

# Risk, Religion, and Islamic Microfinance

CARD Presentation

International and Development Economics

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# Introduction

- It is estimated that over 1/3 of the world's poor are Muslim
  - Many do not take advantage of existing interest-based microfinance products
- Shari'a law
  - Religious law and moral code of Islam
  - Interest rates are prohibited

# Motivation

- Islamic microfinance suggested as remedy
  - In 2011, outreach gap estimated at 53 million (Malkawi et al., 2011)
- Profit and loss sharing contracts
  - MFI bears a portion of the risk
  - Does not charge interest rates
- Few studies examine the intersection of conventional and Islamic microfinance

# Research Questions

- Are Islamic borrowers more religious than conventional borrowers?
- Are conventional borrowers more risk-tolerant than Islamic borrowers?

# Literature Review

Islamic Microfinance		Risk
Barriers to take-up	Experiments	Risk Aversion
<p><b>Religious Restrictions</b></p> <ul style="list-style-type: none"> <li>• Dutta and Magableh (2006)</li> <li>• Karim et al. (2008)</li> <li>• Dusuki (2006)</li> </ul>	<p><b>Higher take-up and compliance rates</b></p> <ul style="list-style-type: none"> <li>• El-Komi and Croson (2011)</li> <li>• El-Gamal et al. (2012)</li> </ul>	<p><b>Microfinance</b></p> <ul style="list-style-type: none"> <li>• Stiglitz and Weiss (1981)</li> <li>• de Meza (1990)</li> </ul>
<p><b>Implementing IMF Model</b></p> <ul style="list-style-type: none"> <li>• Ahmed (2002)</li> <li>• Obaidullah (2008)</li> </ul>		<p><b>Entrepreneurs</b></p> <ul style="list-style-type: none"> <li>• Vereshchagina et al. (2009)</li> <li>• Moskowitz et al. (2002)</li> <li>• Cressy (2000)</li> <li>• Kihlstrom and Laffont (1979)</li> </ul>

# Sample

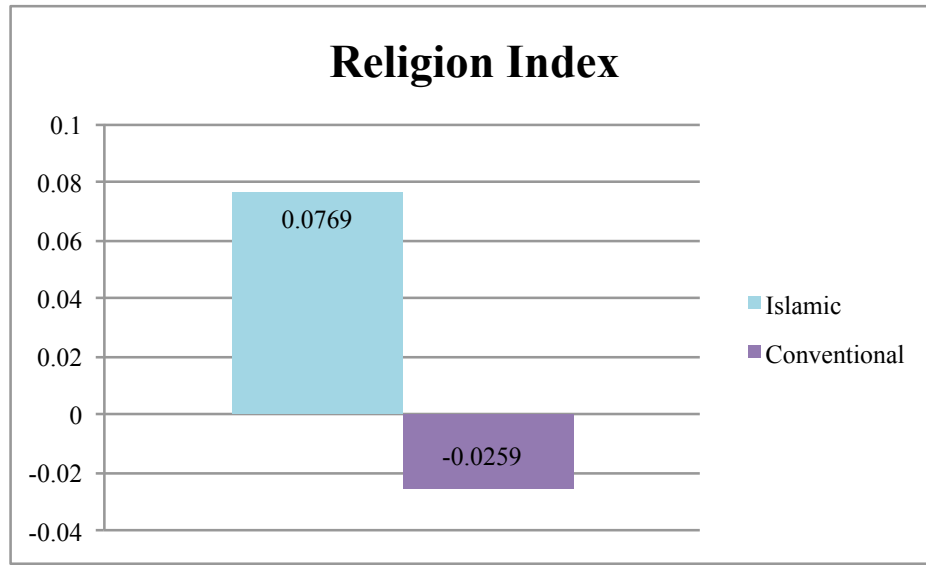


- Two MFIs
  - National Microfinance Bank
  - Development and Employment Fund
- 10 branches across Jordan
- 221 observations
  - 143 Conventional
  - 78 Islamic

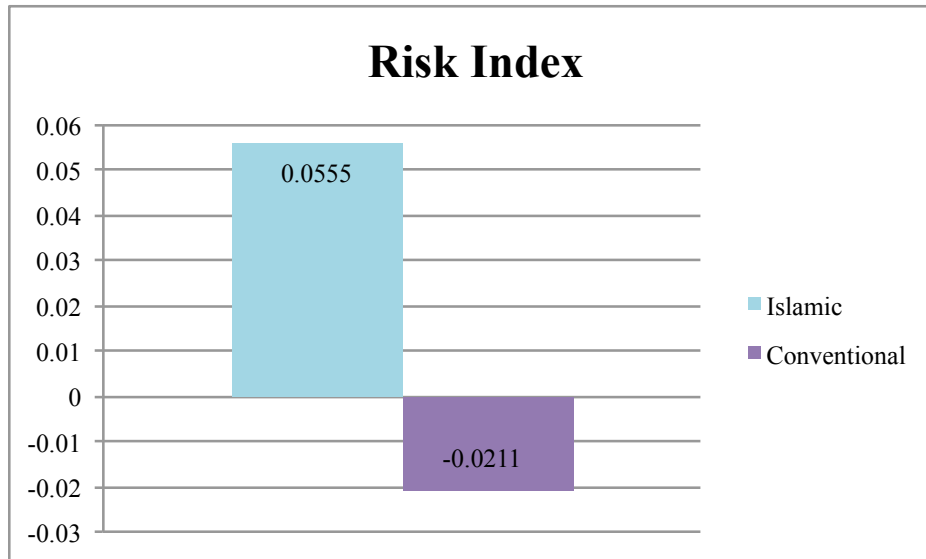
## Summary Statistics

Individual/Household	Total Sample				Conventional				Islamic				T-statistic*
	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max	Mean	Std. Dev.	Min	Max	
Age	37.7	9.9	20	60	37.8	9.7	20	60	37.4	10.2	21	59	0.26
Gender (female=1)	0.8	0.4	0	1	0.9	0.3	0	1	0.4	0.5	0	1	<b>-9.46***</b>
Education	2.9	1.4	0	7	2.8	1.3	0	7	3.1	1.5	0	6	0.33
Business	0.5	0.5	0	1	0.5	0.5	0	1	0.5	0.5	0	1	0.07
Employment	0.6	0.5	0	1	0.5	0.5	0	1	0.6	0.5	0	1	-1.10
Household Income	414.6	288.4	0	2550	421.6	307.4	0	2550	401.8	251.1	100	1500	0.50
Loan size	941.4	847.1	200	3500	661.0	473.0	200	3500	1455.5	1106.3	500	3500	<b>7.4***</b>
Phone	0.8	0.4	0	1	0.6	0.5	0	1	1	0	1	1	<b>-6.84***</b>
Ramadan	0.7	0.5	0	1	0.6	0.5	0	1	0.9	0.2	0	1	<b>-6.50***</b>
Type of Borrower					0.65				0.35				
<b>Religiosity</b>													
Religion Index	0.01	0.3	-0.8	0.98	-0.03	0.3	-0.7	0.9	0.08	0.3	-0.8	0.98	<b>-2.31**</b>
Religious Practice	0.7	0.3	0	1	0.7	0.3	0	1	0.6	0.3	0	1	1.01
Literary Knowledge	0.3	0.2	0	1	0.2	0.3	0	1	0.3	0.2	0	1	<b>-2.8***</b>
Religious Attitude	0.8	0.3	0	1	0.8	0.2	0	1	0.8	0.3	0	1	.27
Financial Attitude	0.4	0.3	0	1	0.4	0.5	0	1	0.4	0.5	0.0	1	-0.75
<b>Risk Preferences</b>													
Risk Index	0.01	0.4	-0.8	1.3	-0.02	0.4	-0.8	1.3	0.1	0.4	-0.8	1.1	-1.28
Business Risk	0.3	0.3	0	1	0.2	0.3	0.0	1.0	0.3	0.3	0.0	1.0	<b>1.95*</b>
Personal Risk	0.4	0.3	0	1	0.4	0.3	0.0	1.0	0.4	0.3	0.0	1.0	-1.40
Entrepreneurial Risk	0.5	0.3	0	1	0.5	0.3	0.0	1.0	0.5	0.3	0.0	1.0	-0.03

## Average Religiosity for Conventional and Islamic Borrowers



## Average Risk for Conventional and Islamic Borrowers





# Empirical Model

- Linear Probability Model

$$Y_i = \beta_1 + \beta_2 X_i + \beta_3 Z_i + \beta_4 RPI_i + \beta_5 RI_i + \varepsilon_i$$

- $Y_i$ : binary variable for Islamic loan
- $X_i$ : Vector of individual and household controls
- $Z_i$ : Branch controls
- $RPI_i$ : Risk Preference Index
- $RI_i$ : Religion Index

# Null Hypotheses

- $H_0$ : Religiosity does not vary between conventional and Islamic microfinance borrowers.
  
- $H_0$ : Risk-tolerance does not vary between conventional and Islamic microfinance borrowers.

## Linear Probability Model: Religion Summary Index

VARIABLES	(1)	(2)	(3)	(4)	(5)
	Islamic	Islamic	Islamic	Islamic	Islamic
Religion Index	0.260** (0.118)	0.295** (0.117)	0.194** (0.088)	0.161* (0.090)	0.144* (0.084)
Gender (female=1)			-0.408*** (0.083)	-0.415*** (0.086)	-0.386*** (0.081)
Log loan size			0.179*** (0.058)	0.181*** (0.057)	0.171*** (0.053)
Phone			0.296*** (0.065)	0.305*** (0.065)	0.108 (0.066)
Time Preference Index				0.045 (0.072)	
Ramadan					0.266*** (0.063)
Branch Controls	No	Yes	Yes	Yes	Yes
Demographic Controls	No	No	Yes	Yes	Yes
Constant	0.330*** (0.033)	-0.011 (0.020)	-0.039 (0.591)	0.337 (0.628)	-0.097 (0.570)
Observations	196	196	196	186	196
R-squared	0.027	0.116	0.499	0.499	0.529

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Robust standard errors in parentheses. Insignificant controls excluded from this table. Loan size in Jordanian Dinars.

## Linear Probability Model: Risk Summary Index

VARIABLES	(1)	(2)	(3)	(4)	(5)
	Islamic	Islamic	Islamic	Islamic	Islamic
Risk Index	0.100 (0.078)	0.114 (0.078)	0.064 (0.063)	0.071 (0.068)	0.072 (0.065)
Gender (female=1)			-0.404*** (0.076)	-0.413*** (0.079)	-0.396*** (0.075)
Log loan size			0.188*** (0.053)	0.183*** (0.052)	0.178*** (0.048)
Phone			0.326*** (0.065)	0.328*** (0.064)	0.143* (0.075)
Time Preference Index				0.017 -0.071	
Ramadan					0.250*** (0.067)
Branch Controls	No	Yes	Yes	Yes	Yes
Demographic Controls	No	No	Yes	Yes	Yes
Constant	0.348*** (0.033)	-0.033 (0.031)	-0.238 (0.566)	-0.031 (0.597)	-0.152 (0.553)
Observations	212	212	212	202	212
R-squared	0.008	0.080	0.484	0.485	0.513

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Robust standard errors in parentheses. Insignificant controls excluded from this table. Loan size in Jordanian Dinars.

## Linear Probability Model: Risk and Religion Summary Indices

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Islamic	Islamic	Islamic	Islamic	Islamic
Risk Index	0.139*	0.150*	0.121*	0.113*	0.121*
	(0.079)	(0.079)	(0.072)	(0.068)	(0.073)
Religion Index	0.299**	0.339***	0.216**	0.193**	0.166*
	(0.118)	(0.119)	(0.095)	(0.089)	(0.092)
Gender (female=1)			-0.427***	-0.398***	-0.402***
			(0.084)	(0.081)	(0.084)
Log loan size			0.167***	0.164***	0.162***
			(0.050)	(0.049)	(0.046)
Phone			0.284***	0.088	0.102
			(0.065)	(0.069)	(0.066)
Time Preference Index			0.058		0.057
			(0.071)		(0.069)
Ramadan				0.262***	0.258***
				-0.062	-0.063
Risk-Religion Interaction					0.057
					-0.218
Branch Controls	No	Yes	Yes	Yes	Yes
Demographic Controls	No	No	Yes	Yes	Yes
Constant	0.324***	-0.046	0.276	-0.163	0.263
	-0.033	-0.046	-0.631	-0.592	-0.628
Observations	189	189	180	189	180
R-squared	0.044	0.128	0.505	0.525	0.534

Note: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1 Robust standard errors in parentheses. Insignificant controls excluded from this table. Loan size in Jordanian Dinars.

# Discussion

- Islamic borrowers
  - More risk-tolerant
  - More religious
- Demographics
  - Females participate more in conventional microfinance
  - Islamic loans are larger

# Limitations

- Heterogeneous differences across borrowers
- Sample size
- Ramadan
- Measurement of a past event