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Center for Microfinance – University of Zurich

Over-indebtedness and Microfinance
Constructing an Early Warning Index

Executive Summary

Council of Microfinance Equity Funds

Triodos Investment Management

"This study presents an important first step to establish an early warning index to help prevent future over-indebtedness crises in microfinance markets."

Dr. Annette Krauss, Managing Director
Center for Microfinance at the Swiss Banking Institute of the University of Zurich

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Preface

Microfinance has grown rapidly in recent years and provides access to financial services to millions of poor people worldwide. It is a powerful tool for the poor that helps address life's opportunities and challenges.

As in any growing market, the success of microfinance has attracted new entrants. In many countries, microfinance clients therefore not only have access to credit from one single institution, but can choose from a number of lenders. Many clients also have access to (micro-)deposits and general payment services. Building an inclusive financial system has always been at the core of the microfinance initiative. As of today, the disbursement of microcredit is however the most prominent element of microfinance.

A key to the success of microcredit is the thorough assessment of microcredit borrowers' repayment willingness and capacity, resulting in high repayment rates. However, some microfinance markets have become overheated. Borrowers have taken on too much credit that they eventually cannot repay. Such borrowers may end up "over-indebted". Possible drivers of over-indebtedness in a microfinance market are widespread informal sources of finance and consumer lenders; credit bureaus are not in place or not functioning well, while some microfinance institutions (MFIs) follow aggressive growth or do not customize their products to actual demand.

The phenomenon of over-indebtedness is not new to microfinance as the risk is, to a certain extent, linked to market development itself. Over-indebtedness of microcredit borrowers however can, in the first place, be detrimental due to the material, psychological and social consequences of being unable to respond to repayment obligations. Second, over-indebtedness can hamper financial sector development by harming the trust relationship between (financially inexperienced) microcredit borrowers and MFIs. Third, over-indebtedness is a great risk to the quality of the loan portfolio of MFIs, and subsequently constitutes a risk for investors in microfinance. Due to the detrimental impact over-indebtedness can have, all possible efforts should be undertaken to prevent markets from overheating, without holding back the desired market development in general. This is a key challenge to the entire industry.

The microfinance industry is still in its adolescence and as it matures will have to address its challenges in a balanced manner. With microfinance increasingly becoming part of the local and international financial system, it also faces problems of the finance industry in general, and responsible investors will need to have an honest discussion about the challenges in microfinance in order to contribute to a sustainable development of the industry.

As responsible investors, we have always placed great importance on reducing the risk of over-indebtedness. For example, we select MFIs that comply with the Client Protection Principles and apply responsible underwriting practices. In an ideal world, an accurate early warning system would signal critical market developments early enough so that the most devastating impacts could be avoided. To date, over-indebtedness crises that shook an entire country's microfinance sector often became evident only at the moment over-indebtedness of individual borrowers was already quite prevalent. Often-quoted examples include Bolivia, Bosnia and Herzegovina and Morocco. These cases of over-indebtedness urge for the construction of an early warning system: with the lessons learnt from the past, we actively approach the risks of the future.

The full version of the study provides the first comprehensive and consistent academic exercise to establish a methodology towards an early warning index for over-indebtedness in microfinance, with the goal to support the industry in preventing future crises.

The key outcome of this study is a set of 14 indicators that can potentially signal a growing risk for over-indebtedness in any given microfinance market. Another key finding is the lack of available, accurate and consistent data, making a thorough quantitative analysis of the past crises very difficult.

As a consequence, the results of this study must be treated with great caution. It is important to understand that a country with a high index score will not necessarily experience an over-indebtedness crisis. The study by no means suggests that MFIs in countries with a higher score are over-indebting their borrowers nor that lending to MFIs in these countries should be stopped. Instead, based on what we learnt from past crises as presented in this study, we can say that some markets show stronger signs for an increased risk of over-indebtedness.

The index presented as part of the study does not include possible preventive measures or policy responses to crises outbreaks. It is of course possible that a country associated with a higher risk can preempt an over-indebtedness crisis by reacting early. The results of this study indicate, however, that there are early warning signs in some markets that should be taken seriously and preventive measures should be taken to prevent the market from the detrimental effects of a possible full crisis. This is the main purpose of trying to establish an Over-Indebtedness Early Warning Sign Index.

As responsible investors, we believe it is the responsibility of all stakeholders (including investors, regulators and MFIs) to take the signs described in the study seriously and adopt necessary steps to reduce the risk of future over-indebtedness crises. We will continue to take actions to develop self-regulatory mechanisms, support policy makers in improving regulation, encourage more efficient credit information systems and foster the development of a sustainable microfinance sector.

We would like to stress the need for continued research, and recommend that in a further stage, research will concentrate on collection of comprehensive data, further development and refinement of indicators, and testing and validating the resulting Over-Indebtedness Early Warning Sign Index. Ideally, the available data would be complemented by systematic household surveys. Also, the index should be applied to more countries and, for some countries, applied to different regions within a country.

Rochus Mommartz
Member of the Management Board
responsAbility Social Investments AG

Liesbeth Soer
Deputy Director
Triodos Investment Management BV

Deborah Drake
Council Coordinator
Council of Microfinance Equity Funds

Executive Summary

The Objective of the Study

The goal of this study is to deepen the understanding of the risk of over-indebtedness and develop indicators that help the industry prevent future over-indebtedness crises.

The following definition for over-indebtedness has been used:

> ”Over-indebtedness of individuals or households can be defined as the inability to repay all debts fully and on time. Over-indebtedness only occurs if this situation occurs chronically, i.e. in several periods in a row, and against the borrowers' will.”

The Center for Microfinance at the University of Zurich conducted the first comprehensive and consistent academic study on early warning signs of over-indebtedness in microfinance markets. The results of the study have a preliminary character. It is a first step in identifying signs to detect and prevent future crises. It also indicates where further research is needed.

Methodology

The best way to measure the risk of over-indebtedness would be to have comprehensive information on individual households. Unfortunately, this information only exists to a very limited extent in microfinance markets.

Therefore, an adjusted version of the "signaling approach" is used in this study to construct a composite index: the "Over-Indebtedness Early Warning Sign Index" (OID index). It is based on indicators that should "signal" a growing risk of over-indebtedness in a market.

The study is based on a triangulation of data from both qualitative and quantitative sources. On the one hand, the study uses a large-scale survey of 119 MFIs, expert interviews and an extensive consideration of the current academic literature. On the other hand, the study is based on wide-ranging data from MIX Market, a platform for financial and social data on MFIs, and other sources.

By looking at the historic crises of Bolivia (1999), Bosnia and Herzegovina (late 2008) and Morocco (early 2008), it was possible to define "leading indicators" that can signal the risk of a potential crisis. As proxies for the outbreak of a crisis portfolio at risk (PAR), loan loss rates (LLR) or write-offs ratio (WOR) were used. These leading indicators were then assessed for a number of countries.

The leading indicators represent four different levels: macroeconomic level, microfinance market level, firm level and household level. From a total of 57 variables initially considered, 14 were chosen for the OID index.

Leading indicators

- Remittances (in USD) per capita
- Market penetration
- Growth rate of total loan portfolio
- Quality and use of credit information system
- Perceived commercial bank involvement
- Perceived levels and trends in competition
- Perceived investment flows
- MFI liquidity
- Average loan balance per borrower
- Loan requirements and lending methodology
- Productivity (borrowers per staff member)
- Growth and market targets
- Multiple lending
- Consumer lending

For further details on the indicators please consult the full version of the full version of the study.

The countries chosen in this study fulfill the following requirements: they have a microfinance sector of a certain size, are rather homogenous (and therefore often small in size), data and information was sufficiently available, and the response rate to the survey was adequate.

Due to a number of reasons related to the limited quantitative data available, the signaling approach had to be adjusted. The study uses exogenous factors to determine the choice and weights of the variables considered as leading indicators, by evaluating past crisis episodes and by using expert opinions.

The selection takes into account all quantitative indicators that showed significant (lagged) correlations with the outbreak of a crisis as well as all qualitative variables from the survey that are considered influential in literature and could generate unambiguous responses with clear trends.

It should be noted that the small number of historical crises that could be analyzed might lead to a relatively large share of false signals, i.e. variables that reacted prior to a crisis but will not necessarily do so in future crises.

The OID index itself is scaled on a range from 1 (low levels of early warning signs for an over-indebtedness crisis) to 10 (high levels of early warning signs for an over-indebtedness crisis).

The index itself adds up the scores of each individual indicator for each country. The weights were calculated (1) using uniform weights for all 14 variables, i.e. 1/14 for each variable, and (2) giving higher weights to those three variables considered particularly important in literature and by experts: multiple lending, loan requirements and lending methodology, as well as the credit information system.

Results
Application of the OID index, using unequal weights for the 14 index variables, allows a classification of the sample countries as shown below. The index measures the current presence of early warning signs for future over-indebtedness crises in these countries.

Country classification according to the OID Index

Lowest level	–
Relatively low level	Bolivia, Ecuador, El Salvador, Georgia
Medium level	Armenia, Paraguay, Tajikistan
Medium to high level	Colombia, Ghana, Kosovo
Relatively high level	Bosnia and Herzegovina, Cambodia, Peru
Highest level	–

If, alternatively, uniform weights for the index variables were used, only a few changes in the classification of countries would occur. Notably, Ghana, Kosovo and Paraguay would be classified in the next better category. In the case of Ghana, this can be attributed to the absence of a credit information system and its relatively low score on lending methodologies and loan requirements. Kosovo's and Paraguay's scores are borderline so that even slightly below-average scores on one or more of the three variables emphasized in the weighted approach chosen in the study would lead to a reclassification in the uniform weight version of the index. Other country classifications appear rather robust, regardless of the weight of the chosen index variables.

The fact that Bosnia and Herzegovina appears in light red means that the over-indebtedness crisis is still ongoing. Most important determinants are the high penetration rate combined with the presence of multiple lending and an elevated score for issues with the lending methodology and loan requirements. However, the credit information system and debt counseling services that were recently introduced may lead to better scores in the near future.

Cambodia's elevated risk of running into over-indebtedness problems results mainly from the absence of a well-functioning credit information system in a vibrant microfinance market sector. The latter manifests itself in elevated growth rates of the loan portfolio, high growth rates of liquidity and a perceived intense competition and high investment inflow.

The intense competition and high investment inflows are of course positive signs for the Cambodian microfinance industry. However, due to the absence of a well-functioning credit bureau, there is the risk that a looming over-indebtedness crisis might be undetected until it is too late.

Peru also shows a relatively elevated (light red) risk for over-indebtedness due to high scores on 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.

In the middle of the spectrum, Colombia is classified as orange, showing elevated but not (yet) alarming scores in a range of variables.

Tajikistan shows a medium risk (yellow), mainly due to strong increases in total loan portfolios, overstretched MFI staff (high productivity) and, again, the absence of a credit information system.

On the other end of the spectrum, El Salvador and in particular Ecuador show relatively lower risks of running into over-indebtedness crises, mainly due to the relative strength of the credit information system, lending methodologies and loan requirements and, as with the case of Ecuador, little evidence for the presence of multiple lending. However it must be noted that weighted aggregated PAR 30 values for Ecuador and Colombia are rather high, which is not fully consistent with their OID index score or which could indicate the existence of repayment issues due to other reasons than over-indebtedness.

Georgia is classified as light green, mainly due to the low penetration rate and favorable scores on most indicators except liquidity and productivity, meaning that some pressure is on Georgian lenders and the risk may increase in the future.

Bolivia shows a relatively low risk of encountering over-indebtedness problems because the perceived high levels of competition, the only high score of an index variable, seem to be embedded in a functioning market, as the values of most other variables demonstrate rather lower scores.

The lack of available, accurate and consistent data makes a more thorough quantitative analysis of the past crises very difficult. The OID index is merely a predictor for a heightened level of over-indebtedness risk. The ratings present an ordinal scale, and so comparisons between countries remain difficult. Moreover, it is still possible that a country marked as associated with a higher risk can preempt an over-indebtedness crisis by reacting early. This exactly would be the main benefit of having established an OID Index in the first place.

responsAbility Social Investments AG
Founded in 2003, responsAbility Social Investments AG (responsAbility) is one of the world's leading asset managers for social investments. It specialises in sectors such as microfinance, SME financing, fair trade and independent media. With its products, responsAbility enables people in developing countries and emerging markets to access markets, information and other services crucial for their development. Private and institutional investors can thus professionally contribute to positive social development while at the same time achieving a financial return.

Center for Microfinance – University of Zurich
The Center for Microfinance (CMF) is the center of excellence in applied research, advisory services, teaching and executive training on microfinance at the University of Zurich.

Affiliated to the Department of Banking & Finance (Swiss Banking Institute), it aims to close knowledge gaps between the microfinance industry, academic research, and private and institutional investors. Being embedded in a leading research institution and at the same time close to global microfinance investment market leaders and investors, the Center for Microfinance combines independent research with responsiveness to the latest trends in the microfinance industry. The CMF investigates the financial and social performance of microfinance institutions and intends to strengthen the relationship between investors, financial markets and the microfinance industry.

Our aim is to improve the knowledge on the mechanisms of microfinance and to contribute to a maintained quality of microfinance investments.

Triodos Investment Management BV
Triodos Investment Management BV is responsible for managing a number of funds that invest in Europe and developing countries. These funds allow individuals and institutions to invest in sustainable sectors, including microfinance, renewable energy and organic agriculture. As an investor in microfinance we want to contribute to the development of a sustainable financial sector in developing countries that is based on fair pricing, transparency, poverty alleviation and care for the earth. Triodos Investment Management is a 100% subsidiary of Triodos Bank, one of the world's leading sustainable banks.

Council of Microfinance Equity Funds
The Council of Microfinance Equity Funds (CMEF) is the membership organization that brings together the leading private entities that make equity investments in microfinance institutions (MFIs) in the developing world. The Council's members seek both social and financial returns from their investments in these institutions, which provide a range of enabling financial services to the financially excluded. Through the Council, members seek ways to improve their oversight of investee MFIs, enhance the performance of their investments and develop best practices and standards for the industry. CMEF ultimately aims to strengthen the microfinance industry and advance the expansion of commercial microfinance.

responsAbility Social Investments AG
Josefstrasse 59, 8005 Zurich, Switzerland
Phone +41 44 250 99 30, Fax +41 44 250 99 31
www.responsAbility.com