appendix 2: Questionnaire in the preliminary qualitative study

Questionnaire for client interviews in the preliminary study
(translated from Spanish to English to be presented in the dissertation)

- This interview will only be used for the research project of Miriam Matzanke, who is a PhD student of the Natural Resources Institute of the University of Greenwich, London, United Kingdom. She is supervised by Dr. Ana Marr and Dr. John Orchard.
- The research project examines the reasons why some clients use loans from different lenders and how that impacts them.
- Financiera EDYFICAR generously offered to support the research project and allowed Miriam Matzanke to contact some of their clients.
- All information from the interviews will be treated anonymously. For the analysis, names and dates of birth will be replaced by a numerical code, which will not reveal the identity of the interviewee.
- **I want to inform you that your participation is absolutely voluntary and that you can stop the interview at any time. I assure you that there will be no negative consequences whatsoever, if you decide not to participate or to stop an interview.**
- If you have questions regarding the research project or the interview, I am happy to answer them at any time.

<u>Part 1 for all clients</u>

Basic Information

Surname, Name	Date of birth
How many members does your family have?	What is your monthly income [PEN]?
What is the highest education degree you achieved?	

Loans and lenders

1. At the moment, how many loans from how many lenders do you have?
   - .... loans from .... formal lenders
   - .... loans from .... informal lenders

2. At the moment, how much debt do you have in total [PEN]?
   - Formal debt: ....
   - Informal debt: ....

Use of the loans

3. For each of your loans, which were the reasons why you took the loan (loan 1 to be the loan you took first)?

Formal or informal?	Loan 1	Loan 2	Loan 3	Loan 4	Loan 5
Investment in an existing business					

Investment in a new business					
Other investments (which?)					
Consumption					
Housing					
Repayment of other debt					
Crisis/emergency					
Other (which?)					

4. Have you ever taken a loan because it was offered to you by a loan officer although you did not look for it?

<u>Part 2 for clients with more than one lender</u>

Reasons for cross-borrowing

5. Why do you have loans from different lenders?

Repayment

6. Which part of your monthly income do you use for the repayment of your debt?
7. Have you ever had problems to fulfil the repayment obligations? Why?
8. What do you think is the impact that the loans have on your life?
9. Do you think the impact on your life would be different if you would only borrow from one lender? How?

<u>Part 2 for clients with loans from one lender</u>

Reasons for not cross-borrowing

10. Have you ever applied for a loan from another lender? Why?
11. If you would need another loan, would you prefer to take it from EDYFICAR or another lender? Why?

Repayment

12. Which part of your monthly income do you use for the repayment of your debt?
13. Have you ever had problems to fulfil the repayment obligations? Why?
14. What do you think is the impact that the loans have on your life?
15. Do you think the impact on your life would be different if you would borrow from several lenders at the same time? How?

Appendix 4: Improved code system of the qualitative study

As described in detail in Chapter 6, in the initial coding of the transcribed client interviews, around 2100 text units were labelled with around 400 codes. After improving the code system in a focused coding, the following 264 codes remained and labelled 1984 text units.

Improved code system of the qualitative study

"Banco Azteca"
"Banquito"
"Compra de deuda / vender la cuota"
"Crecer"
"EDYFICAR menos estricto"
"Luchando" / "Sacrificarse"
"Por ley es algo estresante. Una responsabilidad, una preoc"
"Ser responsable"
"Tienes que conocer a la gente"
Choosing an MFI
- MFI chosen based on commercial advertisement
- MFI chosen based on recommendation
- MFI chosen because it actively offered the loan
- MFI chosen because no other MFI willing to lend
- MFI chosen with other socios
- MFI needs to offer good service
- MFI needs to offer low interest rate

Credit Cards
- Credit card caused problems in the past
- Credit card considered to have pros and cons
- Credit card NOT used
  - Credit card NOT used to keep debt down
  - Credit card NOT used for unspecified reasons
  - Credit card NOT used for not having access to it
  - Credit card NOT used for distrust
- Credit card used
  - Credit card used by another family member
  - Credit card used for short term money needs

Demographics
- Constant threat of crime
- Familiy situation
- Family crisis existant
- House / Land / Granja
  - House built before working with MFI
  - No own house
  - Own granja
  - Own house
  - Own house made of wood
  - Own land
  - Own shop / stand
  - Own workshop
  - Own taxi
- Microbusiness
  - Learned microbusiness from former generation
  - Likes the own microbusiness
  - Many years experience in the microbusiness
  - Started the microbusiness /has invested before microfinance
  - Microentrepreneurs change businesses
- Point in time when cancelling loan
- Starting to use microfinance

Emergencies - health insurance
- Benefits of public health insurance limited
- Having private health insurance
- Having public health insurance (SIS)
- NOT having health insurance for bad experience in past
- NOT having health insurance for being too expensive
- NOT having health insurance for not considered important
- NOT having health insurance for postponing it
- NOT having health insurance for unspecified reasons

Emergencies - solution strategies
- Financial family support NOT possible
- Financial family support possible for severe crisis
- Non-financial family support possible
- No solution strategy for emergencies

Relying on family support for emergencies
Relying on friends / neighbours for emergencies
Relying on loan to deal with emergencies
Relying on money lender for emergencies
Relying on other family members to work more
Financial planning
High complexity in financial management
Money seperated between partners
Simple strategies/rules to manage own business and finances
Future plans
Future investments not well thought through
Not yet sure if going to take another loan
Planning NOT to take another loan
Planning to take another loan
Planning another loan to invest in house for revenue generation
Planning another loan to invest in own housing
Planning another loan to buy a car
Planning another loan for unspecific purpose
Planning another loan for further business investments
Junta
Safeguards in juntas
Playing junta
Currently organizing junta
Playing junta to buy mercaderia
Playing junta to get cheap loan for different purposes
Playing junta to pay bank
Playing junta to put money aside
NOT playing junta
Used to play junta but not any more
Not playing because of bad experiences in the past
Not playing because not considered useful
Microfinance - experiences
Advisory services wished for
Experiences partially negative
Experiences overall positive
Microfinance facilitates growth

Microfinance facilitates improvement of housing
Microfinance fosters discipline
More understanding / support of MFI wanted
Microfinance - reasons
Familiy funds limited or microfinance preferred
Formal loans for capital intense investments
Loan needed for money cannot be accumulated by oneself
Using MFI like moneylender
Money lenders
Evaluation of working with moneylenders
Moneylenders charge high interests
Moneylenders collect money daily or weekly
Moneylenders threaten
NOT using moneylender
NOT using money lender for rather saving
NOT using money lender for distrust
NOT using money lender for not having access to money lenders
NOT using moneylender because of unfavourable loan conditions
NOT using moneylender for unspecified reasons
Using moneylender
Using moneylender for unspecified reason
Using moneylender for short term loan
Using moneylender to repay bank
Multiple borrowing - experiences
MB considered convenient
MB NOT considered convenient for associated with more debt
MB NOT considered convenient for having different dates
MB NOT considered convenient for having relationships to differ
MB NOT considered convenient for unspecified reasons
Multiple borrowing NOR considered convenient NOR inconvenient
Multiple borrowing situation is not understood as one
Multiple borrowing - reasons
Multiple borrowing because of credit card in other bank
Multiple borrowing because of interest rate
Multiple borrowing because of leasing
Multiple borrowing because of loan amount

Multiple borrowing because of loan recycling
Multiple borrowing because of taking fastest possible loan
Multiple borrowing supply-side driven
Multiple borrowing to always have different options
Multiple borrowing to get loan for another person

Repayment
- Conditions to pay in time
  - Importance of discipline in financial management
  - Importance of knowing own repayment capacity
  - Repayment capacity was calculated wrong
- Fraction of income used for repayment
  - All income is for loans plus basic needs
  - ~25% of income used for repayment
  - ~50% of income used for repayment
  - ~75% of income used for repayment
- Measures to repay in time
  - Sending another person to make the payment
  - Constantly putting money together
  - Cut down other expenditures or investments
  - Working more than normal
  - Working more than normal is not possible
- Repayment effort
  - Being willing to repay
  - Feeling of fair repayment performance
  - Feeling of high repayment effort
  - Feeling of low repayment effort
  - Feeling of too high repayment effort
  - High effort in work to gain the money
  - Learning curve decreased repayment effort over time
  - Stress level rises when due date comes closer
  - Stress level rises when MFI calls/passes regularly
  - Stress level rises in times of low income or high expenditures
  - Wish that would not owe anymore
- Repayment performance
  - Awareness that credit history important for future loans
  - Experienced repayment crisis in the past

        - Repaid well before crisis, after crisis problems
        - Repaying before due date to smooth finances
        - Repaying in time to feel tranquila/o
        - Repaying late
            - A veces le falta y se atrasa
            - Constantly struggling to meet deadlines
            - Having to pay additional interests for paying late
            - Repaying late accepted as measure to deal with money shortage
            - Repaying late because of declining income
            - Repaying late because of unexpected (non-health) expenditures
            - Repaying late because of health issues
            - Repaying late because of negative income shock
            - Repaying late because of outstanding salaries

- Revenues / Income
    - Household income
        - Additional HH income from other business / salary
        - All HH members work in same business
        - At least 1 stable income in household
        - Current income situation
        - Only one HH income
    - Issues
        - Because of crisis tools/inputs are lacking
        - Challenges when employing staff
        - Competition impacts business revenues
        - Structural uncertainty regarding income
    - Revenue Generation
        - NO Diversification of revenues
        - Diversification of revenues
        - Generating employment
        - Generating revenues through activities
        - Generating revenues through assets
        - Income generation after retirement via assets
- Savings
    - No saving
        - No savings for not having money to save
        - No savings for preferring to invest

- Saving
    - Saving in banquito
    - Savings eaten up by crisis immediately
    - Saving in goods
    - Saving at home
    - Trying to save for harder times
- Savings account
    - No savings account because cancelled for dissatisfaction
    - No savings account for considering useless
    - No savings account for distrust in banks
    - No savings account for only saving small amounts
    - Occasionally saving in a bank account
    - Other family members have savings account
    - Planning to open savings account
- Take loan for other person
    - Family crisis causes problems since loan is on name of both
    - Has guaranteed for another person WITH problems
    - Has guaranteed for another person WITHOUT problems
    - Has taken loan for another person WITH problems
    - Has taken loan for another person WITHOUT problems
    - Lending to/borrowing from friends
    - NEVER has taken loan for another person
    - NO LONGER taking loans for another person
    - Within the family money and loans are used very flexible
- Use of formal micro loans
    - Accumulating assets in order to get higher loan amount
    - Loans invested in housing
    - Loans invested in mercadería/other inputs
    - Loans invested in revenue generating assets
    - Loans used constantly "para cubrir huecas"
    - Loans used for consumption
    - Loans used for health treatments
    - Understanding that investments need to generate returns
- Well-being
    - Ambiguity: without loans more satisfied but not achieving anything
    - Feeling more or less satisfied with life

Feeling not satisfied with life
Feeling satisfied with life
Would be less satisfied without loans
Would be more satisfied without loans
Working with MFIs
Getting a loan
Easy to get loan once you are in the system
Easy to get loan when assets / working contracts / guarantor
Initial difficulties to get loan
Initial distrust towards banks
Lax evaluation practices of loan officers
MFI avoided multiple borrowing by granting loan itself
MFIs are actively offering loans
No initial distrust towards banks
Progressive lending
Relationship MFI - client
Having good relationship to loan officer
Loyalty towards MFI
MFI threatening