

#### Excessive Focus on Risk? Nonperforming Loans and Efficiency of Microfinance Institutions

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## How is this possible?

Operational Expensens in percent of Total Assets for MFIs





# Why is not the microfinance market experiencing the same efficiency trend as other banking markets?





# High operating costs pushes MFIs away from their target clientele (Mersland & Strøm, 2010)

	Fixed effects						
	Unstandardized	Standardized					
Constant							
Average profit	3.032	0.537					
Average cost	3.870**	0.851					
PaR 30	2.733	0.269					
MFI age	0.021	0.147					
Assets	0.001	0.010					
Wald (F) test sign.	0.000	0.000					
The Hansen J test	0.771	0.771					
N (firm years)	741	741					

Table 5. Are average profit, cost, and risk related to the 1

The average loan size in rated microfinance institutions (MFIs) regressed on profit function va-



# High operating costs drive the high interest rates in microfinance. Typical example of an MFI's numbers

Basic accounting	Example in % over portfolio
Interest and other income (Yield)	40%
- Funding costs	10%
- Operating costs	25%
<ul> <li>Provision costs (potential losses)</li> </ul>	3%
= Profit	2%



### Why care so much about loan default?





### Is there a u-curve in microlending?

How Americans Rate Their Happiness, By Age





#### Is there a u-curve in microlending? An optimal level of default in relation to costs?

How Americans Rate Their Happiness, By Age



Data & Methodology



**Research question**: Do non-performing loans influence operating costs of microfinance institutions?

Introduction





### **Motivation**

Introduction

- Problems with Development
   Finance Institutions (1950s 1980s)
- Repayment rates <50%:
  - "disappointing" (Adam etal., 1984, p.1)
  - 100 % failure rate in Africa (Thillairajah, 1994)

The more you know about the past, the better prepared you are for the future.

Results

Data &

~Theodore Roosevelt

# Data &

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#### Results

Introduction continued.

### **Motivation**

Introduction

- Microfinance emerged (1970s) as a solution
  - Group lending
  - Progressive lending

But focused on access to credit



Prioritising women

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Armendáriz & Morduch (2010); Karlan & Goldberg (2011)

Data & Methodolog

Monitoring

#### Results

### **Motivation**

Screening

Introduction

Lending model: relationship banking



**Research problem**:

Introduction

- cost and default relationship,
- established in banking
  - e.g. Berger & DeYoung, 1997, Williams, 2004; Fiordelisi et al., 2011
- nonexistent in MF research



Results

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#### Relevance

- High interest rate
  - Microfinance reputation (Bateman, 2010).
- Possible elimination of very poor
  - most vulnerable (Amin et al., 2003; Pearlman, 2012).
- Sustainable industry



Data & Methodology

Results

- Lessons from banking literature:
- Relationship banking
  - Bharath et al., 2011; Boot, 2000; Petersen & Rajan, 1994
- Banking literature
  - Berger & DeYoung (1997)



Literature

Data &

Results

- H2: positive relationship between NPLs and efficiency of MFIs.
- Non-linear relationship?

Introduction



- Sample:
- 607 rated MFIs in 87 countries
- Time period: 1998-2015
- Methodology
- Battese and Coelli (1995) one-step stochastic frontier analysis
- Greene (2005) true fixed-effects SFA model
- GMM (endogeneity and reversed causality), pooled OLS and simple fixed effects as robustness checks



- What we do:
  - Estimate a cost function
  - Use stochastic frontier analysis to estimate which factors drive MFIs away from the optimal cost function
- We find:
  - Increased risk levels drive up operational cost levels (linear)
- However:
  - "Too low" risk also drives up operational costs (curve-linear)



# The trouble with our finding

- The optimal level of risk is on average very low
  - PaR30 1-2%
- Thus, most MFIs will benefit (reduce their operational costs) by further reducing their risk

 U-shaped relationship between non-performing loans and cost efficiency,

Conclusion

- contrary to linear findings in regular banking
- Lesson for practice.
  - balance operational efficiency and risk
  - Low risk: streamline selection, monitoring & collection activities.
  - High risk: install strict screening, monitoring & collection procedures



# Conclusion

- Generally, the high operational costs can not be «fixed» by increasing risk levels
- Thus, high operational cost must be «attacked» from other angles
  - Big data?
  - Scoring?





Background	Introduction	Literature	Data &		Results
			Methodology		
		(1	.)	(2)	(3)
Panel B: Inefficiency equation					
Portfolio at risk		-0.083	\$7***	-0.2886**	-0.2231**
		(0.03	313)	(0.1153)	(0.1136)
Portfolio at risk	<u>~</u> 2	0.002	21**	0.0090***	0.0070**
		(0.00	009)	(0.0030)	(0.0028)
MFI age		0.108	5***	0.1192***	0.0429
		(0.01	165)	(0.0348)	(0.0356)
Shareholder MI	FI	0.897	3***	-7.0146	-17.8349
		(0.19	<del>9</del> 63)	(24.3242)	(32.5952)
Group loans		-0.695	57***	-0.8152	-0.8895**
-		(0.21	116)	(0.5163)	(0.4247)
Urban market		-0.3	038	-3.1463	-3.3499**
		(0.18	373)	(2.0537)	(1.5529)
Rural market		-16.0	)346	-28.3245	-56.7368
		(0.00	)00)	(14.2843)	(0.0000)
MFI size		1.707	0***	-0.0567	-0.1620
		(0.10	)10)	(0.1952)	(0.1891)
Constant		-28.92	94***	-3.7865	-0.7260
		(1.63	391)	(3.2722)	(3.1385)
Observations		1,5	77	1,483	1,595
Number of MFIs		40	00	306	330
Wald chi-square		3433.3	32***	11371.01***	10168.22***
Log likelihood		-842	2.27	225.24	137.63
Estimation meth	hod	Rano	dom	True fixed	True fixed
		effe	ects	effects	effects