

# **Financial Performance and Social Goals of Microfinance Institutions**

Julian Schmied







Potsdam Economic Papers | 2

Julian Schmied

# Financial Performance and Social Goals of Microfinance Institutions

Potsdam University Press

**Bibliographic information published by the Deutsche Nationalbibliothek**

The Deutsche Nationalbibliothek lists this publication in the Deutsche Nationalbibliografie; detailed bibliographic data are available in the Internet at <http://dnb.de>.

**Potsdam University Press 2014**

<http://verlag.ub.uni-potsdam.de/>

Am Neuen Palais 10, 14469 Potsdam

Tel.: +49 (0)331 977 2533 / Fax: 2292

E-Mail: [verlag@uni-potsdam.de](mailto:verlag@uni-potsdam.de)

The monograph series Potsdam Economic Studies is edited by Prof. Dr. Malcolm Dunn.

Withal Master Thesis, University of Potsdam, 2012

ISSN (print) 2197-8069

ISSN (online) 2197-8077

The document is protected by copyright.

Layout and typography: Thomas Graf

Print: docupoint GmbH Magdeburg

**ISBN 978-3-86956-275-9**

Simultaneously published online at the Institutional Repository of the University of Potsdam:

URL <http://pub.ub.uni-potsdam.de/volltexte/2014/6769/>

URN [um:nbn:de:kobv:517-opus-67696](urn:um:nbn:de:kobv:517-opus-67696)

<http://nbn-resolving.de/urn:nbn:de:kobv:517-opus-67696>

# Contents

<b>1</b>	<b>Introduction</b>	<b>1</b>
<b>2</b>	<b>Literature Review</b>	<b>5</b>
<b>3</b>	<b>Theoretical Analysis</b>	<b>7</b>
3.1	The Economics of Microfinancing . . . . .	7
3.2	The Perspective of MFIs . . . . .	10
<b>4</b>	<b>Data</b>	<b>13</b>
<b>5</b>	<b>Descriptive Statistics</b>	<b>15</b>
5.1	Financial and Social Indicators . . . . .	15
5.2	MFIs and their Structure . . . . .	19
<b>6</b>	<b>Hypotheses</b>	<b>27</b>
<b>7</b>	<b>Estimation Strategy</b>	<b>29</b>
7.1	The Trade-Off Hypothesis . . . . .	29
7.2	The Mission Drift Hypothesis . . . . .	33
7.3	The Decreasing Profits Hypothesis . . . . .	35
<b>8</b>	<b>Results</b>	<b>37</b>
8.1	The Trade-Off Hypotheses . . . . .	37
8.2	The Mission Drift Hypothesis . . . . .	43
8.3	The Decreasing Profits Hypothesis . . . . .	46
8.4	Discussion . . . . .	46
<b>9</b>	<b>Conclusion</b>	<b>51</b>
	<b>Bibliography</b>	<b>53</b>

# Table of Abbreviations

NBFI	Non-Banking Financial Institution
NGO	Non-Governmental Organisation
MFI	Microfinance Institution
OLS	Ordinary Least Square
MIX	Microfinance Information Exchange
RoA	Return on Assets
OSS	Operational Self-Sufficiency
FE	Fixed Effects Estimator
AB	Arrellano Bond Estimator
FDIV	First Difference Instrument Variable
GMM	Generalized Method of Moments



# List of Tables

Table 1: Financial indicators . . . . . 16

Table 2: Institutional means of key indicators by legal status . . . . . 24

Table 3: Summary statistics . . . . . 24

Table 4: Cross-correlation table . . . . . 25

Table 5: The effect of social goals on profitability . . . . . 39

Table 6: The effect of social goals on the return on assets by regions . . 40

Table 7: The effect of social goals on profits by legal status . . . . . 41

Table 8: The effect of social goals on financial sustainability . . . . . 42

Table 9: The effect of profits on social goals . . . . . 44

Table 10: The effect of profits on the depth of outreach by different  
populations . . . . . 45

Table 11: The effect of profits on the number of clients per loan officer  
by different populations . . . . . 46

Table 12: The effect of making less profits in the previous period on  
neglecting social goals . . . . . 47

# List of Figures

Figure 1: Poverty reduction and financial performance by the example of BankoSol . . . . .	2
Figure 2: Major agents in microfinancing . . . . .	7
Figure 3: Financial and social performance from an MFI perspective, dynamic decision possibilities . . . . .	11
Figure 4: Financial and social performance from an MFI perspective, dynamic decision possibilities (own modification) . . . . .	12
Figure 5: The effects of monitoring . . . . .	18
Figure 6: Ratio of MFIs by legal status over time . . . . .	20
Figure 7: Total assets by legal status over time. . . . .	21
Figure 8: Number of active borrowers over time . . . . .	22
Figure 9: Average loan balance per borrower by legal status over time. . .	23

# 1 Introduction

The image of microfinancing has changed substantially over the last few years. While economists have warned since the end of the 90s that microfinance is not the panacea to alleviate poverty (e. g. Murdoch 2000, Conning 1999) it took media and politics a long time to realize the limits of this poverty reduction tool. This change was mainly caused by the Indian microfinance crisis of 2010 and negative publicity through the media. For instance the documentation ‘Caught in Micro-debt’<sup>1</sup> reported cases of people running multiple microcredits in order to pay back previous microloans. In this context the role of profits in microfinancing was increasingly questioned by researchers and politicians. In fact, commercial investors soon discovered the potential of a market, resulting in a rapid integration of microfinancing into the international and local commercial financial markets (see Kirchstein 2010, p.3). Critiques argue that microfinancing has been commercialized and that microfinance institutions (MFIs) put more emphasis on improving their financial performance than pursuing social goals. This hypothesis, referred to as the *mission drift* – where the original intention of microfinancing, the reduction of poverty, is neglected – has become of greater importance to latest researches.

In this paper I intend to examine if empirical evidence supports the mission drift hypothesis. Moreover, I want to test if there is a measurable trade-off between profitability and the following four social goals of microfinancing, which I derived from the UN Millenium Goals: to support the poorest population, reach as many people as possible (known as the depth and breath of outreach in the literature), empower women, and provide responsible support of borrowers. For example, the stylized graphs in Figure 1 (from a case-study about the Bolivian MFI BancoSol) illustrate the hypothetical relationship between profitability

---

<sup>1</sup> Tom Heinemann, 2009, online available via <http://www.youtube.com/watch?v=IH3THwV-J0Q8> (16.12.2013).

## 1 Introduction

and poverty reduction. It is shown that profits decrease proportionally to the average loan size of an MFI's client. One of the major aims of this paper is to test if this trade-off can be confirmed when using global data on microfinance institution-level.<sup>2</sup>

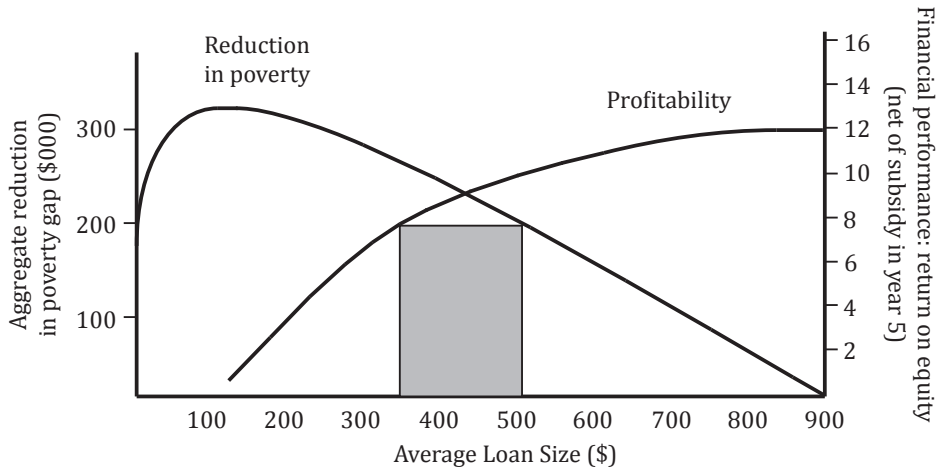


Figure 1: Poverty reduction and financial performance by the example of BankoSol;  
Source: Mosley 1996, p. 27

The existing empirical literature analyzing the role of profits in microbanking is mainly limited to case studies. However, a number of global studies were published by Mersland and Strøm (2010) or Cull, Demirguc-Kunt and Murdoch (2007, 2009, 2009a). The latter used Microfinance Information Exchange (MIX)<sup>3</sup> cross sectional data of 124 MFIs from 49 countries. The studies were highly innovative and extensive, however, unobservable institution-specific effects, such as differing management skills, bias their OLS results. Furthermore, an estimation restricted to one period is inadequate to measure this dynamic relationship. Mersland and Strøm (2010) applied fixed-effect as well as dynamic panel models to test the mission drift hypothesis using a data set provided by a rating agency. They found that profits have a positive effect on the loan size. However, the data are restricted to MFIs which currently intend to attract external investors.

<sup>2</sup> The relationship between poverty reduction and the loan size is an other interesting issue but will not be analyzed here. It is assumed that serving small loan sizes means to reach the people who are the most in need.

<sup>3</sup> A non-profit private organization founded to provide a cross market data infrastructure. For more information see Section 4.

Hence, MFI which do not choose this way of finding investors are excluded. Therefore to gain a more representative result, I will use the self-reported MIX data set, which includes observations from all kind of MFIs (NGOs, microbanks etc). The data set contains observations from 1995 to 2010. During this period the number of MFI participants varies between three (1995) and 1,400 (2008).

My results show that nowadays profit oriented MFIs serve a higher fraction of people, which supports the hypothesis of a commercializing microfinance market. Furthermore, the average loan size of profit-oriented microbanks quadrupled over the last ten years, whereas it remained relatively constant for non-profit organizations. By applying a fixed effect linear and a fixed effect logit model as well as a first difference model for the trade-off hypothesis, I found that the average loan size has a significant positive effect on both short- and long-term financial performance controlling for important MFI characteristics. However, no negative effects could be identified concerning the other social goals. The hypothesis which states that profitability has a negative influence on the social performance is tested with a linear fixed effect model, in order to allow for firm-specific heterogeneity. The data confirm the negative effect of short-term profitability on a variable which approximates the social goals of reaching particularly the poorest populations. This effect was largest among profit oriented microbanks. Some evidence was found to support the hypothesis that the presence of profits reduces the ratio of female borrowers in the African and South Asian data samples. In contrast, profitability tends to increase the breath of outreach, i. e. how many clients are served. Finally, among MFIs in Africa, the Middle East and Eastern Europe it was proven that the presence of profits increases the number of borrowers per loan officer, which suggests that clients tend to be served and monitored more poorly. Finally, using a fixed effect logit model I show that the probability that an MFI worsens its social performance increases substantially if profits have decreased in previous years. This finding seems to be contrary to the previous results. My explanation for this paradox is that the presence of profits is not the reason for the neglect of social goals by MFIs. It is however the *intention* of MFIs to improve their financial situation, which leads MFIs to concentrate less on their social mission.

The paper is structured as follows: Initially, the little empirical literature published until present is reviewed. In the third section, I will go through economic

## *1 Introduction*

theory which intends to explain the trade-off and mission drift hypothesis. Afterwards, the used data set will be presented. In the fifth section, I will provide important facts about the microfinance market and the structure of MFIs. In section six the hypotheses which are tested in the regression analysis are presented. In the subsequent sections I present the estimation strategy and discuss the results. Section nine draws some conclusions.

## 2 Literature Review

Until now there has been a small number of studies analyzing the relationship between profits and social goals in microfinancing. Especially empirically, there has been few insights gained until recently, as research was limited to case studies (e. g. Mosley 1996). Conning (1999) was the first to use a global data set of 72 institutions for the year 1998, with the intention to measure the trade-off between loan size and profits. However, the lack of variation in interest rates and organizational structures caused identification problems, which made the study not very convincing. Lafourcade et al. (2005) provided a relatively extensive analysis of the financial and social performance of MFIs in the African microfinance market, however the analysis was too descriptive.<sup>4</sup> Further Nieto et al. (2009) analyzed an extensive number of relationships related to social and financial efficiency and provided a precise discussion about indicators measuring social efficiency. However, the authors used Pearson Correlation Coefficients to measure the relationships, which makes it difficult to interpret their results. The first sophisticated global study intending to measure potential trade-offs between the outreach and financial performance of MFIs and the mission drift hypothesis was published by Cull et al. (2007). The authors used an extended data set of the Microfinance Information Exchange (MIX)<sup>5</sup> including 124 MFIs from 49 countries. To identify the trade-off they distinguished between different lending types (group lending, individual lending etc.). They found no evidence for an effect of the loan size on profitability, but they found that the presence of profits has a significant positive effect on the loan size. However, his analysis was limited to the usage of cross-sectional OLS regressions. Effects which cannot be observed, such as management skills, potentially bias their results. Furthermore, as pointed out by Copestake (2007), a one period estimation is an

---

<sup>4</sup> The few empirical studies published before 2005 are reviewed by Hermes and Lensink (2007).

<sup>5</sup> This self-reported data set is also used in this study. More information about the MIX is provided in Section 4.

inappropriate method to identify the dynamic phenomena of the mission drift. Mersland and Strøm (2010) were the first to use a panel data set with 374 MFIs from 74 countries from the years between 1998 and 2008. In contrast to the paper of Cull et al. (2007) and this paper, the authors utilized a data set provided by a rating agency. They used a fixed effect panel as well as a dynamic panel model and found that an increase in average profits tends to increase the average loan size. Despite this finding the authors came to the conclusion that there is a lack of evidence for mission drift.



# 3 Theoretical Analysis

## 3.1 The Economics of Microfinancing

In order to understand the empirical relationship between financial and social performance it is necessary to understand the microeconomic mechanism.

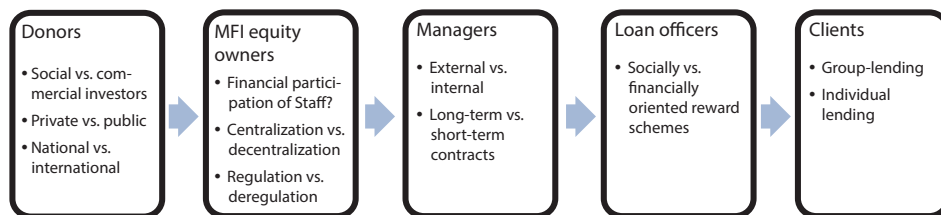


Figure 2: Major agents in microfinancing; Source: own illustration

The economics of microfinancing is very information intensive, which often leads to the appearance of moral hazard. As shown in Figure 2, there are five interacting agents in microfinancing: the donors or investors funding the MFIs, the owners of the MFIs, the managers, the loan officers, and the clients. All of these have different intentions, incentives, access to information and goals. A relatively large number of studies in the economics of microfinance focuses on examining the relationships between those agents and the effect on the trade-off between social and financial performance. Stiglitz (1990) was one of the first to focus on the relationship between MFI clients and MFI owners or managers in terms of risk handling and information asymmetry. Using a competitive market model with peer monitoring he was able to explain the success of microfinancing in rural areas. He shows that traditional microbanks do not serve local people due to a lack of information on their potential clients, which would result in a higher risk of repayment failure. Local moneylenders have better access to cli-

ent information and hence exploit their monopoly status by charging enormous interest rates. The authors argue that the concept of group lending, which generates social pressure on the clients, can overcome the information asymmetry problem and microfinancing can be “financially profitable with moderate risks serving poor people in rural areas” (Stiglitz 1990, p. 1).

Group lending has been a promising concept. However, in the last years an increased number of MFIs have focused on offering single-lending contracts. This could be a potential cause of the problems in microbanking. Unfortunately, the data set used in this paper entails no information about the lending type. Mersland and Strøm (2010) provide empirical work concerning this matter.

The first economist to focus specifically on the trade-off between financial and social performance of MFIs was Conning (1999). He highlights the special role of microfinance as a tool to increase the access to loans for people who lack high collateral. However, with little collateral, monitoring is of an even higher importance than in traditional financing. Monitoring can reduce moral hazard within the borrower-lender relationship. Examples for the implementation of monitoring are weekly interim repayments, loans of short maturity, and ex-ante screening of the potential clients financial and social situation. However, Conning hypothesizes that the marginal costs of monitoring rise when MFIs intend to reach poorer segments of clients. He claims that empirical evidence supports his hypothesis. However, due to a low availability of data, he only provides descriptive empirical results.

Another principal-agent relationship exists between the manager of an MFI and the loan officer. There has been relatively little theoretic work in this field, but Armendáriz and Murdoch (2005) manage to specify the main tensions. They highlight the incentive problem which appears when a manager wants to pursue two diverging missions: To generate profits and to be cost efficient in order to stay financially sustainable, while also reaching the disadvantaged population groups. The authors state that incentive schemes are designed to reward loan officers when they achieve a large number of contracts with large loan sizes and a low probability of repayment failure, whereas cost minimization and measures of poverty reduction tend to be excluded. The dominant reason behind this trend is that the managers range of observation of the loan officers

performance is limited, and thus managers concentrate on outcomes which are easier to quantify and to observe but are not necessarily more important.<sup>6</sup> Furthermore, the collection of internal data allows financial indicators to be measured more easily, as the institution has unlimited access to the data. In contrast, social data is mostly generated externally and measurement errors or non-access to data is more likely to occur. For these reasons financial goals tend to be more emphasized in the contracts between the loan officers and the MFI management than social goals, which could be a plausible explanation for the trade-off between financial and social performance.

There are different ways in which MFIs are organized and owned. The Microfinance Information Exchange (MIX) distinguishes between five different legal statuses, which essentially differ in terms of regulation, subsidization and management: NGOs, microbanks, non-banking financial institutions (NBFI), rural banks and cooperatives. A crucial point is the degree of dependence between a institution and its funders, as a growing number of external funders with either political, social or economic interests leads to a multiplication of the discrepancies. An MFI decision process is likely to be influenced through political interests when it is financially supported by a public institution. MFIs that are supported by socially oriented investors are more likely to concentrate on social goals in order to meet the investors expectations, and hence further receive financial support. In contrast, a profit oriented investor will most likely ignore the MFI social performance. Additionally, the presence of both international and national investors further intensifies the discrepancy between social, financial and economic interests (see Kirchstein and Welvers 2010 for an extensive discussion concerning the different types of funders of MFIs).

The degree to which loan officers participate in the MFI profits is a further organizational characteristic affecting the relationship between social goals and financial performance. On the one hand, when employees participate in profits, costs minimization is likely to be achieved and loan officer are motivated to

---

<sup>6</sup> The authors provide an example illustrating this process: high school teacher have two tasks, teaching and mentoring which have presumably the same importance. The success of teaching can be easily measured by the grades of the students, whereas mentoring is hard to measure. The principal (the school manager) will make a contract which rewards only the teaching activity. Therefore teacher spend more time on teaching than it would be efficient and mentoring goes short.

serve many clients. On the other hand, certain social goals, such as particularly serving the poor population, are possibly neglected.

It is essential to understand all these relationships when empirically testing the effect of profits on social performance and the effect of pursuing social goals on the financial performance. In this section, I did not discuss all of the potential problems “within the chain of agency relations” (Conning 1999, p. 1), however I did stress the most important ones (see Armendáriz and Murdoch 2005, Chapter 9 and 10 for a more extensive discussion).

## 3.2 The Perspective of MFIs

Copstake (2007) argues that social and financial goals can be achieved simultaneously. For instance, cost reduction can lead to a higher return on assets and hence enable MFIs to employ more qualified employees and/or more loan officers, which would allow MFIs to set a higher focus on social goals. Further, Waddock and Graves (1997), who examine the link between corporate social responsibility (CSR) and financial performance in private enterprises, argue that financial sustainability enables the access to “slack resources” which hence can be used to achieve social goals. This concept can be applied to the microfinance market, which implies that a financially instable MFI is more likely to focus on stabilizing its financial performance rather than pursuing social goals.

However, as Copstake (2007) states, there are trade-off relationships. For instance, raising interest rates can improve short-term financial performance but will raise the financial burden for the clients. Further, he emphasized the dynamic dimension of the “multi-tasking management problem” (Armendáriz and Murdoch 2005, p. 266): Future social performance depends on current social performance *and* current financial performance. A successful implementation of social goals leads to an increase in the demand for micro-loans. However, positive financial performance is a crucial requirement for future sustainability and growth, which would further increase future clients served, and thus has also been a major goal for social orientated MFIs. However, this may result in current financial performance ruling out current social performance. Copstake (2007) provides a simple model to illustrate the strategic options of MFIs.

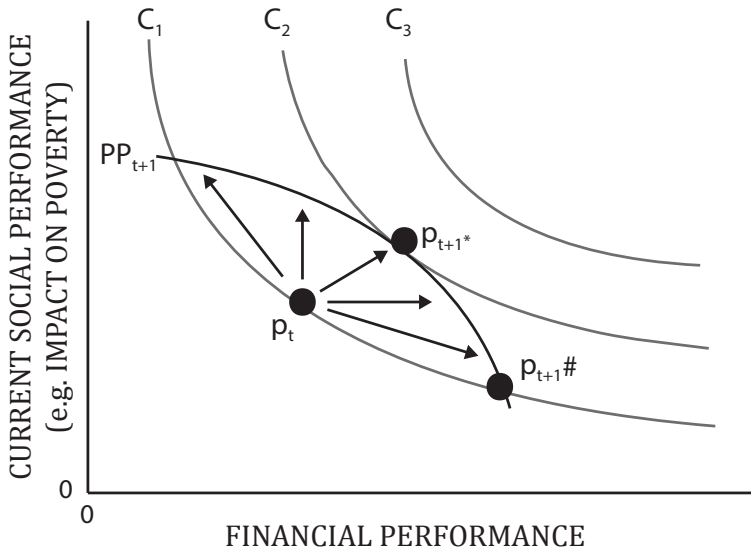


Figure 3: Financial and social performance from an MFI perspective, dynamic decision possibilities; Source: Copestake (2007), p. 1724

The bundle of curves ( $C_1, C_2, \dots$ ) represent equally desirable combinations between financial and social performance. The arrows stand for the operational options of an MFI starting in  $p_t$ . In the second period an MFI can reach point  $p_{t+1}^*$  which is the result of an optimal strategy, improving financial and social performance simultaneously (for instance by higher cost efficiency). The vertical and the horizontal arrows represent a client-oriented strategy with a constant financial performance, and an invest-to-grow option with constant social performance, respectively. The remaining arrows are *trade-off* options. Point  $PP_{t+1}$  is reached when MFIs decide to improve social goals at the expense of financial performance. This leads to either a higher dependency on subsidies or a reduction of profits (if the MFI was profitable in the first period). A profit maximizing MFI with a negative social performance ends up in Point  $p_{t+1}^\#$ . Copestake suggests that this indicates that institutions crowd out poorer clients in order to attract richer clients which demand larger loan sizes.

In a two-period model, a decision made in a previous period influences the decision made in the subsequent period. A firm in  $P_{t+1}^\#$  (see Figure 4) has to make fewer efforts in order to improve its financial performance, and higher efforts in

order to improve its social performance, hence reaching the next optimal combination  $P''$  compared to an MFI starting in  $p_t$  and reaching  $p_{t+1}^*$  and to larger extent compared to an MFI starting in  $PP_{t+1}$  and ending in  $P'$ . Therefore, once an MFI decides to follow a trade-off strategy towards a better financial performance at the expense of social performance in the current period, it will be less likely for the MFI to make a social performance investment in future periods, since it would have to make a very large effort towards improving social performance in order to reach the next optimal level. Therefore, it has to be taken into account that in the regression analysis, the current MFI performance is likely to be affected by the performance of the previous period.

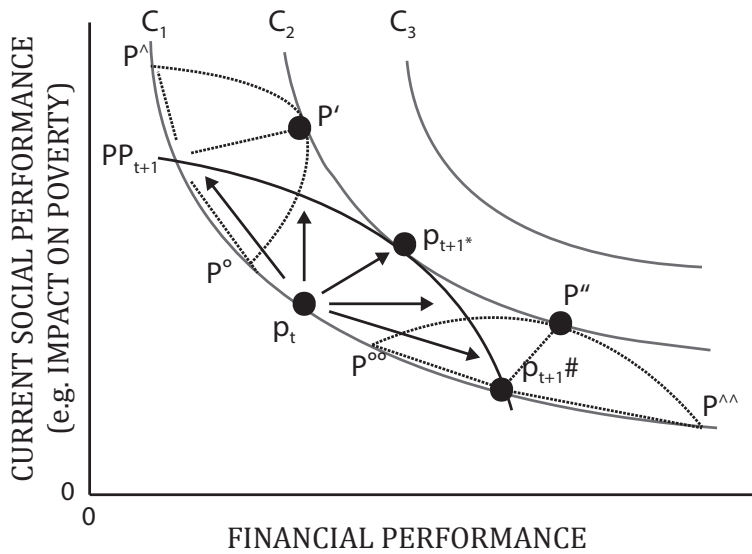


Figure 4: Financial and social performance from an MFI perspective, dynamic decision possibilities; Source: Own modification of Copestake (2007), p.1724

Another aspect emphasizing the need for a dynamic analysis is the increasing cost-efficiency of MFIs, caused by the learning curve effect. This was empirically examined by Caudill et al. (2007), who found that approximately half of the MFIs reduce their costs over time. This must also be considered in the regression analysis.

## 4 Data

The data used in this paper are provided by the Microfinance Information Exchange (MIX), a non-profit private organization which was founded to generate a cross-market data infrastructure for the expanding and increasingly complex market of microfinance (see Cull et al. 2009).<sup>7</sup> The data set contains a large number of indicators on risk, profitability and social issues. The sample used in this analysis contains one observation per year, which is calculated as the yearly median, for a large number of institutions. The number of included MFIs has increased from an initial three in 1995 to 1,458 in 2008, then declined to 1,174 in 2010. Local currencies are converted into US Dollars, fulfilling the common industry conventions for monetary data. The observations are self-reported, which has several drawbacks: Bias is possibly due to measurement error, and more profitable and/or larger organization from more developed countries may have more professional staff or better inventory (PCs etc.) which are able to provide more precise data. Finally, one could argue that MFIs provide overly optimistic data, for instance in terms of higher returns on assets. However, since the MIX is not an auditing company it does not have a strong incentive to do so. Moreover, the MIX cleans its data sets using a data audit system, which for instance monitors if financial indicators are abnormally high or low (see the glossary of the MIX).

In contrast to this paper, Mersland and Strøm 2010, who applied a similar empirical approach, utilized data from a rating agency. The MFIs publish their performance in order to attract external investors. Hence, the study provides an insight into how MFIs which are favored by external investors are affected by the mission drift. However, in contrast to the MIX data set, the authors data set does not include every type of MFI and therefore MFIs which are subsidized by social or governmental investors are not likely to be included.

---

<sup>7</sup> The data can be downloaded directly via the website of the MIX.

Comparing the results of the two studies will reveal interesting empirical findings on the mission drift hypothesis.

When using the MIX data the issue of how to deal with unbalanced panels has to be discussed, as some MFIs are founded earlier than others, leave the sample because they go out of business, or merge with an other MFI. Balancing the data set, i. e. only keeping those MFIs which have been present in the data set for a distinct number of years, would cause two problems. Firstly, numerous observations from the early years of microfinancing would be ignored. Secondly, financially sustainable MFIs tend to remain longer in the data set, and thus there would be a non-random selection of MFIs, which would possibly bias the results. Due to these problems I use the entire unbalanced data set and include observations which last for at least two periods.



# 5 Descriptive Statistics

## 5.1 Financial and Social Indicators

In this section I will provide some important facts about the microfinance market. Firstly, it needs to be clarified how financial performance can be measured. Previous empirical studies focused on the following three indicators: Return on assets, return on equity and operational self-sufficiency (see Gaul 2011 for a discussion of the indicators). In this paper, however, I will focus on return on assets and operational self-sufficiency, since in this data set the observations of these indicators are the most consistent. The latter compares the revenues from all kinds of financial services of MFIs to the variable operating costs within a period. These costs represent financial expenses and losses made due to failed repayments as well as expenses related to operations, including all personnel expense, depreciation and amortization, and administrative expense (see the glossary of the MIX). An MFI is operationally self-sufficient when the indicator exceeds 100 percent. Additionally, I will introduce a variable which represents financial sustainability. An MFI is financially sustainable if it generates positive returns (or is operationally self-sufficient) for five years.

In contrast, the measurement of social goals is less clear and requires some discussion. Some goals are characterized by improving the social welfare of developing countries and others by the MFIs social goals (e. g. good firm governance, price transparency and/or responsible interaction with the environment). The MIX founded a task-force which introduced several methods to quantify these social goals.<sup>8</sup> However, the data has not been published and therefore I focus on goals regarding poverty reduction. My definition of the MFIs social goals are derived from the UN millennium goals.

---

<sup>8</sup> See <http://www.sptf.info> for details, 01.07.2012.

Table 1: *Financial indicators*

<b>Indicator</b>	<b>Definition</b>
Return on assets	Net operating income after taxes/average total assets
Operating self-sufficiency	Financial revenue (financial expenses + loan loss provision + operating expenses)
Financial sustainability	The OSS is above 100 percent or positive return on assets for 5 years

Source: MIX Glossary 2011 / Own definition

The third *2015 Millennium Goal* is to halve the ratio of people living below one US Dollar a day. Two missions for MFIs can be derived from this goal: Lift as many people as possible out of poverty and help particularly the poorest people. In the literature these indicators are referred to as the depth and breath of outreach, which have been proxied by the MFIs average loan size (sometimes scaled by the countries GNI per capita) and its number of active borrowers. Smaller average loan sizes indicate that an MFI is likely to have served people with smaller budgets. However, for these MFIs to further achieve the same revenues as MFIs which serve people with larger loan sizes, they would have to charge relatively high interest rates, which would be counterproductive to achieving poverty reduction. Therefore, an average loan balance with appropriate interest rates would be a better proxy. In regressions where the relationship between profits and loan size is tested, this can be addressed partly by controlling for the average interest rate of an MFI.

The number of active borrowers represents the number of clients an MFI serves during a period. This simple concept states the more people that are served the better, therefore it was used in several studies as a proxy for “breath of outreach” (Cull et al. 2009, Armendáriz 2011). However, the idea of microfinance is not to randomly grant credits, but to constantly monitor and assist clients in order to ensure responsible investments<sup>9</sup>. Therefore, when regressing the rela-

<sup>9</sup> The Microfinance Crisis in India had its cause in that problem. Comparable to the Subprime Crisis in the US, people were served with credits without any checks of the eligibility of the person. Read more about this in The New York Times : India Microcredit Faces Collapse From Defaults, 17.11.2010, <http://www.nytimes.com/2010/11/18/world/asia/18micro.html>.

relationship between financial performance and the number of borrowers it has to be controlled for appropriate monitoring. Unfortunately, until present the number of borrowers per loan officer is the only indicator that the MIX data provides as a rough proxy for monitoring. Presumably the lower the number of clients per loan officer the more accurately clients can be assisted and monitored. One could argue, however, that larger MFIs could benefit from synergy effects and enable them to deploy fewer officers without a reduction in the quality of service. Hence it is vital to control for the size of the MFI in the regression. Starting 2012 the MIX data set will implement the *campaign protection principles* indicators, which measure how well clients are treated and monitored (see The Smart Campaign 2011). Future research work should use these indicators in order to quantify monitoring more precisely.

The third social goal for this analysis is derived from the previous discussion. Appropriate monitoring can be regarded as a social goal in itself since clients would be better protected from becoming over-indebted. But it would also increase the MFIs profits since well monitored clients are less likely to fail repayments. It appears to be a win-win situation. But the question arises why weak service qualities still exist that lead to the problem described in the documentary “Caught in Micro-debt”. The cause of this problem is a trade-off between short- and long-term management of financial performance. Good repayment rates tend to affect long-term financial performance, whereas monitoring causes costs, e.g. higher personnel expenses, which lowers short-term profits. The decisions of MFI managers are usually affected by the incentive schemes and the duration of their contracts. On average, the contracts are short- or medium-term, hence managers tend to focus on achieving short-term financial goals. The complex relationship is illustrated in the following diagram. The regressions in Section 8.1 will show if these relationships can be confirmed empirically.

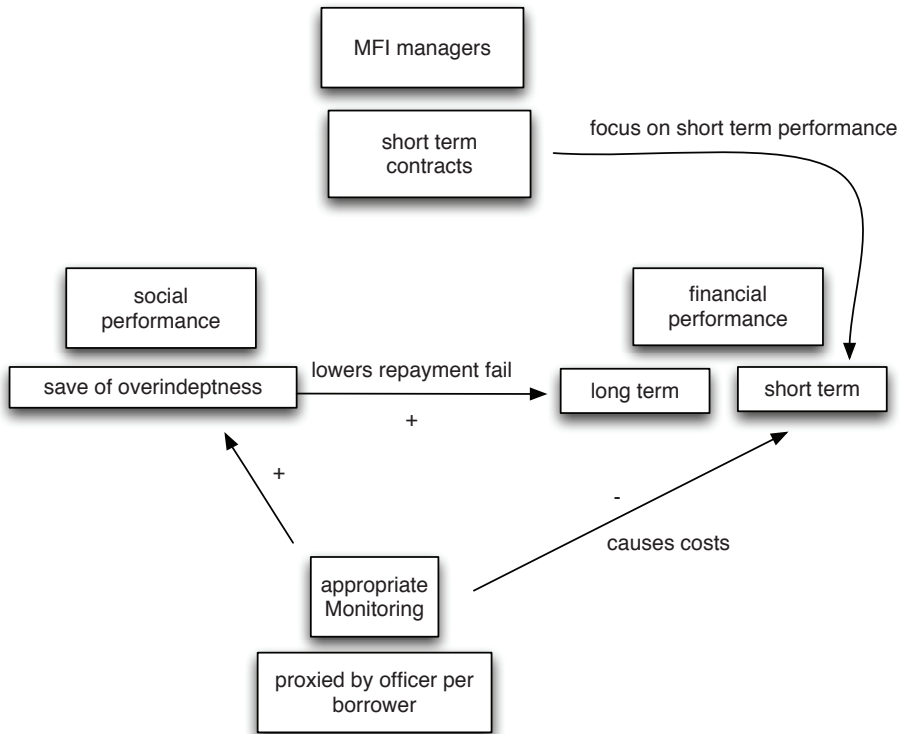


Figure 5: The effects of monitoring; Source: own illustration

A fourth goal which was of interest in previous analysis is the empowerment of women, which is also a 2015 UN Millennium Goal: “Promote gender equality and empower women”. An observable indicator of this goal is the percentage of female borrowers. Although, this indicator is relatively high, in many cases family structures force women, who receive credit from the bank, to pass on the money to their husband. Therefore this indicator overstates the empowerment of women.

This analysis will therefore concentrate on return on assets and operational self-sufficiency as *financial performance variables*, and on average loan size, female ratio of clients, number of loan officers per borrower, and number of active borrowers as *social performance variables*.

## 5.2 MFIs and their Structure

MFIs are not homogenous institutions as they have different donors, and are managed and regulated differently. A possible approach to distinguish between these differences is to examine their legal status.<sup>10</sup> The most traditional structure of an MFI is a Non-Governmental Organization (NGO). As NGOs are restricted to reinvesting profits they cannot declare profits to shareholder or external investors. In return, they often have tax advantages and are often subsidized by external donors, such as supranational institutions (e.g. the European Union), private donors or national and international governmental organizations (e.g. United States Agency for International Development (USAID) or German Gesellschaft für internationale Zusammenarbeit (GIZ)). Subsidized NGOs face more external interests than institutions with other legal statuses. However, they are not regulated by a banking supervisory agent. Institutions with a microbank license are allowed to act profit oriented, but they are regulated by a governmental control institution. Non-banking financial institutions (NBFI) are defined as a bank-similar institution with a special license. This license is characterized by low capital requirements, limitations on financial service offerings and/or by a supervision of a different state agency (see the glossary of the MIX). In general, NBFIs are the most attractive for private investors. Finally, rural banks are state-run banks targeting non-urban clients, and credit unions are member-owned financial cooperatives.<sup>11</sup>

To shed some light on the hypothesis of commercialization of microfinance, the most frequently chosen legal status by MFIs and how their preferences have changed over the years are of particular interest. Figure 6 shows that about four out of ten institutions had an NGO status in 2010. This indicates that the majority of MFIs continue to prefer this structure, despite a slight downward trend of NGOs between 2004 until 2008. In contrast, the number of NBFIs in 2010 accounted for about 33 percent of all MFIs, and is experiencing a steady upward trend since 2003. In the beginning of the MIX data set, about two out of ten MFIs had a microbanking license whereas in 2010 this ratio halved. This may be ei-

---

<sup>10</sup> A similar approach was made by Cull et al. (2009). However their data was from the years 2002-2004. Therefore an updated analysis is required.

<sup>11</sup> The latter two will be neglected in the remainder because they are minor players in the microfinance market.

ther due to microbanks changing their formal status into rural banks or credit unions, or due to the transformation into NBFIs in order to avoid regulatory supervision.

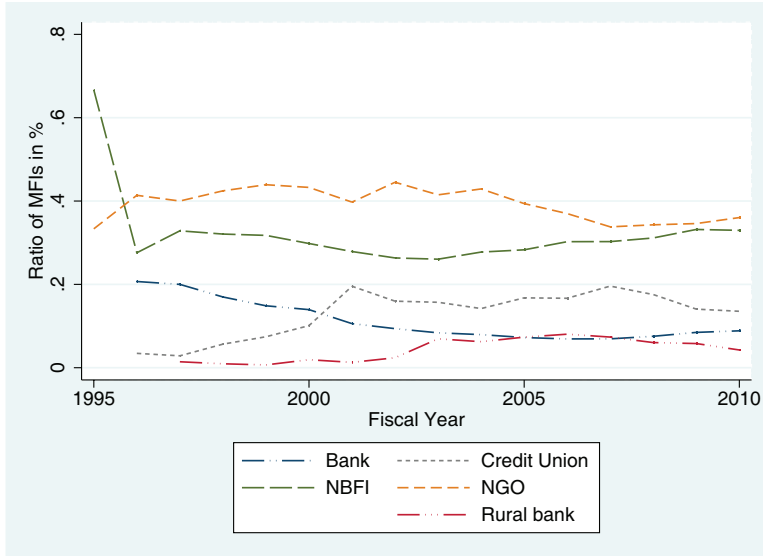


Figure 6: Ratio of MFIs by legal status over time; Source: own illustration

The results change when examining the financial power. As shown in Figure 7 microbanks account for the largest share of assets. In 2010, 52 percent of the total assets belonged to microbanks.<sup>12</sup> This ratio increased between the years 1998 and 2004 after which it remained constant until present. In contrast, in 2010 NGOs account for only about twelve percent of total assets. Moreover, this ratio has been declining since 1998. NBFIs account for 28 percent with a slight upward trend. On average a Microbank owned assets worth 194 Million US Dollar, NBFIs owned 24.7 Million and NGOs only owned 11.5. (see Table 2).

<sup>12</sup> To show the dimensions: This is approximately 69 Billion US dollars. An analysis of the interaction and rising competition between the traditional banking sector and the microbanks was published by Cull et al. (2009a).

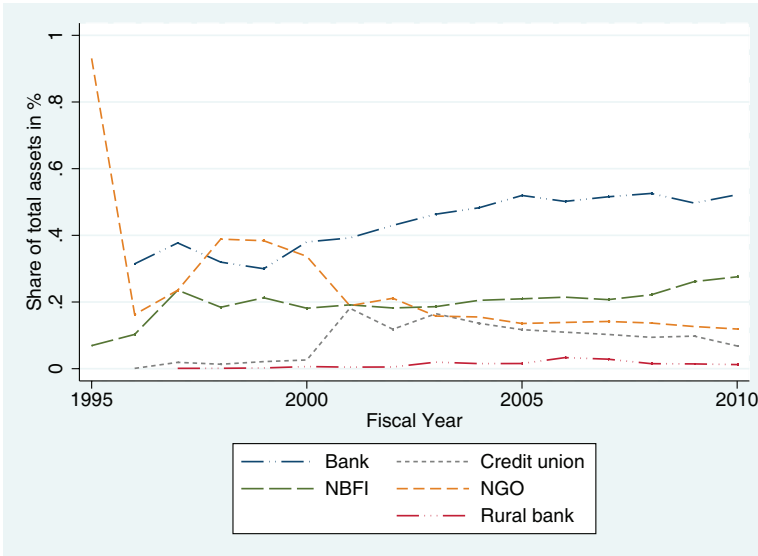


Figure 7: Total assets by legal status over time; Source: own illustration

The market share of MFIs could be proxied using the total number of active borrowers which are served by the MFIs. Figure 8 shows that the shares of NGOs, NBFIs and microbanks have been converging. This trend contradicts the result from Cull et al. (2009) which stated that NGOs reach a higher total number of borrowers (see Cull et al. 2009, p.175). Nowadays, NBFIs serve nearly 40 percent of the borrowers which is almost three times the amount compared to 2003. NGOs lost almost half of their market share (from 51 percent to 29 percent). The banks share remained relatively constant over time and in 2010 they served nearly the same number of clients as NGOs.<sup>13</sup> This indicates that recently profit oriented institutions have been reaching a larger number of clients. It remains to be clarified what types of clients are served by the different forms of legal status.

<sup>13</sup> Another calculation with the MIX data set indicates that MFIs with a pro-profit status account for 57 percent of the clients in 2010, in contrast to 37 percent in 2003.

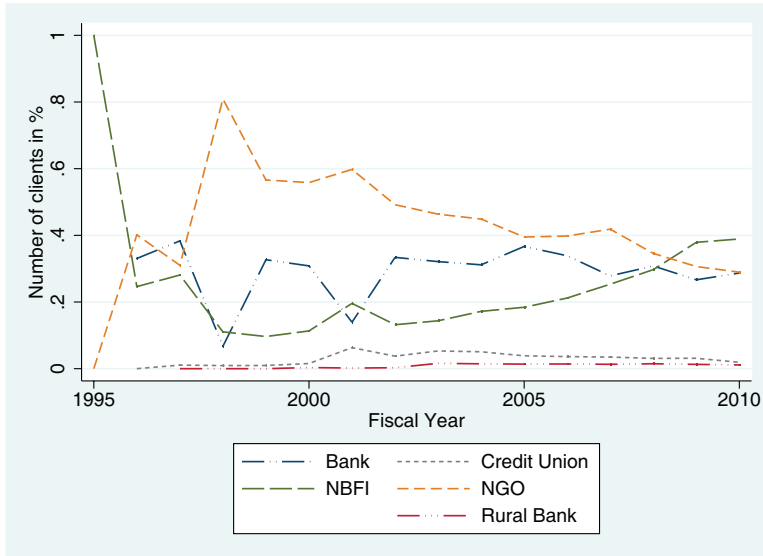


Figure 8: Number of active borrowers over time; Source: own illustration

As microbanks have the same amount of costumers as NGOs but account for half of the total assets, their clients have to be demanding larger loans and hence are likely to be better off. This is confirmed by Table 2, which indicates that the average loan size per microbank is about seven times larger as of NGOs. Figure 9 shows the trend of this indicator. Since 2002 non-profit oriented NGOs have had a small positive growth rate in terms of the average loan size, which is likely to be the result of increasing in incomes in the served countries. The borrowers of NBFIs (77 percent of institutions have a for-profit status) demanded loans of about 900 US Dollars in 2000, whereas in 2008 this number increased to 2100 US Dollars. Microbanks which make up 97 percent of for-profit institutions (see Table 2) served clients with an average loan size of 800 US Dollars in 1998, which in 2010 increased to about 3,800 US Dollars. It is possible that successful microfinancing increased the clients wealth, who hence demanded larger loans for further reinvestments. But it is doubtful that this is the reason for the average loan size becoming almost five times larger within ten years.



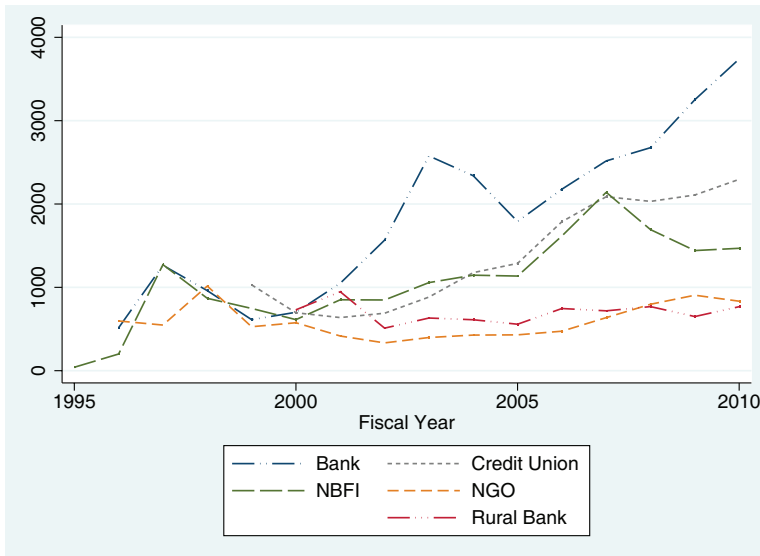


Figure 9: Average loan balance per borrower by legal status over time

As shown above many arguments support the commercializing of microfinance hypothesis, since nowadays an increasing number of people are served by profit orientated MFIs. Further, profit oriented institutions had a larger growth rate in terms of the average loan sizes of their clients than non-profit orientated MFIs. This indicates that profit orientated MFIs are likely to have turned away from poorer borrowers in favor of wealthier ones.

Finally, it has to be clarified how serious the female-empowerment-mission is pursued and how well the clients are served by the institutions. Table 2 shows that the ratio of female borrowers in NGOs and NBFIs is about 75 percent, whereas in microbanks about 55 percent. Again, in terms of the number of clients per loan officer, microbanks show the weakest performance, since a officer at a microbank serves about 45 more people than an officer at an NGO. Whereas, NBFIs have the lowest number of clients per officer. Hence, on the basis of descriptive statistics a clear statement about profits and pursuing female empowerment or a good client assistance cannot be made.

*Table 2: Institutional means of key indicators by legal status*

<b>Indicators</b>	<b>NGOs</b>	<b>NBFIs</b>	<b>Microbanks</b>	<b>Rural Banks</b>
number of clients	56,080	56,202	208,985	13,735
clients per loan officer	299.6	271.2	344.0	318.0
Ratio of Non-Profit status	100	23	3	9
Return on assets	-0.057	0.002	0.018	0.031
Operational self-sufficiency	1.17	1.15	1.13	1.24
female percentage of clients	0.76	0.73	0.55	0.51
loan size (GNI weighted)	0.34	0.87	2.24	0.57
assets in millions	11.5	24.7	194	9
cost per loan	126.5	231.3	366.7	106.6
yield on portfolio	0.266	0.269	0.211	0.206

Source: Own calculations, MIX data 1995-2011

*Table 3: Summary statistics*

<b>Variable</b>	<b>Mean</b>	<b>Std. Dev.</b>	<b>N</b>
# active clients	55,943	356,054	9,277
loans/loan officer	318	453	5,855
return on assets	0.006	0.122	8,130
operational self-sufficiency	1.146	0.523	9,762
yield on gross portfolio	0.245	0.181	5,805
assets	32,661,806	152,403,506	9,751
avg. loan size (GNI scaled)	0.809	2.578	9,265

Source: MIX data 1995-2011

Table 4: Cross-correlation table

Variables	assets	Avg. loan balance	Return on assets	Cost per borrower	Number of borrowers	loans per loan officer	OSS	Female borrowers	Yield
assets	1.000								
Avg. loan balance	0.031	1.000							
Return on assets	0.030	0.031	1.000						
Cost per borrower	0.042	0.388	-0.099	1.000					
Number of borrowers	0.556	-0.036	0.033	-0.048	1.000				
Loans per loan officer	0.134	-0.104	0.035	-0.124	0.145	1.000			
OSS	0.002	0.019	0.437	-0.041	0.008	0.016	1.000		
Female borrowers	-0.056	-0.260	-0.022	-0.216	0.080	0.085	-0.014	1.000	
Yield	-0.091	-0.153	0.058	0.014	-0.058	-0.124	-0.011	0.191	1.000



## 6 Hypotheses

I intend to test three hypotheses in a regression analysis. Initially, I estimate the effect of social goals on the financial performance in order to prove that MFIs with a weak social performance tend to be more profitable. To accept this trade-off hypothesis there should be a positive coefficient for the average loan size. The same sign is expected for the borrower per loan officer variable as MFIs which stint on quality of service have a higher short-term profitability (as discussed in Section 5.1). In contrast, the coefficients for the percentage of female borrowers and the total number of clients would have to be negative in order to provide empirical evidence of a trade-off, since MFIs which serve less women or less clients in total would generate more profits.

The mission drift hypothesis was tested in existing literature (e.g. Cull 2007, Mersland and Strøm 2010) by regressing the social goal of interest on short-term financial indicators. From a microeconomic perspective this would indicate the following: the higher the average profits of the MFI the poorer its social performance. Hence, the sign of the profitability variable should be positive if the average loan size, which is a proxy for the depth of outreach, is the dependent variable. In contrast, as the mission drift suggests that profitability reduces the total number of borrowers, a negative effect is expected when the breadth of outreach is tested. The same sign should be obtained when the borrower per loan officer variable is regressed, since profitability supposedly makes MFIs stint on the quality of service. Finally, as profits hypothetically are the reason for MFIs to serve a smaller number of women, the sign is also expected to be negative. Converse signs would provide support for the slack “ressources argument” (Waddock and Graves 1997, p. 1), which states that a stable financial performance would allow the management to mobilize more capacity towards achieving social goals.

In a final regression it is tested if MFIs which struggled with their financial performance in the previous year are more likely to neglect social goals in the subsequent year. This I named the *decreasing profit hypothesis*. The expected signs are analogue to the mission drift regressions.

# 7 Estimation Strategy

## 7.1 The Trade-Off Hypothesis

To test the trade-off hypotheses, i.e. if MFIs which provide larger loan sizes, serve less women, implement less monitoring and serve less clients are more profitable, the following autoregressive model with aggregated time effects is used as a baseline specification.

$$Y_{it} = \alpha_t + \beta_1 \text{MFIsize}_{it} + \beta_2 \text{Costs}_{it} + \beta_3 \text{Avg.LoanSize}_{it} + \beta_4 \text{Region}_i + \beta_5 \text{LegalStatus}_i + \beta_6 \text{Yield}_{it} + \beta_7 \text{NewMFI}_{it} + \beta_8 Y_{it-1} + \beta_9 \text{NumberBorrowers}_{it} + \beta_{10} \text{Risk}_{it} + \beta_{11} \text{FemaleBorrowers} + \beta_{12} \text{Borrowers/Officer} + \epsilon_{it} \quad (1)$$

The dependent variable is either return on assets or operational self-sufficiency.  $\beta_3, \beta_9, \beta_{11}$  and  $\beta_{12}$  could be interpreted as the magnitude of the trade-off between the social goals and profitability. Aggregated time effects are included in order to capture the circumstance, that the microfinance market grew substantially over the last 15 years which might have an influence on MFI characteristics (e.g. more competition between MFIs could lead to less profits per institution). Moreover, is it controlled for potential effects of microfinance crises (e.g. Indian Microfinance Crisis 2010)<sup>14</sup> Further, it is very likely that the financial situation of the previous period affects the financial performance of the current period, as the MFIs management is likely to learn from previous years and hence achieve positive financial results in subsequent years. To capture this effect, the lagged dependent variable is included as an explanatory variable. Furthermore, it has to be controlled for the size of MFIs, since larger institutions might be more profitable due to higher returns to scale and/or synergy effects. This can be addressed with the gross loan portfolio, which is defined as all outstanding loans,

---

<sup>14</sup> However, only the global effect will be captured.

excluding those loans that have been written off (see the glossary of the MIX). To ensure that profits are not affected by variable cost advantages (see the finding of Caudill et al. 2007) the costs per loan are included. Profits are also determined by the risk disposition of an MFI (see Mersland and Strøm 2010). Therefore, the share of the loan portfolio which is overdue since more than 90 days is included as a control variable.<sup>15</sup> Furthermore, the yield variable captures the effect of interest rates on profits. It is defined as the interest and fees on loan portfolio divided by the gross average loan portfolio (see the glossary of the MIX). Moreover, regional dummies are included to capture geographical differences.

New MFIs are likely to achieve smaller profits due to disadvantages which more experienced MFIs tend to have dealt with already. Therefore a dummy is added, which equals one if the MFI has been in business for less than four years. In order to point out the differences of organizational structures (see Section 5.2), this regression distinguishes between the legal status of the MFIs, in contrast to Cull et al. (2007), who used different lending types. This is a good proxy for the MFIs structure in terms of its regulation, profit status and external influences.<sup>16</sup> Cull et al. (2007) used cross sectional data. Hence, they had to include a large number of control variables as well as interaction variables. This is likely to cause degrees of freedom problems. Furthermore, in proportion to the number of variables, measurement errors exacerbate when there are unobserved effects (see Grilliches 1977). Such an unobservable effect could be the variation of management skills between the institutions. Assuming that the management of the observed MFIs has not changed during the timescale of the data set, the unobservable variable is expected to be constant over time but to vary between institutions. Therefore the true specification would be

$$Y_{it} = \alpha + \beta_k X_{it} + c_i + u_{it} \quad (2)$$

with  $c_i$  as the unobserved management skills and  $X_{it}$  as the explanatory variables. If  $Cov(x_j, c) \neq 0$  for at least one  $j$  a pooled OLS regression of (1) and the specification of Cull et al. (2007) will not yield consistent estimators (see Wooldridge p.281). Since managements skills at least affect the costs per loan, a model has to be ap-

---

<sup>15</sup> This is only a weak indicator but the MIX data set does not provide a better proxy. A indicator based on the volatility of an MFIs outcome might be more appropriate.

<sup>16</sup> The reasons for the exclusion of the lending type is that the individual contract has become the most frequently used lending type and a lack of data in the MIX set.



plied which take this problem into account.<sup>17</sup> An appropriate solution could be a fixed effect framework, which allows for the unobserved effect to be arbitrarily correlated with the explanatory variables. One basic assumption of the fixed effect model is that the error term, conditional on the unobserved effect, and the explanatory variables in (2) ( $E(u_{it}|x_i, c_i)=0$ ) are uncorrelated. This means, that once the management skill variable is taken into account no further correlation between the error term and any explanatory variable is allowed to exist. Hence, it has to be assumed that management skills are the only unobservable variable which correlates with explanatory variables.

However, there is a drawback to the fixed effect model. As time-constant explanatory variables, i.e. the legal status and geographical dummies, cannot be included, different populations (for instance, exclusively NGOs or African MFIs) should be estimated separately. Furthermore, as proven by Wooldridge (2010, p.290), a model with a lagged dependent variable necessarily violates the strict exogeneity assumption of a fixed effect model. One solution to this problem is to exclude  $Y_{t-1}$  and to address the resulting serial correlation problem. A robust variance matrix can be used to adapt the standard errors.

Another approach to deal with unobserved time-constant effects is to use a first-difference estimator. However, equally to the fixed effect model, it is not possible to control for time-invariant factors. Furthermore, when estimating the first difference equation of (1),

$$\Delta Y_{it} = \Delta X_{it}\beta + \lambda\Delta Y_{it-1} + \Delta u_{it} \quad (3)$$

with  $X_{it}$  as a matrix of the exogenous variables, inconsistent estimators are obtained with pooled OLS since  $\Delta Y_{it-1}$  is correlated with  $\Delta u_{it}$  (see Wooldridge 2010, p.373). One solution to this problem is to use instruments for  $Y_{it-1}$  for every single time period. Hence, the instruments for  $Y_{it-1}$  at  $t=1997$  are  $\Delta X_{it}$  and  $Y_{it-2}$  and at  $t=1998$  they are  $\Delta X_{it}$  and  $Y_{it-2}$ ,  $Y_{it-3}$  and so on. The basic assumption which has to hold in this first-difference instrument variable estimation is that the explanatory variables are sequentially exogenous ( $E(u_{it}|x_{it}, x_{it-1}, \dots, x_{it-1}, c_i)=0$ ) which means that all exogenous and all lagged exogenous variables are uncorrelated with the error term conditional on the unobserved effect.

---

<sup>17</sup> As discussed in Section 3.2 also social goals can be positively affected by good management skills: Some managers deal with the multi-tasking mission of MFIs better than others.

A more efficient approach is the GMM procedure by Arellano and Bond (1991). In their first-difference autoregressive model  $T-1$  (i. e. 15) reduced forms of the lagged dependent variable are estimated (instruments are again lagged levels of the dependent variables and first differenced exogenous variables) and the fitted values are included in the original equation. The GMM estimator utilizes the maximum amount of instruments possible, which makes the procedure more efficient than the FDIV model described above (see Wooldridge 2010, p.373). To account for the serial correlation the standard errors are obtained by an optimal weighting matrix.

Mersland and Strøm claim that costs are endogenous in (1)-(3), since “risk, costs and profits are determined simultaneously” (Mersland and Strøm, p.1). This will be tested by regressing the reduced form of the costs on all exogenous variables. Say

$$\text{Costs}_{it} = \alpha_{it} + \beta X_{it} + u_{it} \quad (4)$$

Assuming that  $X_{it}$  are all exogenous  $u_{it}$  can be added to the original equation:

$$Y_{it} = \alpha_t + \beta X_{it} + \gamma \text{Costs}_{it} + \delta u_{it} + \epsilon_{it} \quad (5)$$

If the t-value of  $\Delta$  is significant, the costs have to be treated as an endogenous variable. Within the GMM procedure it is possible to endogenize the costs, which means that previous cost levels as well as the other exogenous variables are used as instruments.

In a further regression the effect of social goals on financial sustainability is tested. For this purpose, a dummy variable is created in two ways: it equals one if either an MFI has generated positive return on assets in the four previous periods and in the current period or if the MFIs operational self-sufficiency is more than 100 percent for the same time range. The regression is specified as follows:

$$\text{Sustainability}_{it} = \alpha_t + \beta_k \text{Controls} + \gamma_k \text{SocialGoals} + c_i + \epsilon_{it} \quad (6)$$

The coefficients  $\gamma_k$  with  $k=1,2,3,4$  measure the changes in the probability for an MFI to be financially sustainable when its social performance improves. I apply a fixed effect logit model with aggregated time effects. In contrast to a random effect probit model, this model has the advantage that no assumptions about the relationship between  $c_i$  and  $\epsilon_i$  are necessary. The linear model has two problems:

Firstly, it allows predictions below zero and above one, which does not make sense for a probability measure. Secondly, the implication of this model that the probability is *linearly* related to a continuous variable, such as the social goals in (6), for all possible values is illogical. However, one problem about the logit fixed effect estimator is that it is not possible to estimate the partial effect of  $c_i$ . Hence, it is impossible to compute the average partial effects (APE), further the magnitude of the effect of the social goal variable on the log-odds ratio of the sustainability variable has to be interpreted carefully (Wooldridge 2010, p.622). To examine the significance and the sign of the coefficients the fixed effect logit model has the most suitable estimator.

## 7.2 The Mission Drift Hypothesis

In this section it is tested if the presence of profits makes MFIs neglect social goals. Cull et al. (2007) used the same cross sectional OLS model as above, however switched the profit and social goal indicators. The authors criticized themselves by pointing out that an OLS regression does not adequately address the problem, because “the issue of mission drift inherently involve adaptation over time.” (Cull et al. 2007, p.21) Mersland and Strøm 2010 suggested a dynamic panel model with GMM instruments. They used instruments to remove country specific effects. However, it remains unclear why they didn’t use country dummies in their random effect regression instead, in order to control for country specific effects. I argue that an unobserved heterogeneity results from varying management skills between the MFIs, as argued above, affects profitability and also can influences the pursuing of social goals, since effective management may improve both financial *and* social performance. The first regression of the effect of profits on the average loan size of an MFI is specified as follows:

$$\begin{aligned} \text{Avg. LoanSize}_{it} = & \alpha_t + \text{MFIsize}_{it} \beta_1 + \beta_2 \text{Costs}_{it} + \beta_3 \text{RoA}_{it} + \beta_4 \text{RoA}_{it-1} \\ & + \beta_4 \text{Region}_i + \beta_5 \text{LegalStatus}_i + \beta_6 \text{Yield}_{it} + \beta_7 \text{NewMFI}_{it} \quad (7) \\ & + \beta_8 \text{Risk}_{it} + \beta_9 \text{Borrower/LoanOfficer}_{it} + c_i + \epsilon_{it} \end{aligned}$$

with  $c_i$  as unobservable management skill. As above, it has to be controlled for the size of the MFI, which is addressed with the number of active borrowers and

the gross loan portfolio. Furthermore, time and geographical variables have to be included, as well as controls for new MFIs, average interest rate and risk disposition (see Section 7.1). The clients per loan officer indicator is further added to the equation, in order to examine its effects on the depth of outreach. Since the profitability of the previous period is likely to affect decisions made concerning social goals in the subsequent period, a lagged explanatory variable for the return on assets is included. By interpreting  $\beta_4$  instead of  $\beta_3$  the problem of reverse causality (Profits at  $t$  might be a function of the loan size in  $t$  and vice versa) can be addressed.

Next, the question arises if a autoregressive model is necessary. I argue that the decision to change the focus from either wealthier clients to poorer clients or vice versa, does not necessarily depend on the wealth of the clients of the previous period.

Again, it has to be discussed if the unobserved variable is correlated with explanatory variables. Since good management, *ceteris paribus*, is able to keep the variable costs of an MFI lower than bad management, the unobserved effect is correlated with at least one explanatory variable (to confirm this claim the Hausman test can be used to test the null hypothesis, which states that there is no correlation). Therefore, a fixed effect model or a first difference model should be applied. A similar research field preferred this model to examine the relationship between corporate financial performance and corporate social responsibility (see e. g. Waddock and Graves 1997, Surroca et al. 2010). Usually the fixed effect model is more efficient, unless the error terms follow a random walk (see Wooldridge 2010, p.321), which is unlikely to happen with this data set. However, as the fixed effect model cannot include time-constant variables, different populations should be tested.

Similarly to (7), it is tested if profits affect the goal of the female empowerment negatively. The decision to change the amount of women served is unlikely to depend on the amount of served women of the previous period. The specification problems which appear in the regression of the average loan size, also apply to this regression and hence a fixed effect model is used.

To test the mission drift hypothesis in terms of the total number of borrowers, it has to be controlled for the average loan size, in order to prevent the

social goal from changing into serving a large number of relatively rich clients. Additionally, it has to be controlled for the borrower per officer variable, to prevent the social goal from changing into serving a large number of clients at the expense of the quality of service (see Section 5.1). Finally, using the same model as above it is tested if the presence of profits has a negative effect on the quality of service by regressing the financial performance on the number of clients per officer.<sup>18</sup>

### 7.3 The Decreasing Profits Hypothesis

Motivated by Armendáriz et al. (2011), I estimate the following specification to test this hypothesis in terms of the depth of outreach:

$$(\Delta \text{Avg. Loan Size} > 0)_{it} = \alpha_t + \beta_k \text{Controls} + \gamma (\Delta \text{RoA} < 0)_{it-1} + \epsilon_{it} \quad (8)$$

A significant  $\gamma$  would indicate that with decreasing profits in the previous period the MFI is more likely to change its client base towards wealthier clients. In particular, it is tested if the change of the return on asset is negative in period  $t-1$  and if this leads to a negative change of the loan size in period  $t$ . Hence, two dummy variables are created: one which equals one if an MFI has generated a positive return on asset in the previous period and another dummy which equals one if the average loan size (which is scaled by the GNI) has grown in the current period. A fixed effect logit model is applied to account for the problems discussed in Section 7.1.

This approach is also used for the other social goal variables. In particular, dummy variables are created which equal one if an MFI has respectively decreased their female quota, their total number of clients or increased their number of borrowers per loan officer.

---

<sup>18</sup> Under the assumption that a loan officer can serve clients better when he advises a smaller number of borrowers.



# 8 Results

## 8.1 The Trade-Off Hypotheses

Cull et al. (2007) found a positive coefficient when he regressed return on assets on the average loan size but a negative coefficient using the operational self-sufficiency. The results obtained in this paper are more consistent. Applying a fixed effect model as well as a first-difference model with GMM instruments the average loan size of clients has a positive effect on both financial performance indicators, even though it is controlled for variable costs. Therefore, when MFIs serve wealthier clients they are more profitable even if the facts that poorer clients cause higher costs (according to Conning 1999) are not taken into account. The coefficient for the return on assets variable ranges between 0.02 and 0.01 and are highly significant. For operational self-sufficiency the coefficient equals 0.05 using the fixed effect model and 0.03 using the Arellano Bond (1991) procedure. An unexpected result is obtained for the coefficient of the female empowerment variable: it has a positive effect on the return on assets (significant on the 10 %-level using the Arellano Bond procedure) and a negative effect on the operational self sufficiency (significant on the 5 % -level applying the Arellano Bond estimator). However, the fixed effect model provides effects which are indistinguishable from zero.

The results show that total number of active borrowers has a limited effect on profitability: the coefficients are small and insignificant. Finally, the social goal variable, borrower per loan officer, which was used as a proxy for monitoring, is only significant if the operational self-sufficiency is the dependent variable and a fixed effect model is applied. Results from examining the control variables reveal that profitability is not affected by the gross loan portfolio. This may be explained in three ways: firstly, the size of the MFI is already captured by the

number of borrowers variable. Secondly, larger MFIs are only more profitable due to smaller variable costs, which have been controlled for in the regression (the costs per loan coefficient is significant on the 1 % -level). Finally, as the total assets of a firm represent the MFIs size, the return on *assets* variable already takes into account the size of an MFI.

In contrast to an MFIs size, its risk disposition, defined as the percentage of the loan portfolio which has not been paid back within 90 days, has a large negative effect on financial performance.

As expected, the return on assets of the previous period have a large positive effect on the return on assets of the subsequent period. However, the Arellano Bond estimation shows that the coefficient of the lagged dependent variable is negative for the operational self-sufficiency. Hence, it is doubtful if the data collection for this indicator was accurate. Furthermore, the small coefficient of determination ( $R^2$ ) in the fixed effect model signalizes, that the model does not explain the operational self-sufficiency adequately. Therefore, a smaller focus will be put on this variable in the remainder.

As discussed in Section 7.1 it is not possible to control for time constant effects using fixed effect or first difference models. Therefore, different populations should be tested. Table 6 shows all coefficients are for different geographical regions. The magnitude of the trade-off between poorer clients and financial performance is largest in the Middle East (0.024) and smallest in Eastern Europe (0.009). All coefficients are significant and have the predicted sign.

In the Middle East the borrower per loan officer variable is positive and significant. In the rest of the world the coefficients are indistinguishable different from zero (in Eastern Europe the estimation models yield non-consistent results). The effect of the female client quota is consistently insignificant on the 5 % -level and the signs of its coefficient differ substantially among regions and used models. In every region the effect of the number of clients on profitability is indistinguishable from zero, except for in the Middle East, where a significant and positive effect indicates that the more clients an MFI serves during a period the higher the profits. In summary, apart from the Middle East, there are minor differences between the results of the geographical regions.



Table 5: The effect of social goals on profitability

	fixed effects		Arellano-Bond	
	RoA	OSS	RoA	OSS
<i>Social Indicators</i>				
#active clients	0.001 (1.61)	0.005 (1.11)	-0.000 (0.35)	0.006 (0.49)
avg. loan size (GNI scaled)	0.019 (4.75)**	0.045 (1.10)	0.011 (2.60)**	0.032 (0.70)
% female clients	0.014 (0.58)	-0.011 (0.08)	0.028 (1.66)	-0.406 (2.30)*
<i>Controls</i>				
grossloanportfolio	0.001 (0.57)	-0.015 (1.17)	0.003 (0.86)	-0.019 (0.47)
yield on gross portfolio	0.129 (4.64)**	0.145 (1.07)	0.109 (6.92)**	0.009 (0.06)
cost/loan	-0.013 (3.43)**	-0.047 (2.46)*	-0.007 (4.05)**	-0.026 (1.89)
new MFI	-0.046 (3.26)**	-0.070 (1.72)	-0.017 (2.11)*	-0.110 (1.25)
portfolio at risk (90 days)	-0.208 (5.36)**	-0.850 (5.38)**	-0.183 (8.23)**	-0.694 (3.13)**
L.returnonassets			0.465 (15.69)**	
L.operationalsufficiency				-0.660 (30.90)**
_cons	-0.000 (0.02)	1.316 (7.41)**	0.009 (1.19)	2.047 (24.56)
R <sup>2</sup>	0.13	0.01		
N	3,725	3,730	2,539	2,745

\* p < 0.05; \*\* p < 0.01; t-values in parentheses; Gross loan portfolio is in 100 million US\$, cost per loan is in 100 US\$, number of active borrowers is in 100.000, borrower per loan officer is in 100. Aggregated time effects are included but not illustrated. The Hausman test strongly recommends a fixed effect model. Fixed effects models ave clustered standard errors on MFI level. Arellano Bond models have standard errors obtained by an optimal wighting matrix. The instruments for the GMM estimation are all differenced exogenous variable as well as the previous levels of the dependent variable. Endogenous variables are the costs per loan and the average loan balance per borrower. The test suggested in equation (4) and (5) reveals that the costs per loan are endogenous.

Table 6: The effect of social goals on the return on assets by regions

	Africa		East Asia & Pacific		Eastern Europe		Middle East		South Asia	
	FE	AB	FE	AB	FE	AB	FE	AB	FE	AB
<i>Social Indicators</i>										
#active clients	0.017 (1.96)	0.007 (1.18)	-0.018 (1.64)	-0.010 (1.87)	0.053 (1.19)	0.040 (0.84)	0.043 (1.98)*	0.038 (2.77)**	0.001 (1.00)	0.001 (0.37)
avg. loan size (CNI scaled)	0.047 (4.63)**	0.050 (2.80)*	0.112 (1.95)	0.056 (2.11)*	0.009 (3.61)**	0.009 (2.19)*	0.197 (3.20)**	0.201 (5.17)**	0.160 (2.23)*	0.108 (3.83)**
borrowers/loan officer	0.004 (1.33)	0.003 (1.11)	0.001 (0.85)	0.005 (0.60)	0.004 (2.24)*	0.003 (1.72)	0.024 (2.87)**	0.019 (3.71)**	0.000 (0.33)	-0.002 (1.25)
% female clients	-0.075 (1.68)	0.056 (1.25)	0.008 (0.60)	-0.009 (0.44)	0.029 (0.99)	0.062 (1.75)	0.020 (0.60)	0.040 (1.39)	0.023 (0.23)	0.064 (1.66)
<i>Controls</i>										
gross loan portfolio	-0.017 (2.99)**	-0.010 (0.70)	0.010 (0.58)	-0.001 (0.01)	0.004 (0.31)	0.002 (0.11)	-0.058 (2.20)*	-0.047 (2.85)**	-0.008 (1.18)	-0.003 (0.27)
yield on gross portfolio	0.133 (1.53)	0.191 (3.16)**	0.200 (1.93)	0.088 (1.73)	0.129 (2.29)*	0.092 (4.46)**	0.291 (3.90)**	0.272 (5.20)**	0.156 (2.14)*	0.224 (5.14)**
cost/loan	-0.032 (1.74)	-0.023 (2.07)*	-0.145 (2.13)*	-0.090 (3.98)**	-0.003 (2.51)*	-0.003 (1.69)*	-0.049 (3.42)**	-0.034 (2.53)*	-0.181 (3.10)**	-0.254 (13.40)**
new MFI	-0.030 (1.23)	-0.032 (1.18)	-0.081 (1.38)	0.028 (1.45)	-0.000 (0.01)	-0.002 (0.15)	-0.021 (2.09)*	-0.031 (1.82)	-0.065 (2.30)*	-0.015 (0.96)
portfolio at risk (90 days)	-0.490 (4.12)**	-0.572 (5.70)**	-0.202 (3.29)**	-0.064 (0.94)	-0.198 (2.25)*	-0.144 (3.16)**	-0.314 (1.90)	-0.239 (4.41)**	-0.066 (1.57)	-0.004 (0.12)
L.returnonassets		0.106 (1.38)		0.400 (7.33)**		0.145 (2.34)**		0.071 (1.17)		0.254 (6.49)**
_cons	-0.016 (0.41)	-0.062 (2.00)*	0.063 (1.99)*	0.024 (1.51)	0.016 (0.60)	0.018 (1.53)	-0.076 (1.76)	-0.098 (3.29)**	-0.027 (0.32)	-0.007 (0.45)
R <sup>2</sup>	0.19		0.26		0.22		0.48		0.39	
N	493	308	370	315	711	487	220	151	567	332

Grossloanportfolio is in 100 million US\$, cost per loan is in 100 US\$, number of active borrowers is in 100,000, borrower per loan officer is in 100 \* p<0.05, \*\* p<0.01; t-values in parentheses; Aggregated time effects are included but not illustrated. FE is a regression with fixed effect model; standard errors for fixed effects are clustered on the MFI level, AB is a Arellano Bond regression with GMM instruments.

Table 7: The effect of social goals on profits by legal status

	Bank		NBF1		NGO	
	FE	AB	FE	AB	FE	AB
<i>Social Indicators</i>						
% female clients	0.062 (0.71)	0.079 (1.76)	0.033 (1.08)	0.013 (0.50)	-0.003 (0.06)	0.050 (1.77)
active clients	-0.000 (0.49)	-0.001 (0.43)	0.001 (1.61)	0.001 (0.67)	-0.001 (1.01)	-0.002 (0.65)
borrowers/loan officer	0.003 (1.26)	0.003 (1.61)	-0.000 (0.14)	-0.001 (1.77)	0.003 (1.71)	0.003 (1.49)
avg. loan size (GNI scaled)	0.015 (3.63)**	0.013 (3.66)**	0.024 (2.96)**	0.016 (1.68)	0.061 (5.85)**	0.050 (3.63)**
<i>Controls</i>						
gross loan portfolio	0.003 (1.06)	0.003 (0.81)	-0.000 (0.08)	-0.002 (0.16)	-0.005 (0.71)	0.010 (1.49)
yield on gross portfolio	0.097 (2.10)*	0.084 (1.96)	0.102 (2.76)**	0.059 (2.92)**	0.251 (4.59)**	0.286 (7.84)**
cost/loan	-0.011 (2.28)*	-0.009 (2.61)**	-0.009 (2.76)**	-0.003 (1.63)	-0.045 (5.42)**	-0.033 (5.23)**
new MFI	-0.026 (0.69)	-0.021 (1.52)	-0.059 (2.45)*	-0.034 (3.01)**	0.031 (2.16)*	-0.004 (0.20)
portfolio at risk (90 days)	-0.134 (2.23)*	-0.134 (3.21)**	-0.210 (3.67)	-0.244 (5.29)**	-0.218 (3.38)**	-0.211 (5.92)**
L. returnonassets		0.024 (0.29)		0.296 (7.30)**		0.425 (9.91)**
_cons	-0.024 (0.42)	-0.015 (0.49)	-0.010 (0.39)	0.005 (0.24)	-0.020 (0.56)	-0.081 (2.84)**
R <sup>2</sup>	0.27		0.13		0.19	
N	263	175	1,253	782	1,560	983

\* p<0.05; \*\* p<0.01; Grossloanportfolio is in 100 million US\$, cost per loan is in 100 US\$, number of active borrowers is in 100.000, borrower per loan officer is in 100 \* p<0.05; \*\* p<0.01; t-values in parentheses; Aggregated time effects are included but not illustrated. FE is a regression with fixed effect model; Hausman test suggests fixed model; standard errors for fixed effects are clustered on the MFI level, AB is a Arellano Bond regression with GMM instruments.

Instead, it might be more interesting to estimate the effects among the different legal statuses and compare these results. As discussed in Section 5.2 there is high variation between MFIs in terms of regulation, sources of fund and management. In Table 7 it is shown that within NGOs the loan size coefficient is the largest. This suggests that the trade-off between the depth of outreach and profitability is the largest among institutions with a non-profit status. However, the other social goals have insignificant effects whichever legal status is tested.

Table 8: *The effect of social goals on financial sustainability*

	Sustainaility (OSS)	Sustainability (RoA)
<i>Social goals</i>		
avg. loan size (GNI scaled)	1.695 (3.39)**	0.898 (2.20)*
% female clients	0.817 (0.69)	1.376 (1.41)
borrowers/loan officer	0.183 (2.04)*	-0.065 (0.97)
# active clients	0.250 (0.97)	0.052 (0.99)
<i>Controls</i>		
new MFI	-0.777 (1.19)	2.493 (2.39)*
gross loan portfolio	0.022 (0.47)	0.011 (0.45)
cost/loan	-0.575 (3.42)**	-0.483 (3.21)**
yield on gross portfolio	3.179 (2.45)*	0.109 (0.12)
portfolio at risk	-18.560 (6.41)**	-0.721 (0.67)
<i>N</i>	897	1,369

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; Fixed effect logit model is applied; Grossloanportfolio is in 100 million US\$, cost per loan is in 100 US\$, number of active borrowers is in 100.000, borrower per loan officer is in 100 \*; t-values in parentheses; Aggregated time effects are included but not illustrated.

In Table 8 it is examined if there is a trade-off between pursuing social goals and financial sustainability. The results are similar to the previous regressions. The

average loan size has a positive effect on the probability of an MFI being sustainable. Unfortunately, due to the problem discussed in Section 7.1 no statement about the magnitude of the trade-off can be made.

In Section 5.1 I hypothesized that monitoring is good for the long-term financial performance. If the number of borrowers per loan officer is used as proxy for monitoring, this claim can only be confirmed if the return on asset is used to calculate the sustainability variable. However, previous results show that the performance of the operational self-sufficiency data is not convincing. The other social goals have an effect which is indistinguishable from zero.

## 8.2 The Mission Drift Hypothesis

In this section it is tested if profits are detrimental for social goals. The regressions in table 9 show that the profitability of an MFI positively affects its average loan size. This is true for the profits in both the current and the previous period, which makes these results robust to the problem of endogeneity, due to the circumstance that in period  $t$  the average loan size is a function of profitability (which was proven in Section 8.1) and profits are a function of average loan size.

In particular, when the return on assets rises by one unit the MFIs average loan size increases by 0.4 (0.3 in the previous period). This suggests that profitability motivates MFIs to reach out to wealthier clients rather than to poorer clients. The results are significant on the 5%-level. Among the different regions (see Table 13) all of the coefficients of the return on assets are significant in period  $t$ . However, in period  $t-1$  the results are not consistent for all regions. In fact, in the Middle East the return on assets of the previous period had a decreasing effect on the loan size. Moreover, it is shown that among NGOs profits of the current period are more important, whereas among microbanks only the pre-period returns matter significantly. All in all, the mission drift can be accepted in most regions and legal statuses. The coefficients of the control variables reveal that the larger an MFI the wealthier the clients. Further, variable costs and loan size increases respectively, *ceteris paribus*, hence, by lowering costs MFIs are able to reach out to poorer clients. Finally, the estimation shows that the smaller the interest rates are the larger

is the average loan size, which provides evidence for the circumstance that on average MFIs charge higher interests from poorer people.

Table 9: The effect of profits on social goals

	$\bar{\emptyset}$ loan size	% female	# clients	clients/officer
<i>Financial Performance</i>				
return on assets	0.438 (3.29)**	0.031 (0.50)	3.70 (1.15)	39.522 (0.34)
return on assets_1	0.301 (2.05)*	0.001 (0.05)	5.05 (2.48)*	188.598 (1.69)
<i>Controls</i>				
gross loan portfolio	0.007 (2.63)*	-0.000 (0.54)	1.924 (2.96)**	-0.303 (0.60)
cost/loan	0.126 (3.35)**	-0.014 (2.56)*	-0.831 (2.05)*	-12.215 (2.19)*
yield on gross portfolio	-0.383 (4.55)**	0.038 (1.58)	3.483 (1.32)	-26.934 (0.76)
new MFI	0.022 (0.91)	-0.002 (0.10)	-2.732 (1.78)	11.911 (0.86)
portfolio at risk (90 days)	0.1437 (1.07)	-0.079 (1.70)	8.802 (1.17)	440.580 (1.55)
avg. loan size (GNI scaled)			-1.762 (1.37)	-24.226 (2.27)*
borrower/loan officer	-0.005 (2.07)*		0.116 (0.99)	
# active clients	0.009 (1.88)			2.656 (1.15)
_cons	0.404 (5.16)**	0.660 (53.12)**	0.793 (0.21)	343.930 (11.00)**
$R^2$	0.11	0.04	0.37	0.04
$N$	3,800	3,455	3,691	3,691

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; Gross loan portfolio is in 100 million US\$, cost per loan is in 100 US\$, Number of clients in 10,000, \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; t-values in parentheses; Aggregated time effects are included but not illustrated. fixed effect modes are used; Hausman test suggests fixed model; standard errors are clustered on the MFI level.

Table 10: The effect of profits on the depth of outreach by different populations

	Africa	East Asia	Eastern Europe	Middle East	South Asia	Micro-banks	NBFIs	NGOs
<i>t</i>	0.94 (2.22)*	0.33 (2.38)*	0.82 (1.92)	0.45 (3.91)**	0.35 (2.60)*	2.75 (1.51)	0.27 (1.51)	0.43 (3.67)**
<i>t - 1</i>	0.55 (1.16)	0.15 (1.57)	0.69 (1.24)	-0.21 (2.68)**	0.10 (1.59)	3.40 (1.99)*	0.15 (1.18)	0.27 (1.33)

\*  $p < 0.05$ ; \*\*  $p < 0.01$ .

Return on assets have a small, positive but insignificant effect on the share of female borrowers when the entire data set is used. There are however exceptions. For instance, in Africa the presence of profits reduces the women quota significantly (see Table 11), which for South Asia is also true if an MFI was profitable in the previous period. Therefore, the mission drift hypothesis can merely be accepted for Africa and South Asia, whereas for Africa it is difficult to correctly identify the effect due to the reversal causality problem. In contrast, among microbanks the return on asset of the previous period positively affect on the percentage of female borrowers. However, the adjusted  $R^2$  of this model is very small, which means that it only explains a small part of the variation. Possible cultural and/or political differences on a country- or even micro-regional level make it hard to provide convincing results.

In terms of the breath of outreach, it can be stated that the profitability of the previous period has a positive, significant effect on the number of clients (see Table 9). By testing different populations it can be shown that this is only true for Africa and the Middle East (see Table 12). The mission drift hypothesis, suggesting that profits reduce the breath of outreach, can only be accepted for the Middle East.

Finally, profitability in the previous period has a positive effect on the borrowers per officer variable (see Table 9). Since clients per officer is a proxy for monitoring, profitability motivates MFIs to reduce monitoring (however the results are only significant on the 10 %-level). When the data set is divided into regions the

Table 11: The effect of profits on the number of clients per loan officer by different populations

	Africa	East Asia	Eastern Europe	Middle East	South Asia	Micro- banks	NBFIs	NGOs
<i>t</i>	228 (2.67)**	-149 (0.80)	194 (2.01)*	429 (3.69)**	-83 (0.27)	403 (1.83)	-91 (0.43)	103 (1.53)
<i>t - 1</i>	63 (1.08)	96 (0.62)	-26 (0.38)	46 (0.75)	190 (0.92)	277 (1.91)	215 (1.13)	118 (1.38)

\*  $p < 0.05$ ; \*\*  $p < 0.01$ .

results become more definite. In fact, for Africa, Eastern Europe and the Middle East profitability has a positive, highly significant effect on this social goal.<sup>19</sup>

### 8.3 The Decreasing Profits Hypothesis

This hypothesis seems to be in contrast to the mission drift hypothesis. However, it might show that the intention to make more profits, because of unsatisfying returns in the previous period, leads to a change in the management towards neglecting social goals. In fact, as illustrated in Table 14, when an MFIs return on assets experience a negative growth in the previous period, the probability that the MFI will serve clients with a larger loan sizes in the subsequent period is substantially higher (significant on the 1 %-level). The same applies for the breath of outreach. When an MFI generates decreasing profits in the current period, the probability that it will serve a smaller number of clients in the subsequent period increases significantly. There is, however, only a small and insignificant effect for both the female empowerment variable and the borrowers per loan officer variable.

<sup>19</sup> As above there is no identification problem since in Section 8.1 no significant effect was found.



Table 12: The effect of making less profits in the previous period on neglecting social goals

	$\Delta$ (Ø loan size)	$\Delta$ (%female)	$\Delta$ (#clients)	$\Delta$ (clients/officer)
	> 0	< 0	< 0	> 0
$\Delta RoA_{t-1} < 0$	0.243 (2.66)**	0.098 (0.98)	0.276 (2.40)*	0.134 (1.39)
new MFI	-0.037 (0.10)	-0.646 (1.57)	-0.711 (1.08)	0.200 (0.53)
gross loan portfolio	0.021 (1.79)	0.005 (0.40)	0.003 (0.25)	0.005 (0.40)
costs/loan	-0.001 (0.78)	0.001 (1.72)	0.000 (0.20)	0.003 (3.16)**
yield on gross portfolio	-0.289 (0.46)	0.197 (0.27)	-1.213 (1.35)	-0.089 (0.12)
portfolio at risk (90 days)	-4.446 (4.09)**	-0.089 (0.10)	5.495 (4.89)**	-1.168 (1.16)
borrower/officer	-0.010 (0.35)	0.042 (1.04)	-0.216 (4.56)**	
# clients	0.001 (0.02)	0.103 (1.75)		0.029 (0.67)
avg. loan size			0.171 (2.85)**	-0.490 (2.75)**
N	2,444	1,808	1,707	2,410

\*  $p < 0.05$ ; \*\*  $p < 0.01$ ; Gross loan portfolio is in 100 million US\$, cost per loan is in 100 US\$, Number of clients in 10,000, \*  $p < 0.05$ ; \*\*  $p < 0.01$ ; t-values in parentheses; Aggregated time effects are included but not illustrated; panel fixed effect logit model is applied; unrecorded OLS regression yield the same qualitative results.

## 8.4 Discussion

The regression analysis yield some interesting findings. At first, empirical evidence of the trade-off between the average loan size and the two measures of financial performance was found. This suggests that MFIs which serve richer clients are substantially better off when holding interest rates, size and variable costs constant. Although Conning (1999) states that the major cause of the trade-off lies in the fact that poor people cause higher monitoring costs per client, this finding shows that variable costs are not the only factor. The result

is consistent throughout the examined geographical regions and legal statuses, but largest among NGOs. Hence, to serve clients with a large loan size is a more important factor for non-profit institution for achieving a good financial result than for profit oriented institutions. Furthermore, the regressions show that variable costs have the largest effect on profitability among NGOs, which suggests that NGOs have to be more cost-conscious than other MFIs. Further regressions show that there is a significant trade-off between the average loan size and financial sustainability. However, the data set does not provide enough periods to create an adequate long-term financial sustainability measure.

No definite results were obtained in favor of a potential trade-off between profitability and either the female client quota, the number of borrowers or the borrower per loan officer rate. In fact, among some regions the possibility for social goals to have a positive effect on profits was proven. I intended to find evidence for the theory that a lower number of borrower per loan officer is beneficial for the long-term financial performance. This was only confirmed when the sustainability indicator was based on the return on asset not the operational self-sufficiency. However, contradictory results were obtained when using the latter variable.

The mission drift hypothesis in terms of the depth of outreach was accepted when the full data set was used. The effect of profitability on the average loan size is largest among microbanks. Together with the descriptive statistics of Section 5.1 (the average loan size of microbanks quadrupled over the last 10 years), this trend suggests that microbanks play a key role in the mission drift phenomena. Some evidence was found for a negative effect of profitability on female empowerment for Africa and South Asia. However, probably there are many unobserved factors determining this variable. Furthermore, one has to keep in mind that the ratio of female borrowers inaccurately expresses female empowerment. Profitability tends to have a positive effect on the breath of outreach. Only for the Middle East mission drift occurred. One problem of this regression was to appropriately control for monitoring as the borrower per loan officer is a weak proxy. The new indicators of the *Smart Campaign* should be added as controls once they are available. When regressing the impact of profitability on the borrower per loan officer variable significant positive effects were found for Africa,

the Middle East and Eastern Europe. This is likely to affect the service- or monitoring quality of microfinancing, which is one of the main reasons why problems, such as a continuous spiral of over-indebtedness resulting by multiple loans per person as described in the introduction, occur.

Despite these interesting findings, a regression analysis is limited in explaining mission drift. This phenomena was initiated by researches of the World Bank and a group of funders (See Conning 1999, p.52) which emphasized the advantages of being financial sustainable. Due to this trend and increased potentials for profits in the microfinancing industry which attracted non-social investors, the market became commercialized. This increased attention on the financial side of microfinancing led to a reduced focus on social goals of many MFIs. I estimated the effect of profitability of the current and the previous period on social goals. Significant coefficients indicate that the more profits an MFI generates or used to generate the poorer its level of social performance will be. However, existing literature does not provide a plausible microeconomic theory to explain why MFIs neglect social goals as a result of higher profits.

My explanation for the neglect of social goals builds upon the difference between actually gaining profits and the unobserved *intention* to make profits: I suspect that if an MFI wants to improve profitability (due to bad financial results in the previous period, commercial reasons or due to the World Bank emphasising on advantages of financial sustainability) it chooses to neglect social goals, although this does not necessarily mean that it will be profitable (in contrast, an MFI may unintentionally be profitable and still neglect social goals). Hence, the mission drift regression should estimate the effect of the intention of MFIs to make profits on social goals, rather than the effect of actually gaining profits. However, as the intention to be profitable and actually being profitable is highly correlated, the results are relatively representative.

In a final regression it was tested if decreasing returns in the past increase the probability of an MFI to worsen its social performance in the subsequent period (either with or without the *intention* to achieve a better financial result in the future). I found the expected signs for all of the social goals, with the significant coefficients for the breadth and depth of outreach. This result shows that a stable financial performance in the previous period is in fact important for the social performance in the subsequent period.



## 9 Conclusion

In this paper the relationship between social goals and financial performance was analyzed. Of special interest was the hypothesis of a commercializing microfinance market and, in particular, if MFIs neglect the original intention of microfinancing in order to strive for higher profits. Moreover, empirical evidence of the trade-off between either short- or long-term financial performance and social goals was investigated. Using global panel data from the MIX, descriptive statistics showed that nowadays a higher ratio of people are served by profit-orientated MFIs. On average, these MFIs tend to have a poorer social performance than NGOs, and they grant credits several times larger than ten years ago. The latter indicates that profit-orientated MFIs are likely to have changed their client base towards wealthier borrowers.

The regression analysis provides evidence for the mission drift hypothesis. Profitability significantly increases the average loan size, which is consistent with the results of Mersland and Strøm (2010). Moreover, among certain geographical regions I found evidence of a negative effect of profitability on both female empowerment and service quality. However, opposite results were found in terms of the breath of outreach since profitability tends to have a positive effect on this variable. Furthermore, subsequent regressions showed that a stable financial performance is an important requirement for social performance. In particular, it was found that decreasing profitability in the previous period increases the probability of poorer social performance for an MFI in the subsequent period.

These results indicate that the intention to improve profitability, rather than being profitable per se, is the reason for MFIs to neglect social goals. This suggests that MFIs should be supported financially, especially when they are fiscally unstable. Furthermore, the donors investment decision should be more dependant on the social performance of MFIs, which requires future research to quantify social goals more specifically.

Consistent empirical evidence was found for the trade-off between the average loan size and short- and long-term financial performance. Therefore, MFIs which serve clients with small loan sizes should be supported by funders. Furthermore, this highlights the need of the existence of NGOs in order to reach the poorest population. However, no clear trade-off was found concerning the other three goals.

In short, while there is proof that commerce has negative effects in microfinancing, this is not true for every social goal tested in this analysis and, in fact, positive effects were observed in some cases. It was also found that financial stability is essential for a stable social performance.

When interpreting the results, the limits of global analysis should not be ignored. For explaining microeconomic issues, a case study might be more informative. Further, the applied methodology in this paper has some weaknesses. In particular, it could not be examined how measurement errors of the self-reported MIX data set drive the results. Moreover, it has to be considered that the social indicators used are only proxies and do not perfectly represent the social performance.

The role of profitability in microfinance remains an insufficiently researched field. Further work has to be done in terms of the objective function of MFIs and certain market dynamics (e.g. How elastic is the demand for microcredits?). Moreover, once data about further social indicators (especially concerning monitoring) becomes available, the relationship between financial performance and social goals can be examined more precisely using the methodology of this paper.

# Bibliography

Client protection principles. <http://www.smartcampaign.org>.

The millenium developement goals report. United Nations, Departement of Economic and Social Affairs.

The mix glossary. <http://www.mixmarket.org/about/faqs/glossary>.

Arellano, M. and Bond, M. (1991), Some tests of specification for panel data: Monte carlo evidence and an application to employment equations. *The Review of Economic Studies*.

Caudill, S. B., Gropper, D. M. and Hartarska, V. (2009), Which microfinance institutions are becoming more cost effective with time? evidence from a mixture model, *Journal of Money, Credit and Banking*.

Conning, J. (1999), Outreach, sustainability and leverage in monitored and peer-monitored lending, *Journal of Development Economics*.

Copstake, J. (2007), Mainstreaming microfinance: Social performance management or mission drift?, *World Development*.

Cull, R., Demirgüç-Kunt, A. and Morduch, J. (2007), Financial performance and outreach: A global analysis of leading microbanks, *The Economic Journal*.

- (2009), Microfinance meets the market. *Journal of Economic Perspectives*.

- (2009a), Banks and microbanks, Policy Research Working Paper, The World Bank Development Research Group.

- de Aghion, B. A. and Murdoch, J. (2005), *The Economics of Microfinance*, MIT Press.
- Gaul, S. (2011), Denying responsible financial performance: the role of profits, *Microbanking Bulletin*.
- Griliches, Z. (1977), Estimating the returns to schooling: Some econometric problems, *Econometrica*.
- Gutierrez-Nieto, B. B., Serrano-Cinca, C. and Mar Molinero, C. (2009), Social efficiency in microrance institutions, *Journal of the Operational Research Society*.
- Hermes, N. and Lensink, R. (2007), The empirics of microfinance: What do we know?, *The Economic Journal*.
- Kirchstein, K. and Welvers, K. (2010), Will microfinance continue to evolve into a mainstream asset class? indications in favor and against, In *Proceedings of the German Development Economics Conference, Hannover 2010*.
- Lafourcade, A., Isern, J., Mwangi, P. and Brown, M. (2005), Overview of the outreach and nancial performance of microfinance institutions in africa, *Microbanking Bulletin*.
- Mersland, R. and Strøm, R. Ø. (2010), Microfinance mission drift?, *World Development*.
- Morduch, J. (2000), The microfinance schism, *World Development*.
- Mosley, P. (1996), *Finance Against Poverty, Metamorphosis from NGO to commercial bank: The case of BancoSol in Bolivia*, Hulme, D. and Mosley, P., London: Routledge.
- Stiglitz, J. E. (1990), Peer monitoring and credit markets. *The World Bank Economic Review*.
- Surroca, J., Tribo, J. A. and Waddock, S. (2010), Corporate responsibility and financial performance: the role of intangible resources, *Strategic Management Journal*.



Waddock, S. A. and Graves, S. B. (1997), The corporate social performance-financial performance link. *Strategic Management Journal*.

Wooldridge, J. M. (2010), *Econometric Analysis of Cross Section and Panel Data*, MIT Press, 2nd edition.

# Recent Publications

## Potsdam Economic Studies

Editor: Prof. Dr. Malcolm Dunn

1. **Inside the Capitalist Firm (2013)**  
Malcolm Dunn
2. **Corruption, Good Governance,  
and the African State (2013)**  
Joseph Ganahl
3. **EU-Russia Energy Relations:  
What Chance for Solutions?  
(2014)**  
Dimo Böhme

## Potsdam Economic Papers

Editor: Prof. Dr. Malcolm Dunn

1. **Handel und Arbeitsmarkteffekte  
im Verarbeitenden Gewerbe  
Indiens (2013)**  
Vaishali Zambre
2. **Financial Performance and Social  
Goals of Microfinance Institu-  
tions (2014)**  
Julian Schmied

# Potsdamer Schriften zur Raumwirtschaft

Editor: Prof. Dr. Klaus Schöler

- 1. Elemente der Neuen Ökonomischen Geographie (2010)**  
Klaus Schöler
- 2. Das Städtesystem der Russischen Föderation aus Sicht der Neuen Ökonomischen Geographie (2010)**  
Albrecht Kauffmann
- 3. Asymmetrien in der Neuen Ökonomischen Geographie : Modelle, Simulationsmethoden und wirtschaftspolitische Diskussion (2011)**  
Sascha Frohwerk
- 4. Elemente der räumlichen Preistheorie (2013)**  
Klaus Schöler
- 5. Bildungsrenditen in Deutschland: eine nationale und regionale Analyse (2013)**  
Julia Reilich

# Potsdamer Schriften zur Statistik und Wirtschaft

Editor: Prof. Dr. Hans Gerhard Strohe

- 1. Stimmungen und Erwartungen im System der Märkte : eine Analyse mit DPLS-Modellen (2011)**  
Marcus Ruge
- 2. Staatsverschuldung und Inflation: eine empirische Analyse für Deutschland (2012)**  
Alexander Mehnert und Andreas Nastansky
- 3. Öffentliche Unternehmen in Deutschland: eine Analyse von Mikrodaten der amtlichen Statistik (2012)**  
Irina Dietrich
- 4. Die Krankenhäuser Ostdeutschlands in Transition : eine registerbasierte Analyse amtlicher Paneldaten (2012)**  
Hannes-Friedrich Ulbrich





Critics argue that there has been a trend among Microfinance Institutions (MFI) to focus on profitability in order to stay financially sustainable. This made some institutions neglect the social mission of microfinancing. In this paper I intend to examine if empirical evidence supports this so called mission drift hypothesis as well as other claims in this context. Using the global panel data set of the MIX (Microfinance Information Exchange), which gathers from 1995 to 2010 and contains up to 1400 institutions with a high variety of organizational forms, I was able to identify a world-wide mission drift effect in their social goal of reaching out the poorest part of the population. Furthermore, I find that, on average, the outreach of an MFI has a significant negative influence on its short and long term financial performance. Despite that, I eventually proved that the probability that an MFI worsens its social performance substantially increases if its profitability has decreased in the previous years.

