

# Can Scoring Help Attract Profit-Minded Investors to Microcredit?

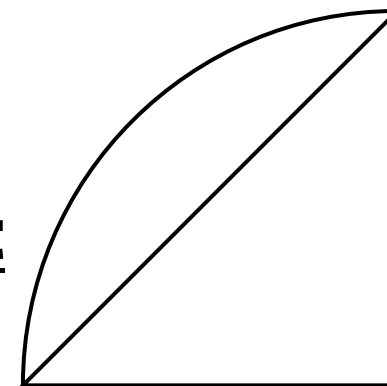


Financial Sector  
Development Conf.  
June 23-24, 2005

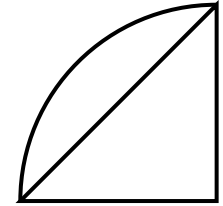
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Microfinance Risk Management

<http://www.microfinance.com>



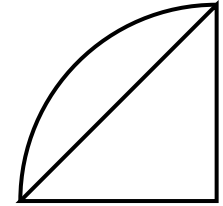
# Microcredit and Investors



- **To reach masses, microcredit needs profit-minded investors**
- **Best microlenders post high profits**
- **So where are investors?**
  - **Uncertain about microcredit investment risk**
  - **Concerned with governance and control**
  - **Unfamiliar with core of microlending:**
    - 1. Joint-liability via groups**
    - 2. Individual review of character, business**

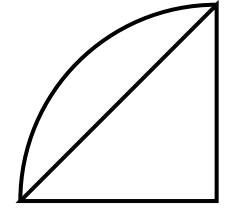
**Profits are not yet high enough**

# Can scoring help?



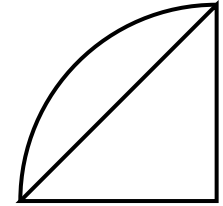
- **Scoring can increase profits:**
  - Quantifies risk of 'bad' behavior, spreads culture of explicit, intentional risk management
  - Reduces write-offs, time spent in collections
  - Less arrears, larger portfolio, more and poorer clients
- **Scoring is familiar:**
  - Rich countries already use it
  - Easier to master quickly than microcredit techniques
- **Scoring strengthens owners' control:**
  - Precise, centralized credit policy
  - Limits loan-officer independence

# Agenda



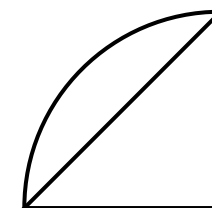
- 1. What is scoring for microcredit?**
- 2. Does it differ from ‘traditional’ scoring?**
- 3. How do microlenders use scoring?**
- 4. How does scoring affect profit, portfolio?**
- 5. Who adopts scoring and why?**
- 6. What challenges await adopters?**
- 7. How can donors help spread scoring?**

# What is scoring for microcredit?



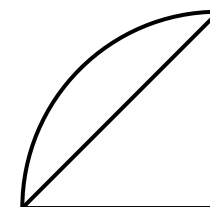
- *Microcredit* is defined as uncollateralized cash loans to self-employed poor
- Scoring assumes historical link between indicators and 'bad' behavior will continue
  - Example risk: Ever >30 days late
  - Example types of indicators:
    - Business pseudo-financials
    - Household demographics
    - Repayment history (credit bureau?)
    - Saving and remittance history

# Simple example scorecard



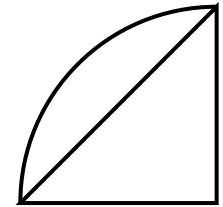
<u>Indicator</u>	<u>Indicator values</u>		<u>Points</u>
<b>A. Sector business</b>	<b>Trade</b>	<b>Ag., services, manufacturing</b>	
	<b>0</b>	<b>3</b>	
<b>B. Previous loans</b>	<b>'Repeat'</b>	<b>'New'</b>	
	<b>0</b>	<b>2</b>	
<b>C. Most days late, previous loan</b>	<b>None or 'New'</b>	<b>'Repeat' w/arrears</b>	
	<b>0</b>	<b>1/day, up to 7</b>	
<b>D. Savings account</b>	<b>Yes</b>	<b>No</b>	
	<b>0</b>	<b>4</b>	
<b>Total score:</b>			

# Farmer with savings account and no previous loans



<u>Indicator</u>	<u>Indicator values</u>		<u>Points</u>
<b>A. Sector business</b>	<b>Trade</b>	<b>Ag., services, manufacturing</b>	
	<b>0</b>	<b>3</b>	<b>3</b>
<b>B. Previous loans</b>	<b>'Repeat'</b>	<b>'New'</b>	
	<b>0</b>	<b>2</b>	<b>2</b>
<b>C. Most days late, previous loan</b>	<b>None or 'New'</b>	<b>'Repeat' w/arrears</b>	
	<b>0</b>	<b>1/day, up to 7</b>	<b>0</b>
<b>D. Savings account</b>	<b>Yes</b>	<b>No</b>	
	<b>0</b>	<b>4</b>	<b>0</b>
<b>Total score:</b>			<b>5</b>

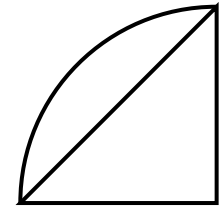
# Seamstress, 5 days arrears in previous loan, no savings



<u>Indicator</u>	<u>Indicator values</u>		<u>Points</u>
<b>A. Sector business</b>	<b>Trade</b>	<b>Ag., services, manufacturing</b>	
	<b>0</b>	<b>3</b>	<b>3</b>
<b>B. Previous loans</b>	<b>'Repeat'</b>	<b>'New'</b>	
	<b>0</b>	<b>2</b>	<b>0</b>
<b>C. Most days late, previous loan</b>	<b>None or 'New'</b>	<b>'Repeat' w/arrears</b>	
	<b>0</b>	<b>1/day, up to 7</b>	<b>5</b>
<b>D. Savings account</b>	<b>Yes</b>	<b>No</b>	
	<b>0</b>	<b>4</b>	<b>4</b>
<b>Total score:</b>			<b>12</b>

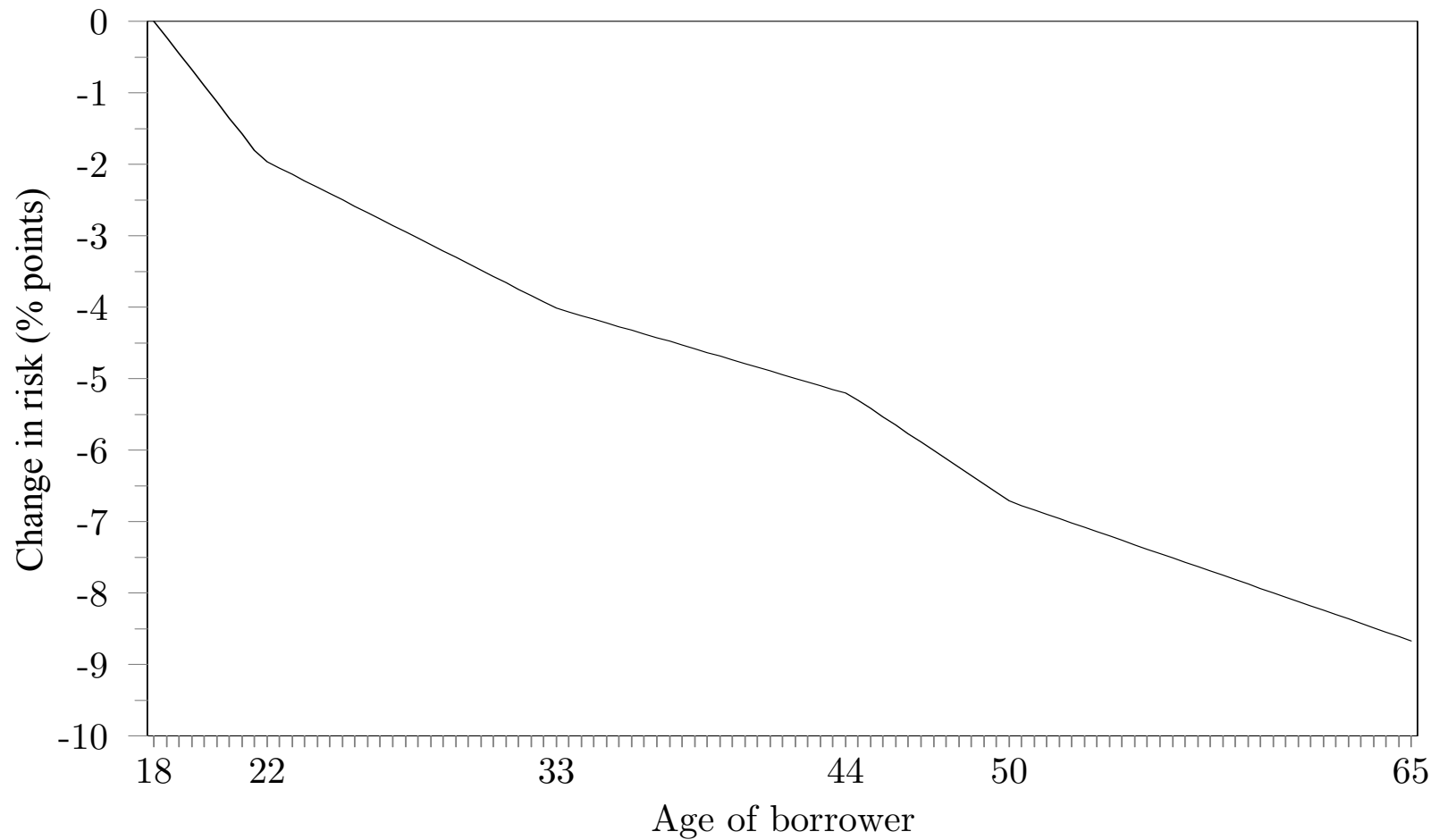
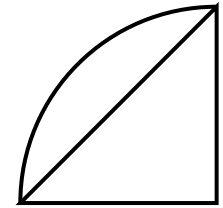


# Scores are linked with probability (risk) of being 'bad'

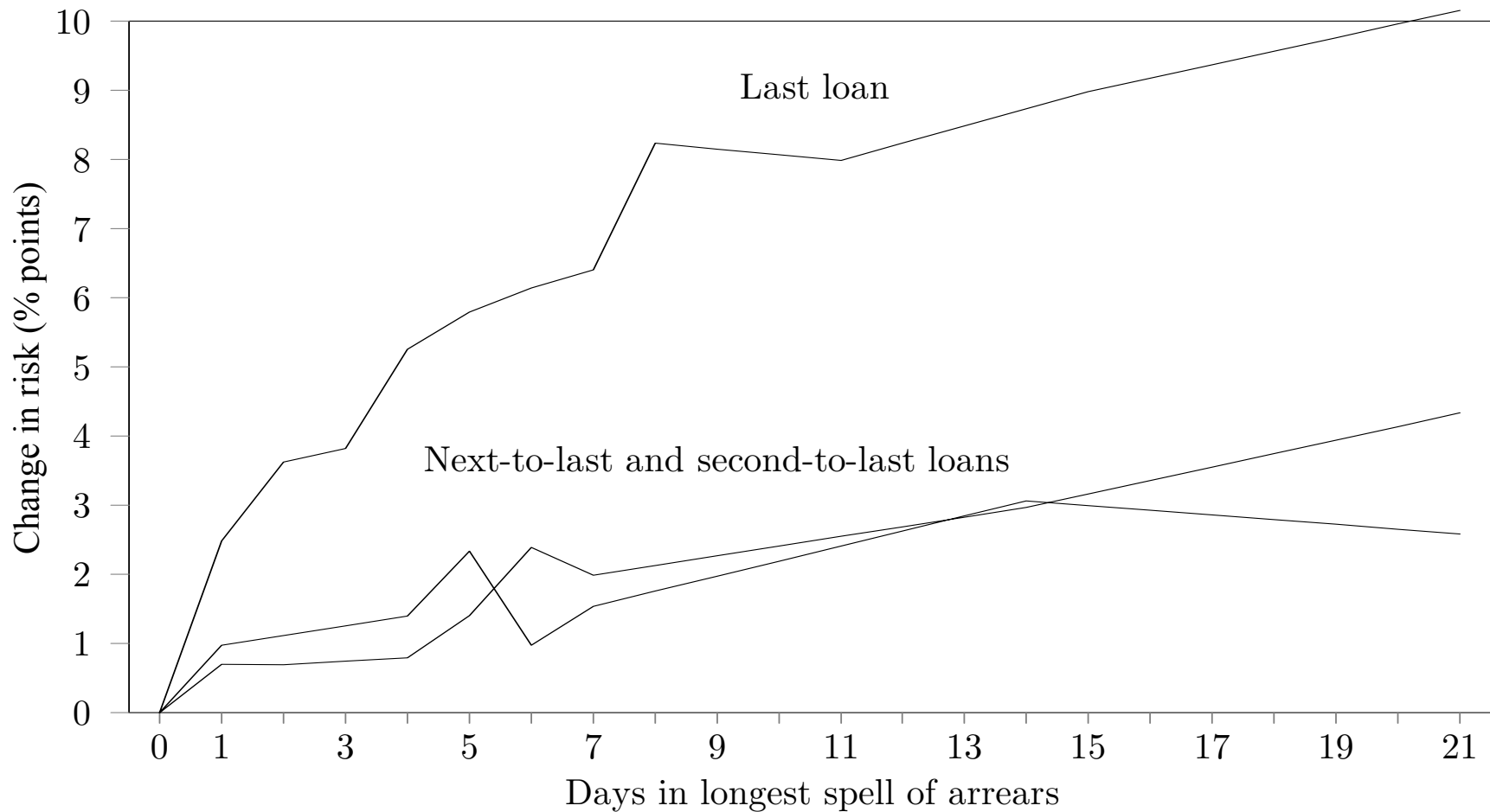
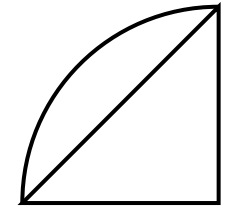


<b>Score</b>	<b>Risk (%)</b>		<b>Score</b>	<b>Risk (%)</b>
<b>0</b>	<b>2</b>		<b>9</b>	<b>30</b>
<b>1</b>	<b>3</b>		<b>10</b>	<b>35</b>
<b>2</b>	<b>5</b>		<b>11</b>	<b>37</b>
<b>3</b>	<b>7</b>		<b>12</b>	<b>41</b>
<b>4</b>	<b>10</b>		<b>13</b>	<b>47</b>
<b>5</b>	<b>13</b>		<b>14</b>	<b>52</b>
<b>6</b>	<b>17</b>		<b>15</b>	<b>57</b>
<b>7</b>	<b>22</b>		<b>16</b>	<b>60</b>
<b>8</b>	<b>24</b>		<b>17</b>	<b>64</b>

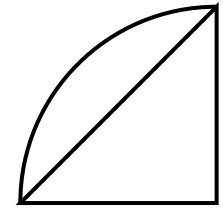
# Age, risk >30 days late (Colombia)



# Max. days late in previous loans, risk >15 days late (Bolivia)

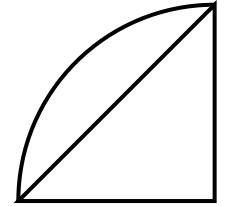


## Business type, risk >60 days late (Dominican Republic)



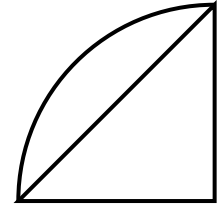
<u>Business</u>	<u>Weight (% pts.)</u>
● Taxi	-3.6
● Corner grocery store	-2.1
● Fried street food	-1.2
...	
● Others	0
...	
● Beauty salon	+0.5
● Sewing piece work	+1.4
● Farming	+1.7
● Construction	+2.3
● Carpentry	+4.0

# Scorecard notes



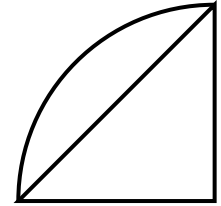
- **Usually 30+ indicators**
- **Points and indicators based on past data (if available) or ‘expert’ experience**
- **Like weather forecasts, scoring works on average; half of cases w/ 50% risk will be ‘bad’, half ‘good’**

## **How does scoring for microcredit differ from 'traditional' scoring?**



- **In rich countries, scoring has replaced loan officers:**
  - **Mortgage loans (homes, cars, furniture)**
  - **Salaried borrowers**
  - **Complete, deep credit bureaux**
  - **Accurate scorecard w/10-15 indicators:**
    - **Most cases approved/rejected by scoring**
    - **Few cases marked for 'manual' review**

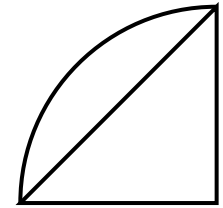
## **How does scoring for microcredit differ from 'traditional' scoring?**



- **Microcredit still needs loan officers:**
  - **Nominal collateral**
  - **Self-employed subject to more, varied risks**
  - **Incomplete, shallow credit bureaux**
  - **Counts characteristics, ignores character**
  - **Scorecard w/30+ indicators is useful, but:**
    - **Fewer automatic decisions, more 'manual' reviews**
    - **If based only on cases approved in past, scoring cannot approve, only reject or flag for extra review**

**Keep current evaluation, add scoring at end, save time in collections**

# Use of scoring: Pre-disbursement



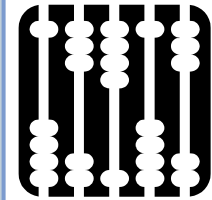
**Client applies**



**Filter and visit**



**Credit committee**



**Review score, act by segment**

**If rejected,  
stays rejected,  
regardless of  
score**

**'Very safe':**

**Reward,  
disburse**

**'Regular':**

**Disburse  
as usual**

**'Risky':**

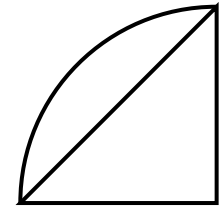
**Review,  
modify**

**'Very risky':**

**Reject as  
a rule**

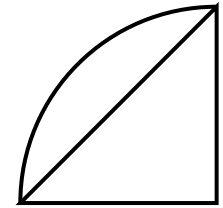


# Use of scoring: Pre-visit



- **Based on:**
  - **‘Expert’ experience, or**
  - **Accepts and rejects after visit**
- **Predicts rejection after visit  
(not repayment after disbursement)**
- **If very high risk of rejection, reject  
without visiting**

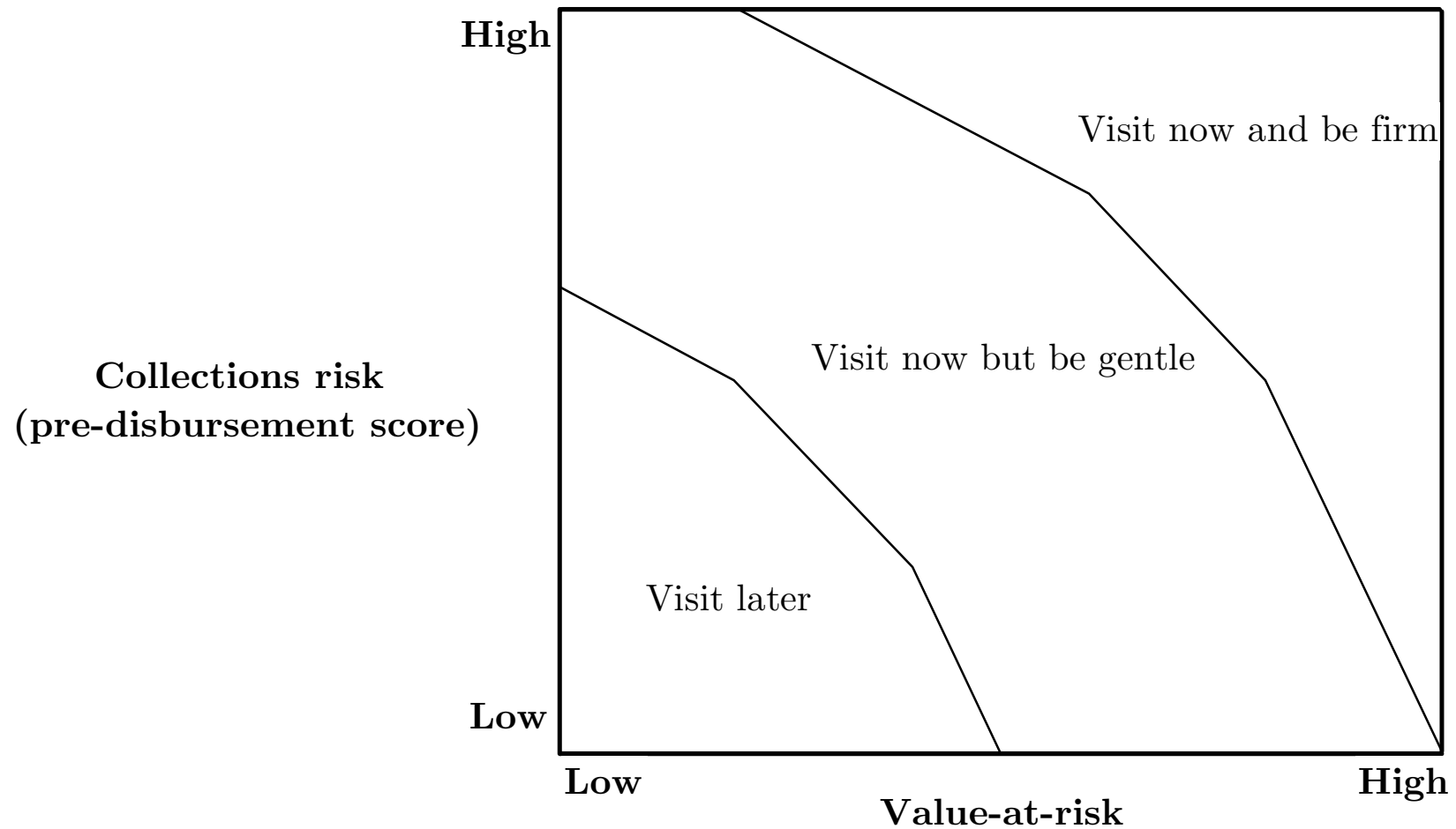
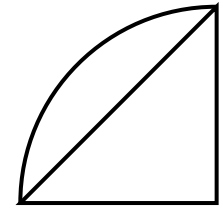
# Use of scoring: Loyalty



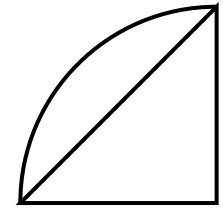
**Target incentives only to low-repayment risk clients likely to drop-out**

		<u>Drop-out risk</u>	
		Low	High
<u>Repayment risk</u>	Low	None	Incentives
	High	None	None

# Use of scoring: Collections

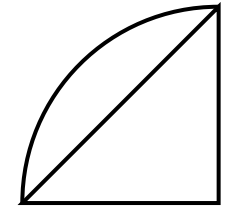


# What are effects of scoring?



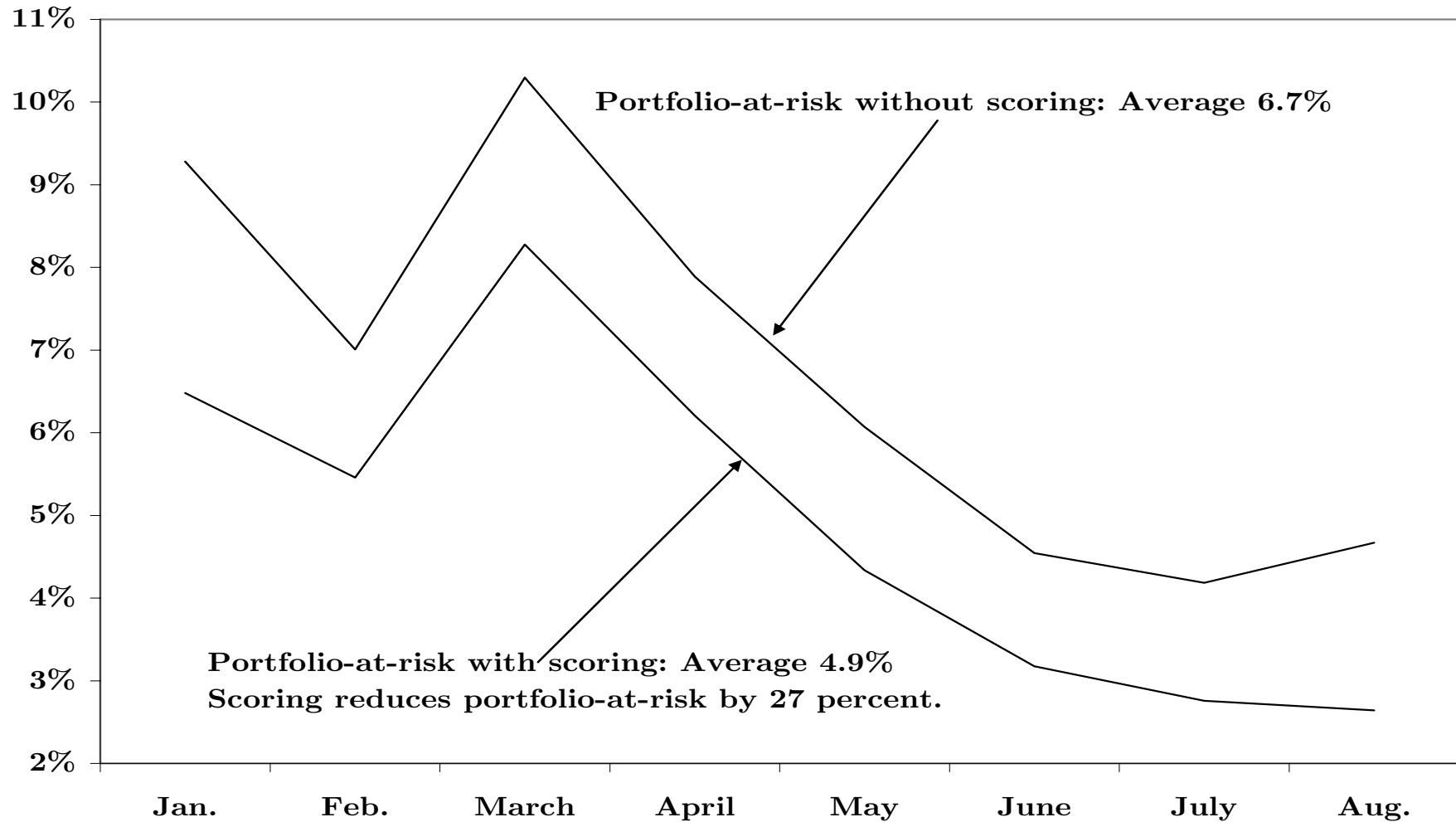
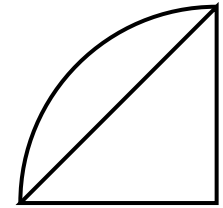
- **‘Back-test’** \* *all* \* **scorecards using historical (or parallel) data**
- **Example Bolivian ‘back-test’:**
  - **Make scorecard w/data 1993-2001**
  - **Score loans in 2002**
  - **Compare predictions to outcomes**
- **Do not trust that scoring works; use ‘back-test’ to *know***

# Effects on portfolio size: Bolivian 'back-test'

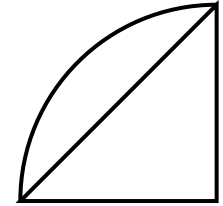


Criteria	Formula	'Very risky' threshold					
		0	20	40	60	80	100
'Bads' avoided	A	3,117	2,967	2,591	2,020	1,259	0
'Goods' lost	B	5,432	3,904	2,223	1,056	295	0
'Bads' avoided per 'good' lost	A/B	0.6	0.8	1.2	1.9	4.3	#N/A
'Goods' approved	C	0	1,528	3,209	4,376	5,137	5,432
'Bads' approved	D	0	150	526	1,097	1,858	3,117
% 'bads' avoided	$100 * A / (A + D)$	100	95	83	65	40	0
% 'goods' approved	$100 * C / (C + B)$	0	28	59	81	95	100
% cases rejected	$100 * (A + B) / (C + A + D + B)$	100	80	56	36	18	0
Note: 8549 cases, with 5432 (64%) observed 'goods' and 3117 (36%) observed 'bads'.							

# Effects on portfolio-at-risk: Bolivian 'back-test'

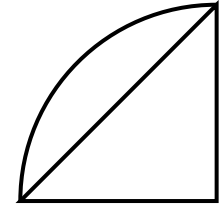


## **Effects on loan-officer time:** **Bolivian 'back-test'**

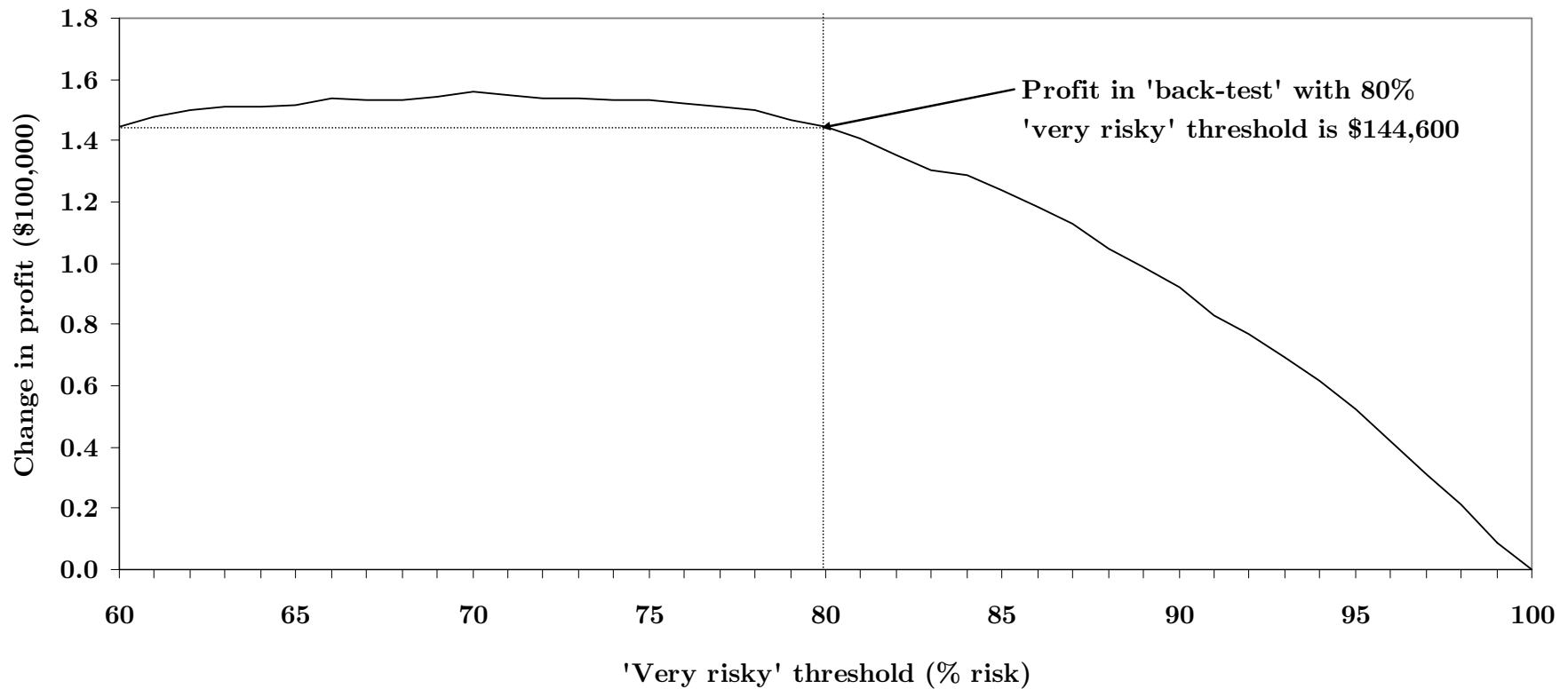


- **Bolivian loan officers spend weekly:**
  - **2 days in collections**
  - **2 days in evaluations/disbursements**
  - **1 day in meetings/office/other**
- **With 80% 'very risky' threshold, 'bad' loans fall by 40%, freeing up 6 hours/week for additional evaluation/disbursement**
- **Net portfolio size grows by 22%**

# Effects on profits: Bolivian 'back-test'

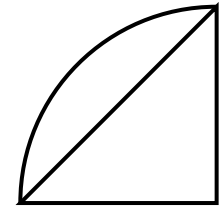


- **Assume: Benefit 'bad' avoided = Cost 'good' lost = \$150**
- **$\Delta$  Profit = Benefit 'bads' avoided - Cost 'goods' lost  
= (1,259-295) x \$150 = \$144,600**



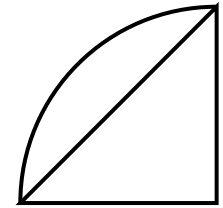


# **Who adopts scoring and why?**



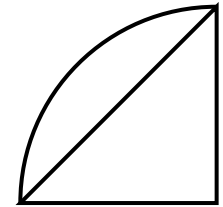
- **Large, profitable lenders w/competition:**
  - **Seek edge to grow rapidly**
  - **Pushing ‘traditional’ process to limit**
  - **Perhaps competitors say they use scoring**
  - **Have adequate data base on past loans**
- **Members of international networks:**
  - **Women’s World Banking, ACCION**
  - **Economies of learning across network**
  - **Reputation w/members as change agents**
  - **Seek intl. prestige as innovators**
  - **IPC, des Jardins, WOCCU, Raiffeisen?**

# Who adopts scoring and why?



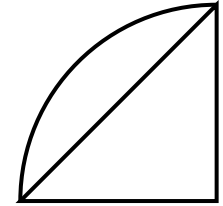
- **Banks ‘downscaling’ into microcredit**
  - **Familiar with scoring**
  - **First score SMEs, then micro**
  - **Use data collection, score as feedback and quality-control tool for loan officers learning to evaluate microloans**
  - **Seek (unsuccessfully) to avoid need for ‘traditional’ microcredit evaluation**
  - **Only bank so far to ‘downscale’ based only on scoring went bankrupt (Bolivia)**

## **Challenges in adopting scoring**



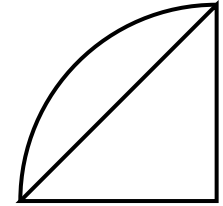
- **Training and project mgmt. are keys**
  - **Test accuracy with ‘back-test’ (easy)**
  - **Big change to central process, culture**
  - **Users must understand how scoring works, see repeated proofs, and have a say in process**
  - **Scoring is about Credit, not IT. But IT must make scoring easy-to-use**
  - **Long process, not short project**
  - **Be careful with data, public relations**

## How can donors help?



- **In long term, no need: Scoring is profitable for large, stable lenders**
- **In short term, donors can sponsor:**
  - **‘Proof-of-concept’ projects to speed education and diffusion**
  - **Design of standard software**
  - **Development of credit bureaux**

## In sum: Scoring makes microcredit less art, more science



- **Quantifies risk explicitly and consistently:**
  - Promotes culture of intentional risk mgmt.
  - Finance *\*is\** risk management
- **More profit, larger portfolio, more/poorer clients**
- **Less uncertainty about investment risk:**
  - Familiar to ‘traditional’ bankers, investors
  - Strengthens home-office control
  - Quantifies portfolio risk (before crisis hits)
  - May someday facilitate securitization
- **But scoring for microcredit is not a cure-all:**
  - Not for joint-liability groups
  - Not as accurate as in rich countries
  - Cannot skip ‘traditional’ ‘manual’ evaluation
  - Scoring is a ‘Big Improvement’, not a ‘Revolution’