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Essays in International Corporate Finance

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ESSAYS IN INTERNATIONAL CORPORATE FINANCE

by

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ABSTRACT

International corporate finance has greatly expanded with the increased globalization and led to many new research topics. In this dissertation, I examine two distinct international finance topics; (i) determinants of corporate tax inversion and the effects ex-post; and (ii) determinants of for-profit microfinance institutions and financial and social performance.

In Chapter 1, I study corporate tax inversion which is a reorganization by which a domestic firm changes its tax-domicile from the United States to a foreign country with a lower corporate tax rate. In 2014 alone, U.S. public companies valued at over half a trillion dollars announced their intention to invert as part of a merger/acquisition deal (Babkin, Glover, and Levine, 2016). The United States corporate tax rate of 35% (one of the highest in the world) is not the only incentive for corporations to move their legal domicile; the U.S. also taxes firms on their foreign and domestically-sourced income (Gunn and Lys, 2016). Avoiding these higher taxes through inversions and earnings stripping (shift income from its U.S. based subsidiaries to its new lower tax domicile) are legal practices and in line with the firm's goal of maximizing the market value of shareholder equity. Using hand collected data for the period 1983-2015, I find that 43 U.S. public firms from NYSE/AMEX/NASDAQ, across 15 unique industries have completed a corporate inversion and moved their legal tax domicile to one of ten different countries with a lower corporate tax rate. This study focuses on the determinants of inversion, economic

freedom measures of the target countries, the market reaction of the inversion announcement and ex-post firm financials and taxes. I find that large firms that are less profitable (measured by return on assets) are more likely to invert and the inversion target location is more likely to have greater tax freedom and investment freedom. The overall market reaction of the inversion announcement is positive and significant over a seven day (-3, +3) event window and this is driven by more recent inversions (post 2004) to non-tax haven countries (Canada, Australia, and European). Ex-post the inverted firms show no significant change in taxes compared to a matched sample when controlling for industry, size, sales, and profitability.

In Chapter 2, I study the determinants of for-profit microfinance institutions and the financial and social performance. Microfinance institutions (MFIs) provide small loans and other financial services to the poor and unbanked all over the world. The microfinance industry started out as a non-profit business however we have seen growth of for-profit MFIs and commercial banks breaking into this sector which began debates about whether it is possible to effectively blend nonprofit ideals (social outreach) and for-profit orientations and practices; i.e. financial performance and sustainability (Morduch, 2000). Literature argues that primary goal of the MFI is to reach the poorest sections of the population and the second goal is financial sustainability (Mersland and Strøm, 2008). The founder of Grameen banfiguk (the first microfinance institution) and winner of the Nobel Peace Prize, Muhammad Yunus, argues that MFIs that seek to maximize profits will do so at the cost of the poor and will trade off social performance for financial performance (Yunus, 2011). Claims are also made that MFIs experience “mission drift” as they cater to customers who are better off than their original customers (Mersland and

Strøm, 2010). The goal of this paper is exploratory in nature and seeks to study the evolution of the international microfinance industry, specifically the differences in for-profit and non-profit institutions. Is there a place for profit seeking firms in the business of providing the poor access to loans and other financial services? Can these firms sustainably operate while also fulfilling the mission for whom non-profit microfinance institutions were originally created? Which types of firms are more successful, both financially and socially and what are the determinants of this success? Do country specific formal institutions, cultural dimensions, and development play a role in the performance (financially and socially) and likelihood of MFIs being for-profit institutions?

Using a large dataset of more than 2,400 individual microfinance institutions (MFIs) from 120 countries for the period of 1999-2016, I find that nearly half of the international MFIs operate as for-profit institutions. For-profit MFIs tend to have more administrative expenses, pay higher salaries, are more profitable, have more staff turnover, and charge higher interest rates (on average). Non-profit MFIs tend to be busier, pay less tax, have larger boards, and have a larger percentage of the board and borrowers that are female. The formal institutions within a country such as; business regulatory environment, property rights, social protection, and a developed financial sector, are significant determinants of for-profit MFIs. Cultures with higher degrees of power distance, individualism, masculinity and indulgence (from Hofstede's cultural dimensions) tend to have more for-profit MFIs. Cultural dimensions and formal institutions at the country level tend to result in better financial and social performance for the microfinance institution.

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GS Form 14
(5/03)

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

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CHAPTER 1

CORPORATE TAX INVERSION: IS IT REALLY ABOUT TAXES?

Introduction

Corporate inversion, a reorganization by which a domestic firm changes its tax-domicile from the United States to a foreign country with a lower corporate tax rate, has become more popular among U.S. firms despite the increase in regulations to make the "unpatriotic" deed more difficult to accomplish. In 2014 alone, U.S. public companies valued at over half a trillion dollars announced their intention to invert as part of a merger/acquisition deal (Babkin, Glover, and Levine, 2016). The United States corporate tax rate of 35% (one of the highest in the world) is not the only incentive for corporations to move their legal domicile; the U.S. also taxes firms on their foreign and domestically-sourced income (Gunn and Lys, 2016). Avoiding these higher taxes through inversions and earnings stripping (shift income from its U.S. based subsidiaries to its new lower tax domicile) are legal practices and in line with the firm's goal of maximizing the market value of shareholder equity.

This paper focuses on exploring several questions: what types of firms have completed corporate inversions and to which countries are they reincorporating? What are the financial and tax benefits of inverting, if any? Are taxes the only incentive to invert and is this driven by foreign or federal taxes? What country specific metrics play a role in a

firm's target country inversion decisions? What is the market reaction and ex-post are there any benefits to firms inverting?

By hand collecting data on completed corporate inversions from 1983-2015, I find that 43 U.S. public firms that trade on the NYSE, AMEX, or NASDAQ, from 15 different industries have completed a corporate inversion and moved their legal tax domicile to one of ten different countries. Large firms that are less profitable (measured by ROA) are more likely to invert and the inversion target location is more likely to have greater tax freedom and investment freedom. The overall market reaction of the inversion announcement is positive and significant over a seven day (-3, +3) event window and this is driven by more recent inversions (post 2004) to non-tax haven countries (Canada, Australia, and European). Ex-post the inverted firms show no significant change in taxes compared to a matched sample when controlling for industry, size, sales, and profitability.

History of Tax Inversion

Table 1.1 shows the frequency of completed inversions by year. The first corporate tax inversion was completed by McDermott International, a Louisiana based engineering and construction firm, which relocated the corporations legal tax domicile to Panama in 1983. After McDermott made the move, other firms began to follow their lead and moved their legal incorporation address to Bermuda and the Cayman Islands throughout the mid 1990's.

Table 1.1

Inversions by Year

Year	Freq.	Percent	Cum.
1983	1	2.33	2.33
1994	1	2.33	4.65
1996	2	4.65	9.3
1997	1	2.33	11.63
1999	3	6.98	18.6
2000	3	6.98	25.58
2001	3	6.98	32.56
2002	5	11.63	44.19
2007	1	2.33	46.51
2008	1	2.33	48.84
2009	3	6.98	55.81
2010	1	2.33	58.14
2011	2	4.65	62.79
2012	7	16.28	79.07
2013	2	4.65	83.72
2014	2	4.65	88.37
2015	5	11.63	100
Total	43	100	

This early type of inversions required little more than having an office abroad and simply filing the necessary paperwork to legally "move" the incorporation address to another country. For example, below is an excerpt from the news release when an electrical equipment supplier Cooper Industries, Inc. (NYSE: CBE) announced the companies' intentions to invert in 2001:

> "Cooper Industries, Inc. (NYSE:CBE) today announced that its Board of Directors has approved a plan to reorganize the Company and change its place of incorporation from Ohio to Bermuda. Under the plan, Cooper Industries, Ltd., a newly-formed Bermuda corporation, will become the parent holding company of Cooper Industries, Inc."

This is an example of a restructuring in which the inversion requires no merger/acquisition of an existing firm in the target country or a significant business presence in the new incorporation location. The CEO of Cooper Industries explains why the firm decided to move to Bermuda, "More and more of Cooper's revenues are being derived from operations and customers outside the United States," said H. John Riley, Jr., chairman, president and chief executive officer... Consequently, we believe that by changing our legal domicile to Bermuda, we will generate increased value and returns for our shareholders because we will be able to take advantage of business, financial and strategic opportunities that are not available under our current structure. The reorganization will accelerate our strategic initiatives, enhance our competitiveness regarding international acquisition opportunities and improve our global tax position to generate increased cash flow." The CEO then explains that this reorganization "will have no impact on our

day-to-day operations for our employees, customers and suppliers. Cooper will continue to have its headquarters in Houston, and we remain fully committed to our employees and the local communities where we have operations."

Over a span of four years (1999-2002) we see a surge of 14 inversions without another until 2007 as displayed in Table 1.1. This sudden break in inversion activity is a result of Congress enacting the American Jobs Act and sections 7874, 4985, and 965 of the Internal Revenue Code in 2004. This was created to discourage inversions and required that the new foreign firm meet several conditions otherwise it would be treated as a domestic firm for tax purposes. One of these conditions stated that the resulting corporation must have substantial business presence in the foreign country of incorporation. "Substantial business presence" was later defined in 2006 to examine "the number of employees, pay of employees, property, sales, historical presence, management activities, and the strategic importance of the new country of domicile." This definition of substantial business presence was again modified in 2012 and required that, post-inversion, the firm must have at least 25% of its employees (in number and compensation), 25% of its income derived, and 25% of its assets located in the new country of domicile. This pattern continues and in 2014 and 2015 the Treasury and IRS released notices and new regulations making it more difficult for a US firm to move its legal tax domicile.

Enacting the American Jobs Act of 2004, temporarily slowed the rate of major US corporations inverting; however, as we see in Table 1.2 these new regulations simply pushed the firms to relocate to other countries rather than the islands in the Caribbean. With the new laws in place requiring substantial business presence, firms began inverting

by way of mergers and acquisitions; i.e. the inverting firm would buy out a company and subsequently reincorporate in the target firm's country.

Table 1.2

Number of Inversions Before/After American Jobs Act (January 1, 2004) and Location of New Domicile

Location	Before 01/01/04	After 01/01/04	Total
Caribbean	17	1	18
Other	2	23	25
Total	19	24	43

Cooper Industries later moved from Bermuda to Ireland in 2009 citing "the need to better manage its cost structure, including taxes and regulatory costs." Cooper then became a target for another firm, Eaton Corporation (NYSE: ETN), which acquired Cooper Industries in 2012 and Eaton was then reincorporated in Ireland. Following is the news release from Eaton's 8K filing with the SEC, "At the close of the transaction, which is expected in the second half of 2012, Eaton and Cooper will be combined under a new company incorporated in Ireland, where Cooper is incorporated today. "We're excited about bringing together two great companies to create shareholder value and continue our global growth. This combination significantly expands our ability to better serve our customers with their demands for critical energy saving technologies as they address the impact of the world's growing energy needs." Cutler said (Eaton's CEO)."

Cooper's CEO stated that this "combination creates endless opportunities to accelerate growth and serve our global customers through combining technology,

distribution, penetrating important vertical industries and entering new emerging markets. The two companies are a perfect fit in every respect." In the announcement of Cooper's re-organization to Bermuda and to Ireland taxes are listed as one of the reasons/benefits; however in this inversion in 2012 between Eaton and Cooper there is no mention of taxes anywhere in the SEC 8K filing and all of the wording is focused on the "synergies" associated with these companies which are "a perfect fit in every respect."

Table 1.3 displays the new country of incorporation for the 43 inversion firms and the respective country's corporate tax rate as of January 01, 2016. [1] With 0.0% corporate tax rate, Bermuda and the Cayman islands were attractive new tax homes in the 1990's and early 2000's. After the American Jobs Act, Ireland and Switzerland became the new popular destinations with corporate tax rates of 12.5% and 8.5% respectively. The average corporate tax rate in the United States is 35% with marginal rates as high as 39%. The latest wave of Treasury regulations came in April of 2016, which resulted in Pfizer and Allergan calling off their planned $152 billion merger, which would have moved Pfizer's tax domicile to Ireland. The figures in Table 1.3 raise an interesting question; if inverting is purely about taxes, why don't all firms (post 2004 regulations) relocate to Ireland or Switzerland (12.5% and 8.5% tax rate respectively)? Perhaps, the target firm in the merger and acquisition is a good investment and the tax inversion is just a "bonus" in the deal but not necessarily the main goal.

[1] Table 1.3 refers to the destination countries which the inversion firms *first* changed the tax domicile from the United States. Many of these firms later moved from the Caribbean to Switzerland or Ireland; other literature labels such firms as "serial inverters."

Table 1.3

Inversions by Target Country of Legal Domicile and Corporate Tax Rates

Country	Corporate tax rate	Number of Inversions	Percent
Australia	30.00%	1	2.33
Bermuda	0.00%	12	27.91
Canada	18.00%	3	6.98
Cayman Islands	0.00%	5	11.63
Ireland	12.50%	10	23.26
Israel	25.00%	1	2.33
Netherlands	25.50%	3	6.98
Panama	25.00%	1	2.33
Switzerland	8.50%	2	4.65
United Kingdom	20.00%	5	11.63
Total		43	100

If firms are pursuing poor acquisition target firms in order to qualify for incorporating outside of the United States, do the tax benefits out-weigh the costs of poor acquisitions? Examining these questions is beyond the scope of this paper but a possible avenue for future research.

Data

The data for the firms that successfully completed corporate inversions was collected from Bloomberg, The Wall Street Journal, Reuters, and Congressional Research Services. The compiled list of firms that completed an inversion for the period 1983-2015

included 77 unique firms. My sample was then limited to include only publicly traded firms on the NYSE, AMEX, or NASDAQ, which consists of 43 individual firms. The announcement date of the inversion and the date that the inversion was completed (by corporate restructuring/reincorporation or through merger/acquisition) was hand collected by reading the firm's 10K filings, 8K filings and prospectuses on Capital IQ. The completed dates for my sample of 43 inversions range from 1983-2015.

Annual data was collected from COMPUSTAT for all NYSE, AMEX, and NASDAQ firms for the period 1980-2015. The data includes annual firm financials (e.g. assets, sales, taxes, etc.) and firm classifications (e.g. 4-digit SIC codes, country of incorporation, tickers, gv-key, CUSIP).

Table 1.4 shows that the 43 inversion firms are dispersed throughout 15 different Fama-French 48 industry classifications with the pharmaceutical industry and petroleum and natural gas industry making up about 40% of the inversions.

To control for differences in industry, I restricted the COMPUSTAT sample to include only firms in these 15 industry classifications. The final sample consists of annual firm data for 6,910 firms in 15 industries for the period 1980-2015. All financials are adjusted for inflation using the Consumer Price Index collected from the Bureau of Labor Statistics. All tax variables are scaled by total assets. Federal taxes represent the amount of taxes payable to the federal government. For non-U.S. companies, this item represents taxes payable to their government. Foreign taxes represent the amount of taxes payable to foreign governments. For non-U.S. companies, this item represents taxes payable to governments outside their country. Tax represents all income taxes imposed by federal, state, and foreign governments.

Table 1.4

Number of Inversions by Industry

Fama-French 48 Industries	Freq.	Percent	Cum.
Consumer Goods	1	2.33	2.33
Medical Equipment	4	9.30	11.63
Pharmaceutical Products	9	20.93	32.56
Chemicals	1	2.33	34.88
Construction	2	4.65	39.53
Machinery	3	6.98	46.51
Electrical Equipment	2	4.65	51.16
Shipbuilding, Railroad Equipment	1	2.33	53.49
Petroleum and Natural Gas	8	18.60	72.09
Business Services	1	2.33	74.42
Computers	2	4.65	79.07
Electronic Equipment	2	4.65	83.72
Wholesale	1	2.33	86.05
Restaurants, Hotels, Motels	2	4.65	90.70
Insurance	4	9.30	100
Total	43	100	

Table 1.5 displays the summary statistics for the full sample of firms and all variables are adjusted for inflation using 2006 as the base year. Logat refers to the natural logarithm of total assets; roa is the firm's return on assets (Net income/total assets); tax

represents total income tax scaled by total assets. Federal tax, foreign tax, and change in tax are scaled by total assets and change in tax refers to the change in total tax each year. Earnings represent a firm's earnings before interest, taxes, depreciation, and amortization (EBITDA) and are scaled by total assets.

Table 1.5

Summary Stats; Firm Financials

Variable	Obs	Mean	Std. Dev.	Min	Max
logat	64,494	4.1046330	2.1184260	-9.4167920	9.8020310
roa	81,944	-12.0567700	62.0864700	-1358.954	865.8696
tax (total)	63,834	-0.0357819	10.4038300	-2476.457	634.2681
federal tax	33,806	0.0105595	0.0273916	-0.4286453	0.6995782
foreign tax	34,798	0.0029582	0.0110677	-0.1525320	0.8430034
change in tax	68,946	-0.0843976	14.8555900	-2587.906	654.3375
earnings	63,865	-0.1535955	5.0769120	-1018	22.6250000

Data measuring "Economic Freedom" for each country is collected from The Heritage Foundation's "Index of Economic Freedom" which is composed of 10 quantitative and qualitative factors for 186 countries from 1995-2017. This data was merged with the Compustat/Inversion dataset based on the country of incorporation for each firm in each year. Each of the following measures are calculated on a scale of 0-100 and a higher score indicates greater economic freedom: property rights, government integrity, tax freedom, government spending, business freedom, labor freedom, monetary freedom, trade freedom, investment freedom, and financial freedom. When measuring the

country's tax freedom the component score is derived from three quantitative sub-factors: the top marginal tax rate on individual income, the top marginal tax rate on corporate income, and the total tax burden as a percentage of GDP and each of the numerical variables is equally weighted.

According to Heritage Index Appendix "the scale used for scoring government spending is non-linear, which means that government spending that is close to zero is lightly penalized while levels of government spending that exceed 30 percent of GDP lead to much worse scores and only extraordinarily large levels of government spending, for example. Over 58 percent of GDP receive a score of zero.[2]"

Regarding Investment Freedom, the Index deducts points (from the ideal score of 100) based on the rules and regulations that countries have in place restricting investment; for example, national treatment of foreign investment, foreign investment code, restrictions on land ownership, and capital controls among others.

Table 1.6 displays the summary statistics for the Heritage Economic Freedom variables. All 10 of these measures are on a scale of 0-100, with 0 being the worst or lowest economic freedom and 100 being the most economic freedom for the given measure. On average, these scores range from 57-94 with several measures reaching a maximum of 100 for a given year/country in the sample (specifically government integrity, business freedom, and labor freedom). Alternatively government spending, monetary freedom and trade freedom report minimum scores of 0 for at least a given year and given country in the sample.

[2] To control for this, I also include a squared term of government spending in my analysis.

Table 1.6

Summary Stats, Economic Freedom Measures

Variable	Obs	Mean	Std. Dev.	Min	Max
property rights	135,367	.8755051	.05196521	0.150	0.950
government integrity	135,367	.7583324	.06576185	0.100	1.000
tax freedom	135,367	.6591281	.03956701	0.298	0.978
government spending	135,367	.5788021	.08986099	0.000	0.993
business freedom	135,369	.8740234	.04560342	0.355	1.000
labor freedom	70,981	.9428374	.07471037	0.310	1.000
monetary freedom	135,367	.8236106	.04012430	0.000	0.954
trade freedom	135,372	.8250144	.04220754	0.000	0.950
investment freedom	135,371	.7219597	.05059450	0.200	0.950
financial freedom	135,372	.7667871	.09667257	0.200	0.900

Figure 1.1 displays the overall Economic Freedom score (equally-weighted) for the United States, Ireland, and the World average (all 186 countries in the Index) from 1995-2017. Both the United States and Ireland show greater levels of overall economic freedom than the world average for the entire time period and the scores mainly fall in the 80's and lower 90's.

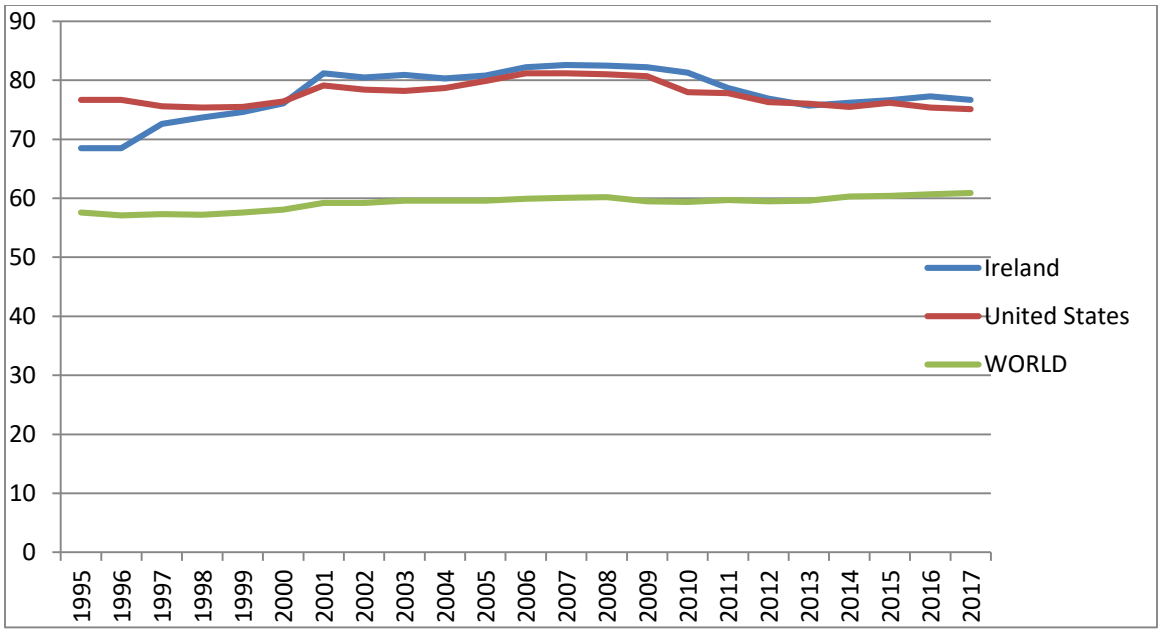


Figure 1.1 *Economic Freedom Overall Score- United States, Ireland, and the Global Average Over Time*

Figure 1.2 shows the level of Investment Freedom for Ireland, United States, Switzerland, and the World average over the same time period as Figure 1.1. Ireland has a score of 90 or above for Investment Freedom from 2001-2017, while the United States varies from 70-80 and Switzerland pushes past the United States around 2009 and continues to rise. All three countries score higher than the World average for each year in the Index.

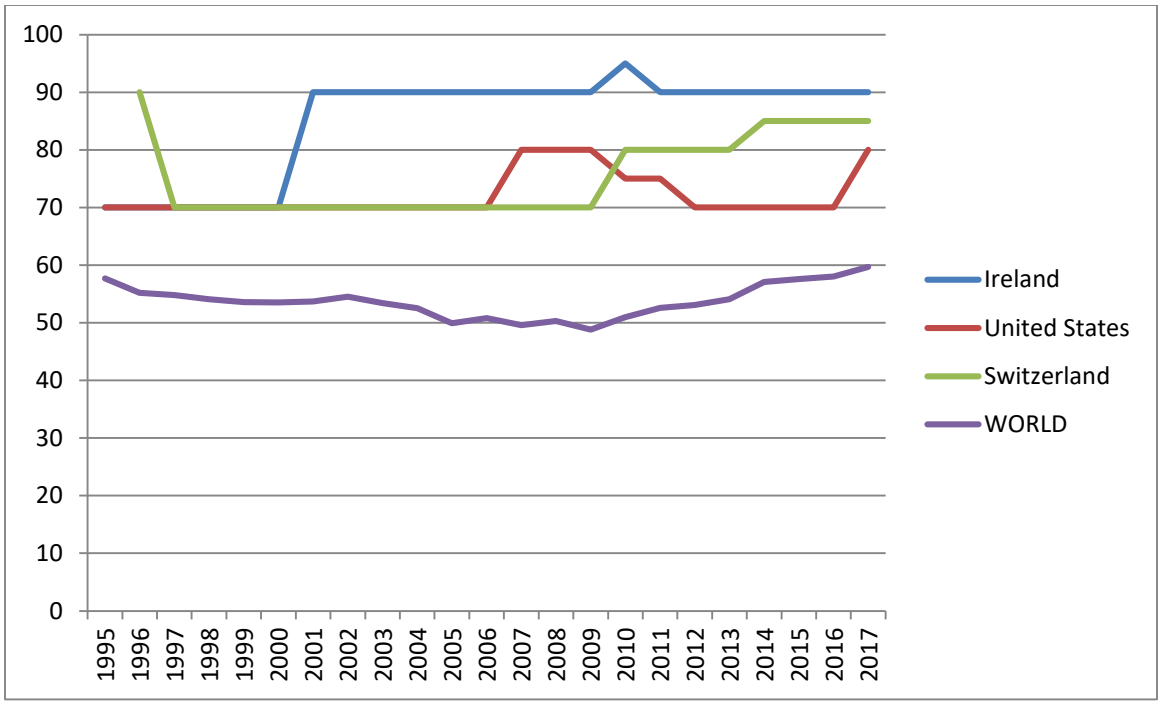


Figure 1.2 *Economic Freedom- Investment Freedom- United States, Ireland, Switzerland and the Global Average Over Time*

Figure 1.3 displays Tax freedom in terms of economic freedom (higher score indicates a greater tax freedom and thus greater economic freedom). In the late 1990's Ireland had the lowest economic freedom in terms of tax freedom and over time has become more economically free than the United States and Switzerland. The World average scores the highest in terms of tax freedom. The United States consistently scores in the 60's and never scores above 70 for the entire sample period. The United States also seems to be decreasing in tax freedom from 2012-2017. Switzerland reports the highest scores until about 2004 when it drops below Ireland and levels out with the United States until around 2013.

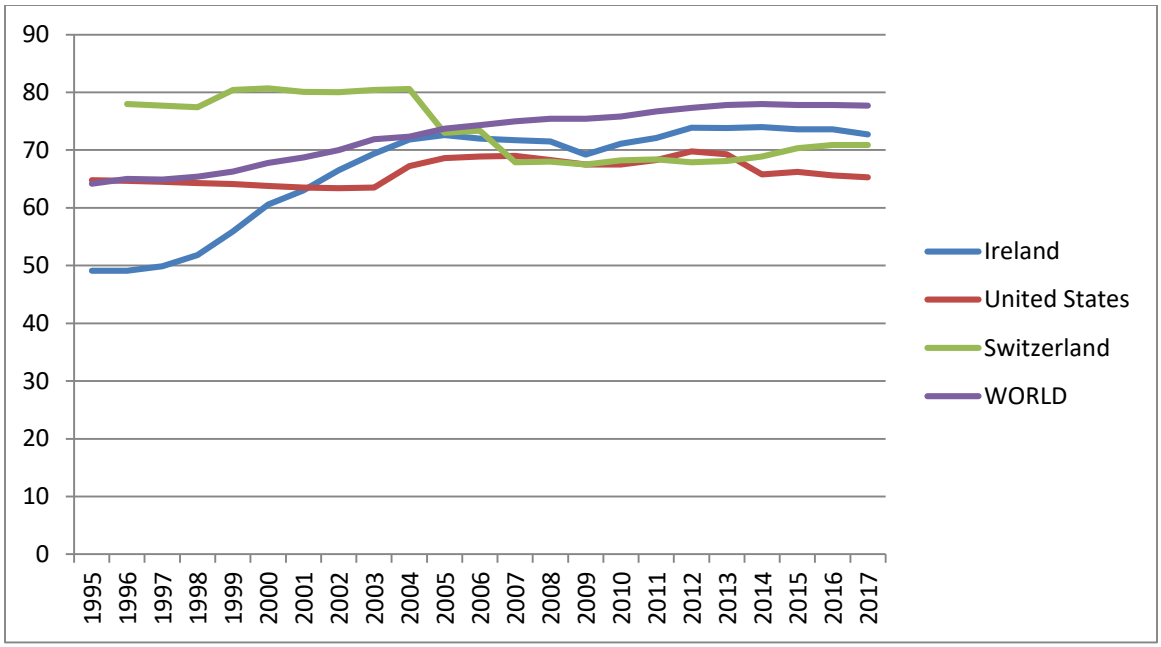


Figure 1.3. *Economic Freedom- Tax Freedom (Higher Score Indicates More Economic Freedom) United States, Ireland, Switzerland and the Global Average Over Time*

Figure 1.4 shows the scores for government spending for the same countries and the world average. The index uses all levels of government spending (federal, state, and local) when the data are available and scales these levels as a portion of GDP. This measure refers to the level of economic freedom in terms of government spending; therefore higher scores reflect more economic freedom rather than higher government spending. This figure seems to have the most variation especially for Ireland and Switzerland. The average score for the world stays between the mid to upper 60's; the United States ranges from the upper 40's to the lower 70's; and the scores for Ireland and Switzerland range from the 20's to the 70's.

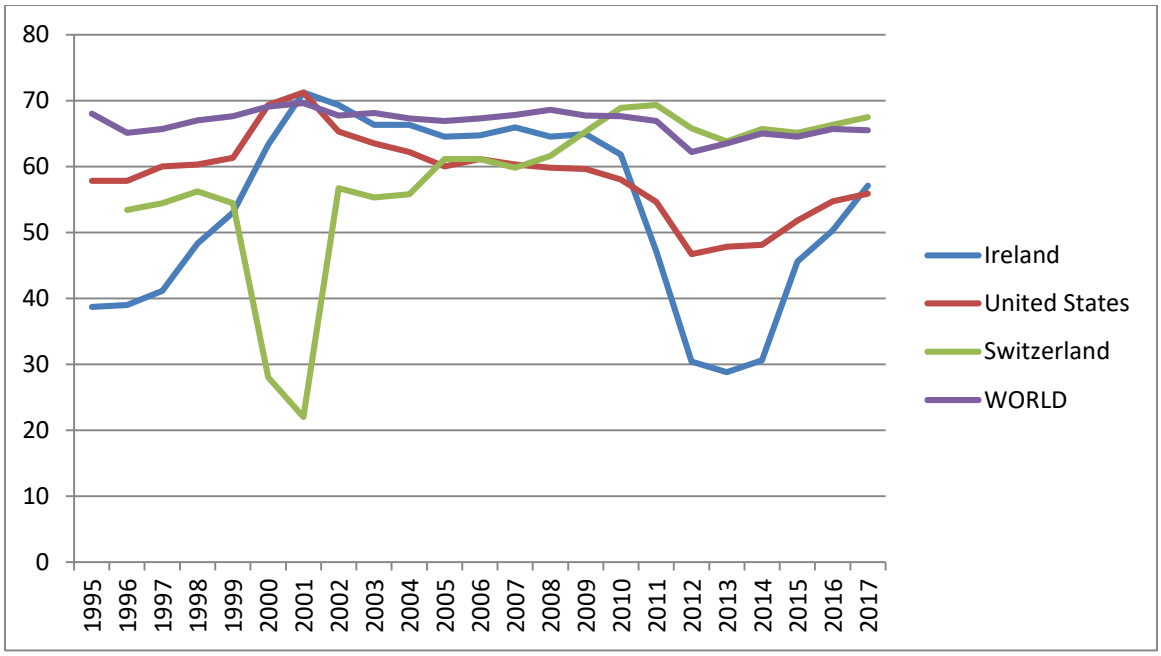


Figure 1.4 *Economic Freedom- Government Spending (Higher Score Indicates More Economic Freedom)- United States, Ireland, Switzerland and the Global Average Over Time*

Analysis

I first estimate the determinants of inversion using a logit model and all regressions include industry fixed effects[3] (Gormley and Matsa, 2013) and robust standard errors. The dependent variable is a 0/1 indicator variable which takes a values of one if the firm completed an inversion for that year and 0 otherwise (i.e. inversion equals one only 43 times, once for each inversion firm).

Determinants of Inversion

Table 1.7 displays the estimates for the logit regression in which the dependent variable is a 0/1 indicator which takes the value of one if the country of incorporation is the target of an inversion that year.

[3] Firm fixed effects and Year fixed effects were also included for robustness; the results were similar.

Table 1.7

Logit Regression, Inversion Country Dependent Variable, Heritage Economic Freedom Variables

	(1) inversion	(2) inversion	(3) inversion	(4) inversion	(5) inversion
inversion					
propertyri~d	3.451				-5.856
	(0.48)				(-0.66)
government~d	5.702				10.48
	(1.93)				(1.45)
taxfreedom~d	-1.788				13.14**
	(-0.24)				(3.04)
govspendin~d		-5.159*	12.04		-5.833
		(-2.47)	(1.40)		(-1.05)
businessfr~d		3.741	4.997		-9.919
		(1.15)	(1.78)		(-1.69)
laborfreed~d		-5.192**	-4.434*		4.304
		(-3.13)	(-1.97)		(1.78)
government~2			-26.36		-2.586
			(-1.58)		(-0.42)
monetaryfr~d				-4.255	-14.02
				(-1.26)	(-1.77)
tradefreed~d				-6.696	13.08
				(-1.46)	(0.77)
investment~d				21.97***	24.27***
				(9.78)	(3.47)
financialf~d				2.705	2.052
				(1.96)	(0.35)
_cons	-15.20	-4.034	-7.768**	-18.65***	-32.07
	(-1.81)	(-1.53)	(-2.61)	(-4.88)	(-1.65)
industry FE	Yes	Yes	Yes	Yes	Yes
R-squared	0.0517	0.135	0.158	0.187	0.309
N	119948	42526	42526	119948	42526

t statistics in parentheses
* p<0.05, ** p<0.01, *** p<0.001

The independent variables are the Heritage Index economic freedom measures with a higher score indicating more economic freedom in that area, and all models include industry fixed effects. Model 1 includes property rights, government integrity, and tax burden measures as explanatory variables and none of the measures are statistically significant. Model 2 includes government spending, business freedom, and labor freedom and both government spending and labor freedom are negative and significant. Model 3 attempts to control for the non-linear government spending measure and includes a government spending squared term. Model 4 includes monetary freedom, trade freedom, investment freedom, and financial freedom as independent variables and investment freedom is positive and significant. Model 4 includes all economic freedom measures as independent variables and tax freedom is positive and significant and investment freedom is positive and significant. This suggests that countries with more tax economic freedom and more investment freedom are more attractive targets for firms seeking to invert.

Table 1.8 includes firms size, natural log of total assets (logat), a proxy for firm profitability (roa), and total tax (tax). Logat is positive and statistically significant at the 0.01 level and roa is negative and insignificant and tax is not statistically significant. In the second model, I add R&D expense (randd) and financial leverage (finlev), and change in sales from the previous year (changeinsales), none of which are significant. Model 3 includes a Caribbean tax index and investment index which is calculated as the difference in the U.S. Heritage index scores from the average of the Caribbean nation's index scores.[4] Caribtax is positive and highly significant suggesting that the difference in tax freedom from the U.S. is a significant predictor of firm inversion.

[4] Panama and the Bahamas were the only Caribbean countries which had this data available.

Table 1.8

Logit Regression, Caribbean and European Tax Freedom and Investment Freedom Indices (All Financial Measures are Lagged by One Year)

	(1) inversion	(2) inversion	(3) inversion	(4) inversion	(5) inversion	(6) inversion
inversion						
L.logat	0.856**				0.732**	0.745**
	(2.92)				(3.04)	(3.09)
L.roa	-0.00405				-0.00266	-0.00271
	(-0.97)				(-0.54)	(-0.56)
L.tax	0.00310				0.0277	0.0233
	(0.66)				(1.50)	(1.35)
L.finlev		-0.158				
		(-0.74)				
L.randd		0.00323				
		(1.01)				
L.changein~s		-0.0240				
		(-1.45)				
caribtax			6.898**			2.266
			(2.88)			(0.60)
caribinv			1.119**			-0.0101
			(2.58)			(-0.01)
eurotax				-0.0699	0.216	
				(-0.65)	(1.02)	
euroinv				-0.0451	-0.0921	
				(-1.10)	(-1.18)	
_cons	-12.56***	-5.835***	-32.40***	-6.987***	-15.70***	-19.45
	(-5.13)	(-4.58)	(-3.87)	(-4.42)	(-5.09)	(-1.57)
Industry FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	No	No	No	No
R-squared	0.0938	0.0235	0.0486	0.0456	0.104	0.0978
N	5207	1561	141687	141687	15146	15146

t statistics in parentheses
* p<0.05, ** p<0.01, *** p<0.001

Caribinv is also positive and significant suggesting that investment freedom plays a role in the inversion decision although the magnitude is much smaller than the tax variable. Model 4 tests the same idea as Model 3 but uses the average of European nations scores from the business freedom index to calculate the difference from the U.S. scores. The results in this model suggest that neither difference in tax nor investment freedom

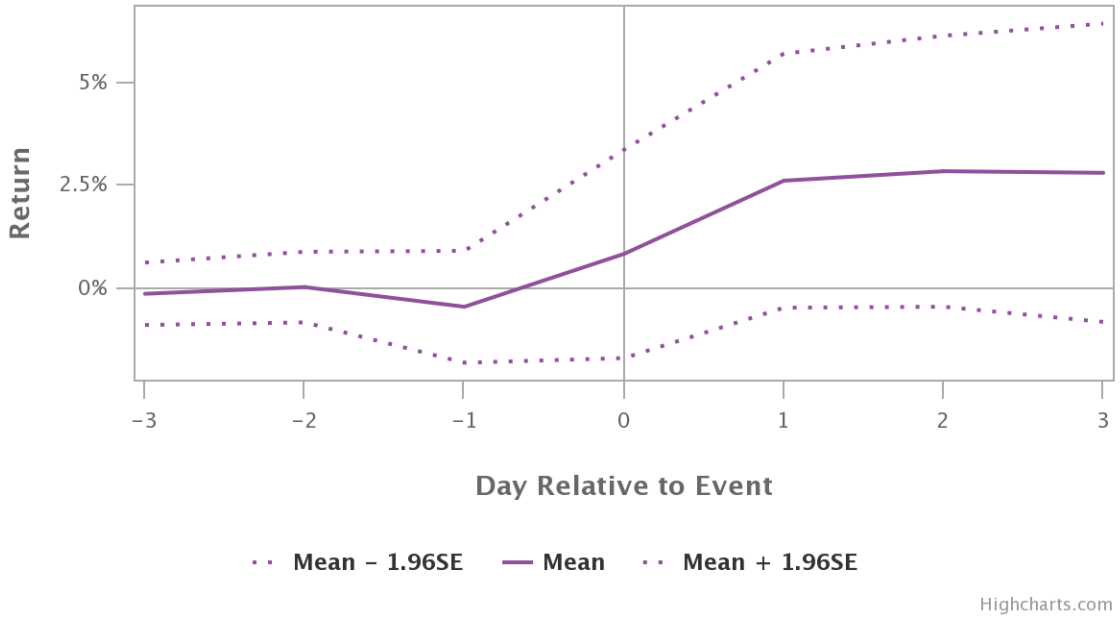
plays a role the inversion decision when the inverting firm moves to a European nation. In Models 5 and 6 the firm size, roa, and tax are included with the Caribbean and European indices and the results remain unchanged for size, roa, and tax however the significance for the Caribbean indices does not hold. Perhaps surprisingly total tax (tax) is not significant in any model and provides no evidence that the decision to invert is driven by taxes.

Market Reaction

This section examines the stock market reaction of the firm announcing the intention and plans of inverting. The estimation period was 240 trading days prior to the announcement date and the event window is seven days, three days before and three days after (-3, +3) the announcement date (t=0) and the Fama and French 3-Factor model plus momentum was used to calculate expected returns.[5] Figure 1.5 displays the cumulative abnormal returns (CAR's) for all announcements (33 firms without missing return data) over the seven day window. Overall the CAR's are statistically significant and positive and greater than 2.5%. Figure 1.6 looks at the CAR's for only the firms that announced the inversion decision prior to 2004 which was when the American Jobs Act was passed and the when many of these inverting firms were moving to "tax havens" in the Caribbean. There are 11 events for this study and on average the CAR's are negative but not statistically significant. In contrast, Figure 1.7 is the inversion announcement post 2004 and these CAR's are significantly positive and greater than 5% over the seven-day window with most of the return falling in the three-day period around the announcement date. For

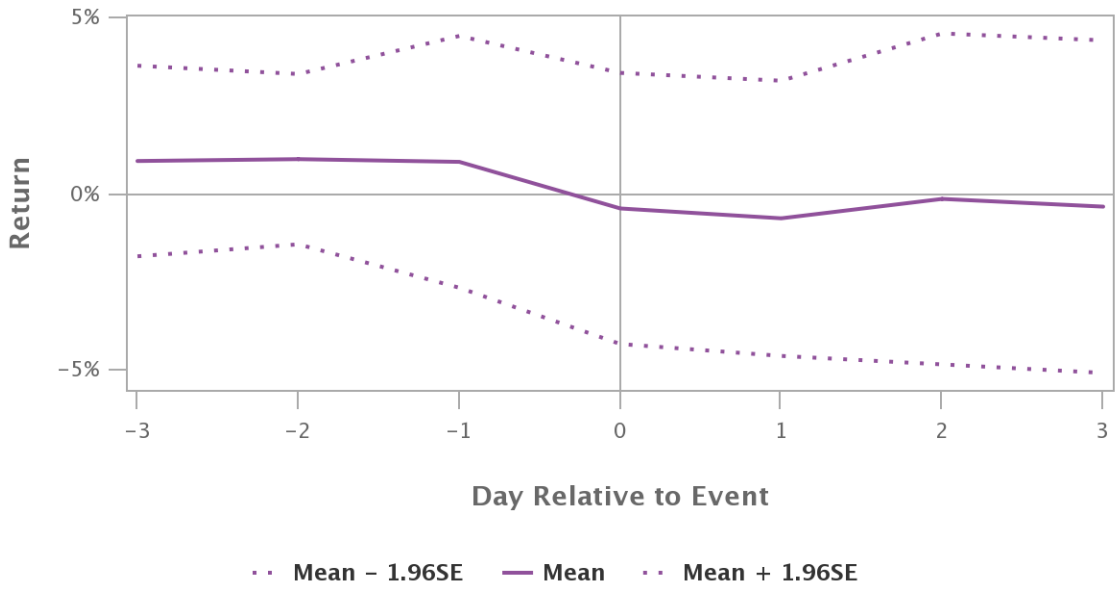
[5] The results are robust to using the 3-factor model, market model, and three-day event window; although the cumulative abnormal returns were smaller in magnitude when using the three-day window, they are still statistically significant and of the same sign as the seven day.

robustness, Figures 1.8 and 1.9 break the subsamples based on “tax haven” destinations (Caribbean) and non-tax haven destinations (Canada, Europe, and Australia) and the results hold. Figure 1.8 are the events in which the inverting firm announces plans to move to a Caribbean Island and we see a slightly negative but insignificant reaction; and Figure 1.9 are non-tax haven moves and we see a positive and significant reaction greater than 5%. These results suggest that overall the firms see a positive stock price shock upon the announcement of inverting and this is driven by the more recent inversions (post 2004) and moves that were not to the Caribbean.



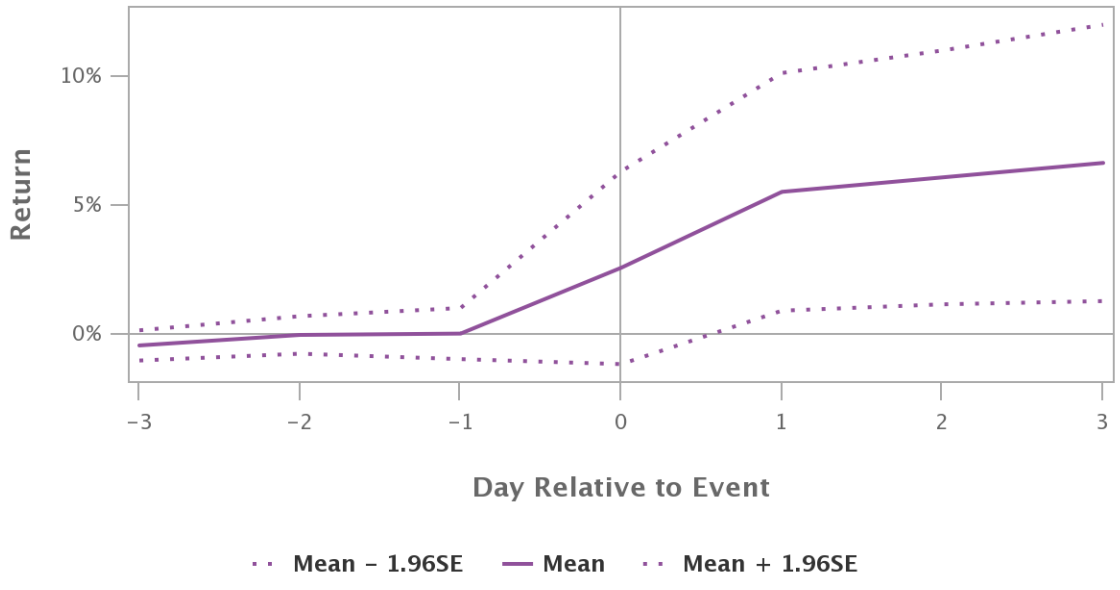
Notes: Event Study: 7-day window (-3, +3) around inversion announcement date (t=0) using Fama French three factor model and momentum to estimate returns (240-day estimation period excluding one month prior to event). Cumulative Abnormal Returns (CAR’s) for all inverting firm announcements (33 firms without missing returns).

Figure 1.5 *Cumulative Abnormal Return: 33 Events*



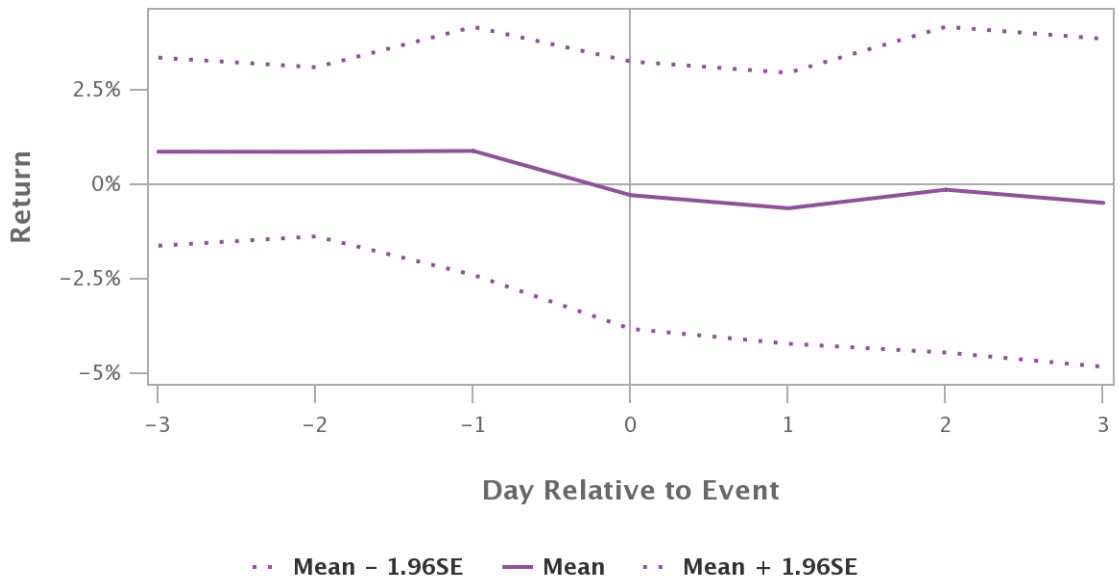
Notes: Event Study: 7-day window (-3, +3) around inversion announcement date (t=0) using Fama French three factor model plus momentum to estimate returns (240-day estimation period excluding one month prior to event). Cumulative Abnormal Returns (CAR's) for all inverting firm announcements before the American Jobs Act in 2004 (11 events without missing returns).

Figure 1.6 *Cumulative Abnormal Return: 11 Events*



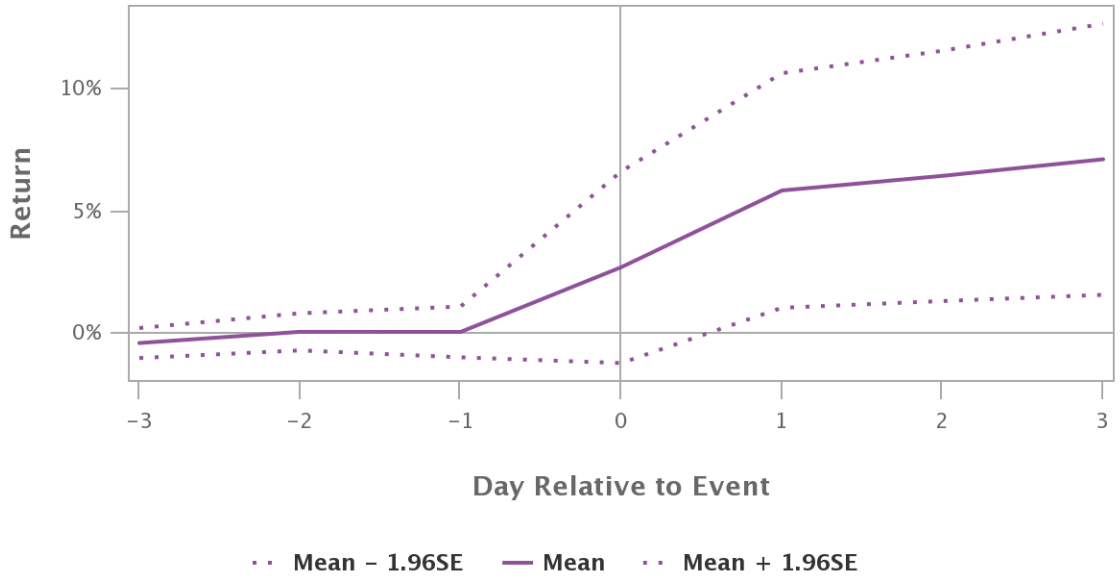
Notes: Event Study: 7-day window (-3, +3) around inversion announcement date (t=0) using Fama French three factor model plus momentum to estimate returns (240-day estimation period excluding one month prior to event). Cumulative Abnormal Returns (CAR's) for all inverting firm announcements after the American Jobs Act in 2004 (22 events without missing returns).

Figure 1.7 *Cumulative Abnormal Return: 20 Events*



Notes: Event Study: 7-day window (-3, +3) around inversion announcement date (t=0) using Fama French three factor model plus momentum to estimate returns (240-day estimation period excluding one month prior to event). Cumulative Abnormal Returns (CAR's) for all inverting firm announcements in which the inverting firm moves to a country considered a "tax haven" (12 events and move to a Caribbean tax haven).

Figure 1.8 *Cumulative Abnormal Return: 12 Events*



Notes: Event Study: 7-day window (-3, +3) around inversion announcement date (t=0) using Fama French three factor model plus momentum to estimate returns (240-day estimation period excluding one month prior to event). Cumulative Abnormal Returns (CAR's) for all inverting firm announcements in which the inverting firm moves to a country that is not considered a "tax haven" (19 events and move to Europe, Canada, or Australia).

Figure 1.9 *Cumulative Abnormal Return: 19 Events*

Results of Inversion

This section focuses on the relationship between the completed inversion and the subsequent effect the inversion has on the firm's total, federal, and foreign taxes. All tax variables are scaled by total assets and all regressions include firm fixed effects, industry fixed effects, and robust standard errors.

Table 1.9 displays the estimates of regressing total tax (scaled by total assets) on an indicator variable if the firm inverted that year and controls (earnings and sales). If inversion results in lower taxes, we would expect the inversion dummy variable to be negative and significant in the regression. In model 1, inversion has no effect on tax. This could be due to the limited time period, this is the concurrent measures for tax and inversion, therefore in Models 2 and 3, I include a 1-year and 2-year lagged inversion dummy in the regression. If the firm does not realize the tax benefits of inverting until one or two years after inverting, then the lagged variables should be negative and significant, assuming inversion lowers taxes. In both Models 2 and 3, the one year and two year lagged inversion indicator variables (L.inversion and L2.inversion) are positive and not statistically significant, implying that inverting has no effect on total taxes the year of completing the inversion or the two years subsequent to inverting.

Table 1.9

OLS with Total Tax as Dependent Variable, Includes Firm and Industry Fixed Effects

	(1)	(2)	(3)
	tax	tax	tax
inversion	0.0189	0.019	0.0192
	(0.55)	(0.54)	(0.54)
earnings	0.00035	0.000345	0.00034
	(1.08)	(1.07)	(1.07)
sales	0.0000470*	0.0000473*	0.0000478*
	(2.06)	(2.04)	(2.02)
L.inversion		0.0431	0.044
		(1.41)	(1.43)
L2.inversion			0.0441
			(1.44)
constant	0.00617	0.00591	0.0054
	(1.04)	(0.96)	(0.85)
industry FE	Yes	Yes	Yes
firm FE	Yes	Yes	Yes
R-squared	0.000238	0.00024	0.000243
N	59876	58966	57968

t statistics in parentheses

* p<0.05, **p<0.01, ***p<0.001

Table 1.10 displays the estimates of regressing federal taxes (scaled by total assets) on an indicator variable if the firm inverted that year and control variables (earnings and sales). Although we see no significant relation between inversion and total taxes, perhaps there is a negative relationship between inverting and federal taxes. In Model 1 inversion is negative but not significant, and in Models 2 and 3 with the inclusion of one and two year lagged inversion dummy variables, there is no statistically significant relation.

Table 1.10

OLS with Federal Tax as Dependent Variable, Includes Firm and Industry Fixed Effects

	(1) fedtax	(2) fedtax	(3) fedtax
inversion	-0.0025	0.9975	1.9975
	(-0.69)	(-0.70)	(-0.71)
earnings	0.000242**	0.000242**	0.000242**
	(3.20)	(3.21)	(3.22)
sales	0.0000189***	0.0000189***	0.0000189***
	(12.22)	(12.23)	(12.24)
L.inversion		-0.00102	0.99898
		(-0.42)	(-0.43)
L2.inversion			-0.000512
			(-0.17)
constant	0.0129***	0.0129***	0.0129***
	(4.91)	(4.92)	(4.93)
industry FE	Yes	Yes	Yes
firm FE	Yes	Yes	Yes
R-squared	0.0428	0.0428	0.0428
N	32543	32543	32543

t statistics in parentheses

* p<0.05, **p<0.01, ***p<0.001

Table 1.11 displays the estimates of regressing foreign taxes (scaled by total assets) on an indicator variable if the firm inverted that year and control variables (earnings and sales). The estimates in Model 1 are statistically significant and positive for inversion, indicating inversion has a positive effect on foreign taxes. One theory for this finding could be that after a firm completes the inversion most firms still have their headquarters, operations, and a large sales base in the United States, and post-inversion this would now be recorded as foreign taxes since the firm's country of incorporation would no longer be the United States. In Model 3, we see that one-year post-inversion still has a positive effect on foreign taxes, but two years after inverting there is no significant effect on foreign taxes.

Table 1.11

OLS with Foreign Tax as Dependent Variable; Includes Firm and Industry Fixed Effects

	(1) fortax	(2) fortax	(3) fortax
inversion	0.00469	0.0047	0.00469
	(2.41)	(2.41)	(2.41)
earnings	0.0000269	0.0000269	0.0000269
	(1.85)	(1.85)	(1.85)
sales	0.00000780***	0.00000780***	0.00000780***
	(12.85)	(12.85)	(12.85)
L.inversion		0.00649	0.00648
		(1.98)	(1.98)
L2.inversion			-0.00233
			(-0.44)
constant	0.00241	0.00241	0.00241
	(1.74)	(1.74)	(1.74)
industry FE	Yes	Yes	Yes
firm FE	Yes	Yes	Yes
R-squared	0.0414	0.0414	0.0414
N	33505	33505	33505

t statistics in parentheses

* p<0.05, **p<0.01, ***p<0.001

Propensity Score Matching

In order to further examine the effects of inversion on the taxes a firm pays, I use propensity score matching and match on several control variables. The intuition is to match each inversion firm with the most similar firm and the only difference being that the match did not complete an inversion. Then we can look at the difference between the variable of interest (total tax, federal tax, foreign tax, earnings, etc.)

Table 1.12 displays the estimates of the difference in total tax and changes in tax (both scaled by total assets) when firms are matched with the single closest propensity score. The propensity scores are estimated using a logit regression and the dependent variable is the inversion indicator and independent variables are firm size (logat), sales,

and profitability (roa). The average treatment effect (with inversion being the treatment) is the coefficient estimate and is estimated using robust standard errors and industry fixed effects. We see that the difference in taxes for the inversion firms compared to their matched sample is positive but not statistically significant. Inversion firms also do not see a significant change in tax compared to the matched firm based on industry, size, profitability and sales.

Table 1.12

Propensity Score Matching; Ex Post Difference in Total Tax and Change in Tax One Year After Completed Inversion

	Variable	Coefficient	Z	P>z	Obs.
Average treatment Effect:	Tax	.0223428	1.17	0.241	54,798
Inversion (1 vs. 0)	Change in tax	.0261819	1.06	0.289	60,265

Note: Average treatment effects, inversion vs. non-inversion matched firm. Matched on industry, logat, sales, and roa

To further examine the effects of inverting, Table 1.13 displays the estimates of difference in earnings, profitability (roa), and cash matching the inversion firms on industry and size (logat). The average treatment effect of inverting does not have a significant effect on earnings, profitability (roa), or cash.

Table 1.13

Propensity Score Matching; Difference in Firm Financial Variables

	Variable	Coefficient	Z	P>z	Obs.
Average treatment Effect:	earnings	.1809757	0.45	0.651	57,400
Inversion (1 vs. 0)	ROA	15.61826	0.46	0.647	58,869
	cash	77.68246	1.74	0.083	44,908

Notes: Average treatment effects, inversion vs. non-inversion matched firm. Matched on industry and logat.

Conclusion

There were 43 U.S. public firms on the NYSE/AMEX/NASDAQ in 15 different industries that reincorporated in another country over the period 1983 to 2015. These changes in legal tax domicile were once simple restructurings which allowed the inverting firm to claim a new tax domicile, but as a result of stricter regulations, firms have become more creative in how to invert and most occur through a merger or acquisition of a foreign based firm and then the U.S. based firm changes the incorporation to the country with a lower corporate tax rate. In the 1990's the tax-free islands of the Caribbean were the standard for inverting firms, but since the American Jobs Act of 2004 the majority of inversion firms are reincorporating in Europe.

Large firms that are less profitable (measured by ROA) are more likely to invert and the inversion target location is more likely to have greater tax freedom and investment freedom. The overall market reaction of the inversion announcement is positive and significant over a seven day (-3, +3) event window and this is driven by more recent inversions (post 2004) to non-tax haven countries (Canada, Australia, and European).

Ex-post, the inverted firms show no significant change in taxes compared to a matched sample when controlling for industry, size, sales, and profitability.

These results call for future research to examine the effects of inversion on shareholder value and studying the target firms in the inversion merger/acquisitions both pre- and post- inversion. Are these firms good candidates for the acquirer or are they simply a loophole to get around the tax code and achieve a lower tax domicile? Initial evidence suggests that these acquisitions may be value creating given the positive market reaction for the announcing firm post 2004.

CHAPTER 2

DETERMINANTS OF FOR-PROFIT MICROFINANCE INSTITUTIONS AND FINANCIAL AND SOCIAL PERFORMANCE

"There are two kinds of businesses in the world. One is a business which makes money, and the other solves the problems of the world."

--Muhammad Yunus, Founder of Grameen Bank, Nobel Peace Prize 2006

Introduction

Microfinance has evolved and changed since the early years in the 1980's when Dr. Muhammad Yunus founded the Grameen Bank in Bangladesh and set out to provide loans to the poor who often don't have access to capital. One of the major changes in microfinance is the growth in for-profit institutions which not only provide access to finance to the poor but do so with the aim of distributing profits to shareholders. Other changes in the industry of Microfinance Institutions (MFIs) include rapid growth in the number of active MFIs, a broader range of financial services offered, an increase in business volume, and changes in the types of MFIs (Roberts, 2013). The growth of for-profit MFIs and commercial banks breaking into this sector began debates about whether it is possible to effectively blend nonprofit ideals (namely social outreach and performance) and for-profit orientations and practices; i.e. financial performance and sustainability (Morduch, 2000).

The other side argues that the non-profit sector of MFIs perhaps has purer motives, but is less efficient, smaller, and unable to reach the demand for credit among the world's poor. As a result, we have seen for-profit MFIs, some of which are even publicly traded companies (i.e. Elektra, SKS Microfinance, Compartamos Banco), continue to grow in number and size. Vikram Akula, the founder of SKS Microfinance in India (renamed Bharat Financial Inclusion), claimed to grow three times as fast as Grameen Bank and argues that there is a place for both non-profit and for-profit MFIs and more than one approach is needed to reach the three billion people in poverty lacking access to finance (Bahree, 2010).

The goal of this paper is exploratory in nature and seeks to study the evolution of the international microfinance industry, specifically the differences in for-profit and non-profit institutions. Is there a place for profit seeking firms in the business of providing the poor access to loans and other financial services? Can these firms sustainably operate while also fulfilling the mission for whom non-profit microfinance institutions were originally created? Which types of firms are more successful, both financially and socially and what are the determinants of this success? Do country specific formal institutions, cultural dimensions, and development play a role in the performance (financially and socially) and likelihood of MFIs being for-profit institutions? And what similarities and differences do we see among the different types of profit structures of MFIs?

Data

Data was collected from the MIX Market (Microfinance Information Exchange) database to analyze MFIs between 1999 and 2016. MIX collects financial, operational, and social performance data from MFIs around the world and participation in the MIX database is voluntary. The sample is limited to those institutions which are classified as either non-profit or for-profit; this includes 2,477 institutions (17,616 institution-years) and represents MFIs from 120 countries and six geographic regions (the United States is not included).

Table 2.1 shows the number of MFIs by geographic region and we see that Africa and Latin America and The Caribbean make up nearly half of the total MFIs. Eastern Europe and Central Asia consists of about 19% of the sample while South Asia is about 17%. East Asia and the Pacific are home to about 12% of MFIs in the sample and the Middle East and North Africa contains less than 3% of total MFIs.

Table 2.1

The Number of Microfinance Institutions (MFIs) by Geographic Region

Region	# of MFIs	Percent	Cum. %
Africa	636	25.68	25.68
East Asia and the Pacific	301	12.15	37.83
Eastern Europe and Central Asia	470	18.97	56.8
Latin America and The Caribbean	586	23.66	80.46
Middle East and North Africa	69	2.79	83.25
South Asia	415	16.75	100
Total	2,477	100	

Table 2.2 displays the countries and the respective number of non-profit, for-profit, and total MFIs which reported data for at least one year during the sample period.

We see that the proportion of non-profit to for-profit MFIs throughout the sample is almost equal with 1,364 non-profit (55.07%) and 1,113 for-profit (44.93%) MFIs. The total number of countries represented as having at least one MFI, either for-profit or non-profit, is 120.

Table 2.2

The Number of Individual MFIs Per Country by Profit Status (Non-Profit and For-Profit)

	Profit Status		
Country	**Non-profit**	**Profit**	**Total**
Afghanistan	15	2	17
Albania	1	6	7
Angola	0	2	2
Argentina	11	7	18
Armenia	3	13	16
Azerbaijan	12	26	38
Bangladesh	77	2	79
Belarus	0	2	2
Belize	1	0	1
Benin	33	2	35
Bolivia	18	9	27
Bosnia and Herzegov..	11	5	16
Brazil	37	9	46
Bulgaria	23	2	25
Burkina Faso	18	3	21
Burundi	11	8	19
Cambodia	1	19	20
Cameroon	16	11	27
Central African Rep..	2	0	2
Chad	3	1	4
Chile	4	3	7
China, People's Rep..	38	10	48
Colombia	30	15	45
Comoros	3	0	3
Congo, Democratic R..	17	8	25
Congo, Republic of ..	3	1	4
Costa Rica	17	1	18

Table 2.2 (Continued)

Cote d'Ivoire (Ivor..	24	7	31
Croatia	2	0	2
Dominican Republic	10	7	17
East Timor	2	1	3
Ecuador	65	6	71
Egypt	15	0	15
El Salvador	12	8	20
Ethiopia	4	19	23
Gabon	0	1	1
Gambia, The	0	2	2
Georgia	7	14	21
Ghana	20	51	71
Grenada	0	1	1
Guatemala	25	2	27
Guinea	4	4	8
Guinea-Bissau	4	0	4
Guyana	1	0	1
Haiti	5	3	8
Honduras	17	11	28
Hungary	0	1	1
India	104	108	212
Indonesia	21	45	66
Iraq	12	0	12
Jamaica	3	2	5
Jordan	7	1	8
Kazakhstan	1	39	40
Kenya	15	22	37
Kosovo	8	4	12
Kyrgyzstan	22	17	39
Laos	2	23	25
Lebanon	3	2	5
Liberia	1	2	3
Macedonia	3	1	4
Madagascar	10	5	15
Malawi	7	2	9
Malaysia	1	0	1
Mali	18	2	20
Mexico	11	101	112
Moldova	0	10	10
Mongolia	2	12	14
Montenegro	0	3	3

Table 2.2 (Continued)

Morocco	10	0	10
Mozambique	6	4	10
Myanmar (Burma)	2	5	7
Namibia	1	1	2
Nepal	24	20	44
Nicaragua	25	12	37
Niger	12	2	14
Nigeria	5	74	79
Pakistan	26	15	41
Palestine	3	4	7
Panama	2	4	6
Papua New Guinea	2	5	7
Paraguay	3	4	7
Peru	45	28	73
Philippines	44	54	98
Poland	2	2	4
Romania	2	5	7
Russia	93	23	116
Rwanda	2	10	12
Saint Lucia	0	1	1
Samoa	0	1	1
Senegal	26	8	34
Serbia	1	3	4
Sierra Leone	6	7	13
Slovakia	1	0	1
Solomon Islands	0	1	1
South Africa	10	5	15
Sri Lanka	8	14	22
Sudan	1	1	2
Suriname	0	3	3
Swaziland	0	1	1
Syria	3	0	3
Tajikistan	17	31	48
Tanzania	11	6	17
Thailand	1	2	3
Togo	30	0	30
Tonga	1	0	1
Trinidad and Tobago	2	1	3
Tunisia	1	0	1
Turkey	2	0	2
Uganda	12	14	26

Table 2.2 (Continued)

Ukraine	2	1	3
Uruguay	1	1	2
Uzbekistan	14	21	35
Venezuela	0	2	2
Vietnam	20	0	20
Yemen	6	2	8
Zambia	4	5	9
Zimbabwe	2	4	6
Total	1,364	1,113	2,477

Table 2.3 presents the top 15 countries with the most MFIs; total MFIs in panel A, non-profits in panel B, and for-profits in panel C. In panel A, we see that the top five nations (India, Russia, Mexico, the Philippines, and Bangladesh) make up nearly a quarter of the MFIs in the total sample with 24.91%; and India clearly has the largest proportion of individual MFIs overall with 212 making up about 9% of the sample. It is also notable that the top 15 nations in Panel A include nearly half of the total MFIs in the sample from 120 different nations. Panels B and C divide the sample into subsamples based on profit status and show that India is also the leader in non-profit and for-profit MFIs making up 7.62% and 9.7% respectively; and India is also rather evenly distributed between non-profit and for-profit MFIs with 104 and 108 respectively. This even distribution is not the case for the other top countries as Russia has four times as many non-profits (93 to 23 for-profit) and Mexico's MFIs are almost entirely for-profit (101 to 11 non-profit). One of Mexico's most famous MFIs is Compartamos which began in 1990 as a nonprofit organization supported by aid from international donors and aimed to alleviate poverty by providing microcredit to small businesses.

Table 2.3

Top 15 Nations in Terms of Total (Panel A), Non-Profit (Panel B), and For-Profit (Panel C) MFIs

Panel A

All MFIs by top 15 countries

Country	**Freq.**	**Percent**	**Cum.**
India	212	8.56	8.56
Russia	116	4.68	13.24
Mexico	112	4.52	17.76
Philippines	98	3.96	21.72
Bangladesh	79	3.19	24.91
Nigeria	79	3.19	28.1
Peru	73	2.95	31.05
Ecuador	71	2.87	33.91
Ghana	71	2.87	36.78
Indonesia	66	2.66	39.44
China	48	1.94	41.38
Tajikistan	48	1.94	43.32
Brazil	46	1.86	45.18
Colombia	45	1.82	46.99
Nepal	44	1.78	48.77

Panel B

Non-Profit MFIs by Country

	Freq.	Percent	Cum.
India	104	7.62	7.62
Russia	93	6.82	14.44
Bangladesh	77	5.65	20.09
Ecuador	65	4.77	24.85
Peru	45	3.3	28.15
Philippines	44	3.23	31.38
China	38	2.79	34.16
Brazil	37	2.71	36.88
Benin	33	2.42	39.3
Colombia	30	2.2	41.5
Togo	30	2.2	43.7
Pakistan	26	1.91	45.6
Senegal	26	1.91	47.51
Guatemala	25	1.83	49.34
Nicaragua	25	1.83	51.17

Panel C

For-Profit MFIs by Country	Freq.	Percent	Cum.
India	108	9.7	9.7
Mexico	101	9.07	18.78
Nigeria	74	6.65	25.43
Philippines	54	4.85	30.28
Ghana	51	4.58	34.86
Indonesia	45	4.04	38.9
Kazakhstan	39	3.5	42.41
Tajikistan	31	2.79	45.19
Peru	28	2.52	47.71
Azerbaijan	26	2.34	50.04
Laos	23	2.07	52.11
Russia	23	2.07	54.18
Kenya	22	1.98	56.15
Uzbekistan	21	1.89	58.04
Nepal	20	1.8	59.84

Today Compartamos is one of the largest MFIs in Central and South America and through its growth and strong profits (criticized by some as due to exceedingly high interest rates) the firm issued an IPO in the spring of 2007 and is traded as Gentera on the Mexico Stock Exchange (market cap about $1.67 billion USD).

On the other end of the spectrum, Bangladesh only has two for-profit MFIs out of the 79 total, perhaps not surprising since this is the birthplace of Grameen Bank which was started by Dr. Muhammad Yunus (awarded the Nobel Peace Prize and considered the father of microfinance). Yunus is adamantly against for-profit firms participating in this business, even stating, “You could build a microfinance program, either as a profit-maximizing company or as a social business company. It's up to you to choose.” Ecuador also seems

to be skewed toward the non-profit with 65 of its 71 MFIs claiming a non-profit status. Nigeria and Ghana on the other hand are mainly for-profit MFIs with 94% and 72% respectively.

It is important to note that a non-profit MFI may in fact be financially profitable. The difference between a for-profit and a non-profit firm lies in the ownership of the company and how profits are distributed. A for-profit firm may choose to distribute a portion of the profits back to shareholders or to invest back into the company. A non-profit firm will not have outside shareholders or investors expecting a return on their investment therefore a strong focus on profitability may not exist as one would expect within a for-profit institution. The earnings of a non-profit would then be reinvested back into the corporation to pursue the firm's social mission. The goal of a for-profit institution should be to maximize shareholder value, whether that is private investors or owners of the stock (if the firm is a public company). Table 2.4, subdivides the sample of non-profit and for-profit MFIs into six different legal statuses; i.e. Banks; Credit Unions/Cooperatives; Non-Banking Financial Institution (NBFI); Non-Governmental Organization (NGO); Other; and Rural Banks. Not surprisingly banks and rural banks are mainly for-profit institutions; and these make up about 15% of the sample. Credit Unions/Cooperatives and NGO's are largely non-profit and comprise about half of the sample while Non-banking Financial Institutions are typically for-profit and represent about 32% of the sample.

Table 2.4

MFI Current Legal Status by Profit Status

Current Legal Status	Profit Status		Total
	Non-Profit	Profit	
Bank	6	228	234
Credit Union / Coop	469	45	514
NBFI	121	662	783
NGO	725	14	739
Other	20	15	35
Rural Bank	17	131	148
Total	1,358	1,095	2,453

Data was also collected from the World Bank's Country Policy and Institutional Assessment (CPIA) which includes annual data for 95 countries from 2005-2017. This database is an index of ratings from 1-6 (1=low, 6=high) for different sectors of the country's economy. These variables include: building human resources; business regulatory environment; equity of public resource use; financial sector; property rights and rule based governance; social protection and labor market; and transparency, accountability, and corruption in the public sector.

In order to study the cultural effects on microfinance, data was also collected from Hofstede's cultural dimensions; which includes six different indices (power distance, individualism, masculinity, uncertainty avoidance, long term vs short term orientation, and indulgence vs restraint) with scores ranging from 0-100 (low to high) for 109 different countries. MIX data was merged with World Bank CPIA data and Hofstede's cultural dimensions matched by country and year.

Analysis

Table 2.5 presents summary statistics for all MFIs (panel A), only for-profit MFIs (panel B), and only non-profit MFIs (panel C). From panel A we see that overall MFIs have about $5.17 million in assets at the median and a wide range in size from $195,379 to $249 million for the 5th and 95th percentile respectively. Administrative expenses are about 8% of total assets at the mean and the average salary at the MFI is nearly double the Gross National Income per capita at the 25th percentile and 4.5 times larger at the mean. The average loan per borrower scaled by GNI is a measure of depth of the institution and is about 80% at the mean. The average number of borrowers per loan officer is 322 and the mean (median) number of loans per officer is 1195 (250.6). The average borrower retention rate is 77% and the mean (median) number of active borrowers, a proxy for outreach, is roughly 77,000 (8,698). The mean (median) board size is 12.4 (7) and loans outstanding are 100,319 (11,006). The average loan portfolio is about 50 million and the median is about $4.36 million. The mean (median) number of new borrowers is 865,185 (4508) and the mean (median) number of start-ups financed is 11,711 (159). The mean (median) percentage of the board that is female is 31% (27%) and the percentage of female borrowers at the mean and median is about 65%. The average profit margin is 4.59 however the median is only 0.1032; and mean (median) return on assets (roa) is 0.006 (0.0198). The average staff turnover rate is about 22% and as high as 67% at the 95th percentile. Average tax expense is $421,998 but is zero for the fifth, 25th and 50th percentile indicating many of these institutions pay no taxes. The real yield at the mean (median) is 24.7 % (20.48%) and the mean (median) effective interest

[calculated as (total interest income on loan portfolio + income from penalty fees)/average gross loan portfolio] is 30.4% (25.5%).

Table 2.5

Summary Statistics; All MFIs (Panel A), For-Profit MFIs (Panel B), For-Profit MFIs (Panel C)

Panel A: All MFIs

variable	mean	p5	p25	p50	p75	p95
adminexp_asset	0.082034	0.0158	0.0375	0.0605	0.0993	0.2137
assets	4.77E+11	195379.7	1334125	5173398	2.33E+07	2.49E+08
avgloanperborrowGNI	0.814923	0.04	0.1262	0.2962	0.7062	2.5252
AveragesalaryGNIpercapita	4.567483	0.81	1.86	2.93	5.26	13.95
borrower_officer	322.6839	61	150.6667	240.1429	360.3079	750.2927
borrower_retention	0.770445	0.4687	0.6711	0.769	0.8573	1
revenue_assets	0.270294	0.0981	0.1722	0.2348	0.3305	0.553
loan_port_gross	4.36E+11	118442.3	920618	3754264	1.70E+07	1.89E+08
int_loan_port	1.02E+11	45591.11	362544.9	1327789	5756596	4.64E+07
loans_officer	1195.357	65.6	155.7941	250.625	379.7857	823.625
active_borrow	76643.23	229	2197	8698	31668	226870
board	12.37396	3	5	7	8	15
loans_out	100319.6	352	2928	11006	41489	299489
avg_loan_port	5.00E+07	169562.7	1127320	4356311	1.88E+07	2.02E+08
new_borrow	865185	44	895	4508	18933	145044
start_ups_fin	11711.72	0	3	159	3024	41076
sufficient	1.163914	0.4892	0.9883	1.1149	1.2865	1.7904
rev_loans	1.12E+11	55766.51	412972.6	1522020	6369522	5.08E+07
board_female	0.31338	0	0.1429	0.2727	0.4286	0.8571
borrow_female	0.650847	0.1977	0.439	0.6477	0.9277	1
profit_margin	4.585595	-1	-0.0094	0.1032	0.2226	0.4416
roa	0.006124	-0.1642	-0.0007	0.0198	0.0495	0.1222
staff_turnover	0.220279	0	0.0746	0.1615	0.286	0.6705
tax	421997.9	0	0	0	51962.11	1370092
yield_real	0.247182	0.0369	0.1297	0.2048	0.3201	0.6092
effective_int	0.303958	0.112525	0.189958	0.255163	0.366751	0.663421

(Table 2.5 Continued)

Panel B: For-Profit MFIs

variable	mean	p5	p25	p50	p75	p95
adminexp_asset	0.085243	0.0171	0.0395	0.0647	0.1065	0.2225
assets	1.09E+12	245370.1	2228928	9527360	4.31E+07	4.46E+08
avgloanperborrowGNI	1.064613	0.0329	0.14	0.3865	0.8662	3.4733
AveragesalaryGNIpercapita	5.054558	0.88	1.94	3.25	6.115	15.25
borrower_officer	303.0687	52.875	126.1163	220.3043	353.081	751.4693
borrower_retention	0.77128	0.4664	0.6716	0.7665	0.8548	1
revenue_assets	0.287029	0.1064	0.1832	0.2473	0.3486	0.6147
loan_port_gross	9.96E+11	151133.6	1440185	6697661	3.14E+07	3.38E+08
int_loan_port	2.24E+11	52822.31	563411.8	2334826	9979812	8.12E+07
loans_officer	502.2887	56.33825	131.0695	229.9304	372.9479	856.2387
active_borrow	97167.83	209	2738	12066	44387	330597
board	6.481431	2	5	6	8	12
loans_out	113061.8	347	3796	15357	56351	419052
avg_loan_port	7.78E+07	218985	1841729	7629051	3.40E+07	3.53E+08
new_borrow	51981.72	22	1046.5	6310.5	29244.5	223015
start_ups_fin	18315.14	0	2	73.5	1787.5	40582
sufficient	1.163286	0.5298	1.008	1.1223	1.2831	1.7424
rev_loans	2.46E+11	68390.59	648513.5	2669590	1.10E+07	8.73E+07
board_female	0.256033	0	0.1111	0.2	0.375	0.7143
borrow_female	0.620091	0.1704	0.4162	0.6	0.8765	1
profit_margin	10.63303	-0.8549	0.0082	0.1088	0.22	0.4252
roa	0.01171	-0.1404	0.0017	0.02	0.0457	0.1246
staff_turnover	0.264512	0	0.1007	0.19745	0.3558	0.772
tax	824232.8	-3126.39	0	21765.86	242855	2992617
yield_real	0.271166	0.0411	0.13355	0.2197	0.3454	0.7191
effective_int	0.331809	0.119271	0.199172	0.272706	0.39701	0.767256

(Table 2.5 Continued)

Panel C: Non-Profit MFIs

variable	mean	p5	p25	p50	p75	p95
adminexp_asset	0.079407	0.0147	0.0358	0.0571	0.0943	0.2047
assets	3.32E+07	163854.4	1012559	3365702	1.34E+07	1.12E+08
avgloanperborrowGNI	0.623162	0.0465	0.1161	0.2456	0.5869	1.8973
AveragesalaryGNIpercapita	4.180039	0.74	1.81	2.77	4.55	13.04
borrower_officer	338.3135	72.8475	170.8182	251.1613	365.7527	750
borrower_retention	0.769746	0.4732	0.6704	0.7731	0.8595	1
revenue_assets	0.2573	0.09305	0.16605	0.2247	0.3173	0.5049
loan_port_gross	2.67E+07	102258.1	704096.3	2502414	9949773	8.27E+07
int_loan_port	5897564	41238.97	261619.1	876628.8	3323971	2.18E+07
loans_officer	1744.19	77.8889	176.2	262.7647	382.7619	787.3333
active_borrow	60873.39	245	1942	6724.5	22604	147722
board	16.87224	3	5	7	9	17
loans_out	89838.03	355	2501	8484	29979	193850
avg_loan_port	2.84E+07	142064.5	839199.9	2845184	1.10E+07	8.83E+07
new_borrow	1564418	64	800	3387	12448	77973
start_ups_fin	7351.695	0	5	320	3496	41076
sufficient	1.164399	0.4657	0.9657	1.108	1.2889	1.8258
rev_loans	6346352	50400.83	301891.9	995242.8	3641035	2.36E+07
board_female	0.355254	0	0.1667	0.3	0.5	1
borrow_female	0.672934	0.2151	0.4542	0.681	0.9531	1
profit_margin	-0.08543	-1.0791	-0.0316	0.0982	0.2245	0.4548
roa	0.001781	-0.1837	-0.0038	0.0196	0.0524	0.1206
staff_turnover	0.180663	0	0.0571	0.1347	0.2353	0.504
tax	94640.82	0	0	0	1449	269004.1
yield_real	0.227427	0.0344	0.1278	0.1935	0.303	0.5113
effective_int	0.281058	0.108625	0.18357	0.244607	0.343661	0.567885

When we calculate the summary statistics individually for only for-profit MFIs (panel B) and non-profit MFIs (Panel C) several differences stand out. Specifically, for-profit MFIs appear to be larger, have more administrative expenses, greater depth, pay higher salaries, have a larger loan portfolio and make more from interest from the loan portfolio, have greater outreach, finance more start-ups, are more profitable, have a higher staff turnover rate, pay more tax, and charge higher interest rates. Non-profit

MFIs seem to be busier (borrowers per officer and loans per loan officer), have a bigger board with more females on the board, have more new borrowers, and a larger percentage of borrowers are female. The borrower retention rate and level of MFI sufficiency are about the same for both groups at 77% and 1.16 respectively.

In order to more formally test these differences between for-profit and non-profit MFIs I perform t-tests for a difference in means for all variables in Table 2.5. The results (difference of non-profit – for-profit) and t-stats are presented in Table 2.6. A negative difference in means indicates a larger average for for-profit MFIs and a positive difference indicates a larger average for non-profit MFIs. Almost all variables are larger for the for-profit MFIs with the exceptions being: borrowers per loan officer, board size, percentage of female borrowers, and percentage of females on the board, all of which are positive and statistically significant for non-profit MFIs. Administrative expenses, depth, salary, size (*revenue_assets*), outreach (*active_borrow*), loan portfolio, roa, turnover, tax, and both measures of interest (*yield_real* and *effective_int*) are larger on average for the for-profit MFIs and are statistically significant. The differences in assets, borrower retention, gross loan portfolio, interest from loan portfolio, number of loans per loan officer, loans outstanding, number of new borrowers, start-ups financed, MFI sufficiency, revenue from loans, and profit margin are not statistically significant.

Table 2.6

T-Tests for Difference in Variable (Mean) for Non-Profit and For-Profit MFIs

	T-tests difference in means non-profit(mean) - For-profit(mean)	
Variable	difference in means	t-stat
adminexp_asset	-0.00584**	-2.73
assets	-1.09E+12	-1.14
avgloanperborrowGNI	-0.441***	-4.79
AveragesalaryGNIpercapita	-0.875***	-7.78
borrower_officer	35.24*	2.42
borrower_retention	-0.00153	-0.12
revenue_assets	-0.0297***	-9.06
loan_port_gross	-9.96E+11	-1.13
int_loan_port	-2.24E+11	-1.09
loans_officer	1241.9	1.12
active_borrow	-36294.4***	-5.29
board	10.39***	4.49
loans_out	-23223.8	-1.63
avg_loan_port	-49416656.4***	-10.08
new_borrow	1512436.4	1.29
start_ups_fin	-10963.4	-1.12
sufficient	0.00111	0.07
rev_loans	-2.46E+11	-1.09
board_female	0.0992***	13.46
borrow_female	0.0528***	10.79
profit_margin	-10.72	-1.14
roa	-0.00993***	-3.84
staff_turnover	-0.0838***	-12.88
tax	-729592.0***	-13.47
yield_real	-0.0437***	-12.42
effective_int	-0.0508***	-14.95
N	16164	
t statistics in parentheses		
* p<0.05, ** p<0.01, *** p<0.001		

This provides initial support that for-profit MFIs seem to be more profitable (measured by roa), have greater depth and outreach, have more administrative expenses and pay larger salaries than non-profit MFIs. It also appears that for-profit MFIs have more staff turnover, pay more in taxes, and charge higher rates than non-profit MFIs.

As discussed previously in Tables 2.2 and 2.3, we see many countries that tend to have either a majority of for-profit MFIs or non-profit MFIs; for example, Mexico and Bangladesh. In order to further study this difference Table 2.7 displays the results of a logit regression with the dependent variable being a 0/1 dummy variable indicating if the MFI is for-profit and the only independent variable included is an indicator variable specifying the country for each MFI.

The results of this estimation are only useful to study the sign and significance for the respective country's coefficient; thus a positive and significant result indicates the country tends to have for-profit MFIs (e.g. Albania, Bolivia, Peru, and Ukraine) while a negative and significant result indicates the country's propensity to have non-profit MFIs (e.g. Bangladesh, Costa Rica, and Guatemala). The countries with more for-profit MFIs do not seem to be due to geographic location as we see wide dispersion throughout multiple continents and not all countries within each continent or region are of the same profit status. Therefore, what characteristics about certain countries tend to be more attractive homes for for-profit MFIs?

In order to study this research question I collected data on measures of formal institutions at the country level from World Bank. The first set of formal institutions that I use is the Country Policy and Institutional Assessment (CPIA) from the World Bank which includes annual data for 95 economies from 2005-2017.

Table 2.7

Country Effects on For-Profit MFIs

	For-profit		For-profit		For-profit		For-profit		For-profit		For-profit	
Afghanistan	0	Chad	-1.220	Honduras	1.453***	Montenegro	0	Serbia	2.867***	Vietnam	0
	(.)		(-1.15)		(5.18)		(.)		(7.11)		(.)
Albania	3.233***	Chile	2.092***	Hungary	0	Morocco	0	Sierra Leone	1.788***	Zambia	2.482***
	(8.20)		(5.56)		(.)		(.)		(4.76)		(6.35)
Angola	0	Colombia	0.738**	India	1.935***	Mozambique	1.327***	Solomon Islands	0	Zimbabwe	3.280***
	(.)		(2.65)		(7.54)		(4.07)		(.)		(5.45)
Argentina	1.365***	Comoros	0	Indonesia	2.144***	Namibia	0.690	South Africa	1.088**	Constant	-1.671***
	(4.46)		(.)		(7.74)		(0.96)		(3.05)		(-6.68)
Armenia	2.847***	Costa Rica	-1.561**	Iraq	0	Nepal	1.689***	Sri Lanka	2.070***	Observations	13694
	(8.91)		(-3.22)		(.)		(6.19)		(6.87)	Pseudo R-squared	0.214
Azerbaijan	1.967***	Croatia	0	Jamaica	2.652***	Nicaragua	1.346***	Sudan	0.754	t statistics in parentheses	
	(7.05)		(.)		(4.91)		(4.95)		(1.17)	* p<0.05, ** p<0.01, *** p<0.001	
Bangladesh	-1.909***	Dominican Republic	1.546***	Jordan	-0.251	Niger	0.204	Suriname	0		
	(-5.36)		(5.04)		(-0.63)		(0.54)		(.)		
Belarus	0	Ecuador	-0.0295	Kazakhstan	4.342***	Nigeria	3.087***	Tajikistan	2.112***		
	(.)		(-0.11)		(11.41)		(10.13)		(7.64)		
Belize	0	El Salvador	1.694***	Kenya	2.109***	Pakistan	1.263***	Tanzania	0.624		
	(.)		(5.79)		(7.41)		(4.62)		(1.94)		
Benin	-1.795***	Ethiopia	2.973***	Kosovo	0.677*	Panama	1.845***	Thailand	4.156***		
	(-3.71)		(9.40)		(2.06)		(4.76)		(3.88)		
Bolivia	1.111***	Gabon	0	Lebanon	1.208**	Papua New Guinea	2.923***	Togo	0		
	(4.04)		(.)		(3.04)		(6.69)		(.)		
Bosnia and Herzegovina	0.647*	Gambia	0	Liberia	3.375***	Paraguay	2.524***	Tonga	0		
	(2.17)		(.)		(4.18)		(7.15)		(.)		
Brazil	0.233	Georgia	2.211***	Madagascar	0.978**	Peru	1.190***	Trinidad and Tobago	1.488*		
	(0.78)		(7.27)		(3.17)		(4.55)		(2.27)		
Bulgaria	-0.167	Ghana	2.167***	Malawi	0.531	Philippines	1.719***	Tunisia	0		
	(-0.51)		(7.79)		(1.39)		(6.58)		(.)		
Burkina Faso	0.783*	Guatemala	-1.768***	Malaysia	0	Poland	2.045***	Turkey	0		
	(2.33)		(-3.86)		(.)		(4.40)		(.)		
Burundi	1.256***	Guinea	1.916***	Mali	-1.266**	Romania	2.841***	Uganda	2.322***		
	(3.79)		(4.77)		(-2.74)		(7.72)		(7.85)		
Cambodia	5.197***	Guinea-Bissau	0	Mexico	4.087***	Rwanda	2.384***	Ukraine	1.211**		
	(11.35)		(.)		(14.18)		(6.75)		(2.72)		
Cameroon	1.788***	Guyana	0	Moldova	0	Samoa	0	Uruguay	2.364**		
	(6.00)		(.)		(.)		(.)		(3.15)		
Central African Republic	0	Haiti	1.480***	Mongolia	3.517***	Senegal	-0.256	Uzbekistan	2.309***		
	(.)		(4.45)		(8.82)		(-0.77)		(7.49)		

This data includes ratings of 1-6 (1=low, 6=high) for the following sectors of the country's economic sector: building human resources (*human_resources*); business regulatory environment (*business_regulatory*); equity of public resource use (*public_resource*); financial sector (*financial_sector*); property rights and rule-based governance (*property_rights*); social protection and labor market (*social_protection*); and transparency, accountability, and corruption in the public sector (*transparency_accountability*). This index attempts to measure the framework and development of the government, legal system, protection and regulations within a country's economy and I use these to proxy for formal institutions.

Table 2.8 shows the logit regression estimates with the dependent variable as an indicator variable equal to one if the MFI is a for-profit institution and the independent variables are the CPIA measures of formal institutions, control variables, and year fixed effects for all models. The results suggest in models 1-6 that each of the formal institution measures is positive and significant in the likelihood of the MFI being a for-profit institution. The only measure that is not significant is the transparency and accountability rating. Overall these results suggest that more developed countries in terms of formal institutions tend to have more for-profit MFIs.

Table 2.8

Formal Institution Measures and Determinants of Being a For-Profit MFI

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	for-profit	for-profit	for-profit	for-profit	for-profit	for-profit	for-profit
debt_equity	-0.000147	-0.000121	-0.000138	-0.000141	-0.000125	-0.000130	-0.000122
	(-0.64)	(-0.60)	(-0.64)	(-0.65)	(-0.61)	(-0.61)	(-0.60)
assets	4.69e-10***	5.40e-10***	5.13e-10***	5.31e-10***	5.24e-10***	4.83e-10**	5.19e-10***
	(3.31)	(3.66)	(3.47)	(3.70)	(3.59)	(3.43)	(3.60)
borrow_female	-1.189***	-0.949***	-1.077***	-1.069***	-1.040***	-0.986***	-0.983***
	(-10.62)	(-8.98)	(-10.03)	(-9.93)	(-9.49)	(-9.28)	(-9.13)
human_resources	0.449***						
	(6.46)						
business_regulatory		0.265***					
		(4.55)					
public_resource			0.468***				
			(7.29)				
financial_sector				0.335***			
				(5.86)			
property_rights					0.163**		
					(2.66)		
social_protection						0.231**	
						(3.13)	
transparency_accountability							0.0508
							(0.92)
_cons	-1.275***	-0.730**	-1.404***	-0.837***	-0.235	-0.541*	0.0708
	(-4.95)	(-3.09)	(-5.61)	(-3.93)	(-1.16)	(-2.00)	(0.38)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	5035	5035	5035	5035	5035	4965	5035
pseudo R-sq	0.025	0.022	0.027	0.024	0.020	0.020	0.019

t statistics in parentheses
* p<0.05, ** p<0.01, *** p<0.001

Along with formal institutions, informal cultural characteristics within countries such as power distance, masculinity, and individualism may play a role in for-profit MFIs being more concentrated in certain countries. In order to study this, I include Hofstede's six dimensions of national cultural (power distance, individualism, masculinity, uncertainty avoidance, long term orientation, and indulgence vs restraint) in the logit regression in Table 2.9. The power distance index expresses the degree to which societies accept that power is distributed unequally and in cultures with a high degree of power distance we would expect a hierarchical order of status and place.

Table 2.9

Hofstede's Cross Cultural Dimensions and For-Profit MFIs

	(1)	(2)	(3)	(4)	(5)	(6)
	for-profit	for-profit	for-profit	for-profit	for-profit	for-profit
debt_equity	-0.0000801	-0.000352	-0.0000993	-0.000106	-0.0000934	-0.0000815
	(-0.46)	(-0.95)	(-0.51)	(-0.54)	(-0.50)	(-0.45)
assets	4.16e-10***	4.88e-10***	4.43e-10***	3.91e-10***	1.78e-10	1.68e-10
	(3.61)	(4.08)	(4.04)	(3.31)	(1.76)	(1.66)
borrow_female	-0.424***	-1.155***	-0.627***	-0.496***	-1.069***	-1.117***
	(-4.05)	(-10.09)	(-5.87)	(-4.43)	(-11.66)	(-11.94)
power distance	0.0174***					
	(7.28)					
idividualism		0.0471***				
		(21.54)				
masculinity			0.0505***			
			(17.40)			
uncertainty avoidance				-0.00820***		
				(-5.29)		
long term orientation					-0.00543***	
					(-3.65)	
indulgence vs restraint						0.0170***
						(16.87)
_cons	-1.471***	-0.946*	-2.828***	0.406	0.700*	-0.174
	(-3.73)	(-2.52)	(-7.12)	(1.05)	(2.25)	(-0.55)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	5834	5834	5834	5834	6399	6431
pseudo R-sq	0.021	0.080	0.058	0.018	0.033	0.063

t statistics in parentheses
* p<0.05, ** p<0.01, *** p<0.001

Individualism can be defined as a focus on self and the immediate family, compared with the other end of the spectrum, collectivism, in which the self-image would be more connected to a group or relatives. A culture with a high degree of masculinity would be more focused on achievement and success with a high degree of competition. Uncertainty avoidance refers to the attitude toward the future and unknown; high degrees of uncertainty avoidance uphold strict belief and behavior while societies with lower degrees will have a more comfortable approach to change and the future. Cultures with

high levels of long term orientation will encourage education and other efforts to prepare for the future while lower scores would indicate a preference for traditions and norms and hesitant to change. Indulgent societies are after gratification of natural human drives of enjoying life and pursuing fun, while restraint focuses on regulation and strict social norms.

These results suggest that countries with higher scores in power distance, individualism, masculinity, and indulgence tend to have more for-profit MFIs while countries with lower uncertainty avoidance and long term orientation tend to have more for-profit MFIs. This makes intuitive sense as we would expect more competition and inequality to favor for-profit business structures as well as a stronger focus on the individual compared to the group.

This has helped to shed light on the determinants of for-profit MFIs in terms of formal institutions (Country Policy and Institutional Assessment measures from the World Bank) and the informal cultural dimensions (Hofstede's cross cultural dimensions). The next section attempts to investigate the effect of formal institutions and cultural dimensions on financial and social performance.

Financial performance, measured as return on assets (roa), is the dependent variable in Table 2.10 and is regressed against a dummy variable equal to one if the MFI is a for-profit institution, control variables (debt to equity, assets, and percentage of female borrowers) and Hofstede's cultural dimensions. All models include year fixed effects and robust standard errors.

Table 2.10

Hofstede's Cultural Determinants of MFI Financial Performance

	(1)	(2)	(3)	(4)	(5)	(6)
	roa	roa	roa	roa	roa	roa
for_profit	-0.00480	0.00410	-0.00336	-0.00284	0.00229	0.00187
	(-1.32)	(1.08)	(-0.89)	(-0.78)	(0.59)	(0.47)
debt_equity	-0.00000130	-0.000000360	-0.00000136	-0.00000162	-0.000000986	-0.000000787
	(-0.22)	(-0.06)	(-0.23)	(-0.27)	(-0.15)	(-0.12)
assets	1.10e-11	8.63e-12	1.03e-11	9.36e-12	1.14e-11	1.16e-11
	(1.87)	(1.46)	(1.74)	(1.58)	(1.73)	(1.75)
borrow_female	-0.00699	0.0202**	0.00410	-0.00147	0.00166	0.000199
	(-1.03)	(2.85)	(0.60)	(-0.20)	(0.25)	(0.03)
power distance	0.00116***					
	(7.83)					
individualism		-0.000752***				
		(-5.54)				
masculinity			0.000220			
			(1.30)			
uncertainty avoidance				-0.000230*		
				(-2.30)		
long term orientation					0.0000740	
					(0.66)	
indulgence vs restraint						0.0000125
						(0.17)
_cons	-0.0741**	0.00797	-0.00969	0.0213	-0.00623	-0.00357
	(-2.95)	(0.34)	(-0.39)	(0.85)	(-0.26)	(-0.15)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	5254	5254	5254	5254	5634	5653
R-sq	0.018	0.012	0.006	0.007	0.014	0.016

t statistics in parentheses

* p<0.05, ** p<0.01, *** p<0.001

The estimates from Table 2.10 suggest that for-profit MFIs are not more profitable but rather a culture with a greater power distance and a more collectivism focus is related to greater MFI financial performance. Power distance is positive and statistically significant indicating that countries with a greater hierarchical structure and inequality tend to be more advantageous to for-profit MFIs. Individualism and uncertainty avoidance are both negative and significant indicating that less individualistic cultures tend to have more profitable MFIs. This finding supports the widely used

practice of group lending throughout the microfinance literature, in which the institution makes group loans and the group agrees to cross-guarantee each other's loans. For example, Esperanza International, a non-profit MFI located in the Dominican Republic, employs a model that utilizes group loans to a group of five people and after the borrower gains reputation capital and creditworthiness through multiple successful group loan cycles and demonstrating growth in their business entrepreneurs can qualify for larger, individual business loans.

Table 2.11 tests the existence and strength of formal institutions within a country and the effect on MFI financial performance by regressing the individual MFIs return on assets (profitability) on the World Bank CPIA measures of formal institutions as well as control variables and the for-profit indicator variable. Building human resources, business regulatory environment, public resource use, and social protection and labor market are all positive and significant suggesting that countries with more developed institutions in these areas tend to have more profitable MFIs. Surprisingly the strength of financial sector is negative and not statistically significant and property rights are also not significant in determining MFI profitability.

The next test explores the social performance of MFIs in terms of cultural dimensions and formal institutions within the country. The average loan size is a common proxy for social performance throughout the microfinance literature. MFIs that make smaller loans are considered to have better social performance, as smaller loans are reaching the most under banked and those with the greatest need for financing (for robustness I also tested the percentage of female borrowers and the number of active borrowers and the results were consistent).

Table 2.11

Formal Institutions (CPIA) and Financial Performance

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	roa	roa	roa	roa	roa	roa	roa
debt_equity	-0.00000153	-0.000000951	-0.00000155	-0.000000942	-0.00000104	-0.00000132	-0.000000701
	(-0.30)	(-0.18)	(-0.30)	(-0.18)	(-0.20)	(-0.26)	(-0.14)
assets	5.34e-12	8.27e-12	6.61e-12	8.10e-12	7.91e-12	6.06e-12	8.45e-12
	(0.95)	(1.46)	(1.17)	(1.43)	(1.40)	(1.08)	(1.49)
borrow_female	-0.00526	0.0115*	0.00475	0.0111	0.00884	0.00858	0.0137*
	(-0.86)	(1.97)	(0.81)	(1.86)	(1.46)	(1.46)	(2.29)
for_profit	0.00702*	0.00908**	0.00707*	0.00964**	0.00948**	0.00925**	0.00971**
	(2.09)	(2.69)	(2.09)	(2.84)	(2.81)	(2.74)	(2.87)
human_resources	0.0349***						
	(8.85)						
business_regulatory		0.0101**					
		(3.05)					
public_resource			0.0272***				
			(7.47)				
financial_sector				-0.0000912			
				(-0.03)			
property_rights					0.00497		
					(1.40)		
social_protection						0.0444***	
						(10.55)	
transparency_accountability							-0.00739*
							(-2.28)
_cons	-0.110***	-0.0298*	-0.0871***	0.00594	-0.00765	-0.142***	0.0252*
	(-7.39)	(-2.18)	(-6.08)	(0.48)	(-0.64)	(-9.07)	(2.25)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	4556	4556	4556	4556	4556	4492	4556
R-sq	0.027	0.012	0.022	0.010	0.010	0.035	0.011

t statistics in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Table 2.12 presents the results of regressing loan size (average loan size scaled by Gross National Income per capita) on the for-profit indicator variable, control variables, and Hofstede's cultural dimensions. The estimates suggest that for-profit MFIs tend to have lower social performance (i.e. larger loans) as do larger MFIs in terms of total assets. Countries with a higher degree of power distance, individualism, masculinity, and indulgence tend to have MFIs with better social performance. Higher uncertainty avoidance and long term orientation tend to have MFIs with lower levels of social performance using the loan size proxy.

Table 2.12

Social Performance (Loan Size) and Hofstede Cultural Dimensions

	(1)	(2)	(3)	(4)	(5)	(6)
	loan size	loan size	loan size	loan size	loan size	loan size
for_profit	0.0582***	0.0988***	0.0947***	0.0592***	0.284***	0.314***
	(3.50)	(5.86)	(5.67)	(3.60)	(10.59)	(11.64)
debt_equity	-0.00000863	0.00000358	-0.00000783	-0.00000323	-0.0000181	-0.0000168
	(-0.30)	(0.12)	(-0.27)	(-0.11)	(-0.34)	(-0.32)
assets	1.18e-10***	9.98e-11***	1.07e-10***	1.18e-10***	1.31e-10**	1.33e-10**
	(4.77)	(4.05)	(4.35)	(4.79)	(3.05)	(3.14)
power distance	-0.00242***					
	(-3.64)					
individualism		-0.00686***				
		(-11.67)				
masculinity			-0.00939***			
			(-12.53)			
uncertainty avoidance				0.00403***		
				(9.95)		
long term orientation					0.00478***	
					(6.22)	
indulgence vs restraint						-0.00410***
						(-7.90)
_cons	1.142***	1.116***	1.467***	0.685***	0.575***	0.909***
	(10.37)	(11.24)	(13.84)	(6.66)	(3.76)	(6.00)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes
N	6868	6868	6868	6868	7642	7665
R-sq	0.018	0.035	0.038	0.030	0.031	0.034

t statistics in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Table 2.13 presents the results for the formal institutions effect on MFI social performance and we see that all seven measures of formal institutions within a country tend to have MFIs with better social performance in terms of loan size. From this table we also see that firms with more female borrowers tend to also issue smaller loans, perhaps by construction because both of these measures are commonly used as social

performance proxies. These results also suggest that for-profit MFIs and larger MFIs also tend to issue larger loans and thus have lower social performance according to this measure.

Table 2.13

Social Performance and Formal Institutions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	loan size	loan size	loan size	loan size	loan size	loan size	loan size
debt_equity	0.00000477	0.00000248	0.00000621	0.0000167	0.00000777	0.00000579	0.0000100
	(0.06)	(0.03)	(0.08)	(0.21)	(0.10)	(0.07)	(0.13)
assets	2.90e-10**	2.68e-10**	2.90e-10**	2.61e-10**	2.87e-10**	2.91e-10**	2.86e-10**
	(3.25)	(3.03)	(3.26)	(2.95)	(3.23)	(3.28)	(3.22)
borrow_female	-1.640***	-1.741***	-1.667***	-1.603***	-1.590***	-1.679***	-1.632***
	(-17.99)	(-20.08)	(-18.97)	(-18.30)	(-17.70)	(-19.21)	(-18.44)
for_profit	0.270***	0.281***	0.280***	0.292***	0.267***	0.270***	0.259***
	(5.37)	(5.62)	(5.56)	(5.84)	(5.33)	(5.35)	(5.18)
human_resources	-0.180**						
	(-3.09)						
business_regulatory		-0.380***					
		(-7.69)					
public_resource			-0.247***				
			(-4.57)				
financial_sector				-0.422***			
				(-8.71)			
property_rights					-0.308***		
					(-5.89)		
social_protection						-0.425***	
						(-6.75)	
transparency_accountability							-0.258***
							(-5.43)
_cons	2.496***	3.230***	2.741***	3.204***	2.734***	3.275***	2.588***
	(11.48)	(16.13)	(13.06)	(17.73)	(15.70)	(14.15)	(15.95)
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	5020	5020	5020	5020	5020	4950	5020
R-sq	0.091	0.100	0.093	0.103	0.095	0.096	0.094

t statistics in parentheses
* p<0.05, ** p<0.01, *** p<0.001

Conclusion

This paper seeks to more broadly explore the differences among non-profit and for-profit Microfinance institutions, specifically the determinants in social and financial performance and the role of formal institutions within a country and informal cultural

institutions. Using a large dataset of more than 2,400 individual MFIs from 120 countries we find support for the growth of for-profit institutions as nearly half of the MFIs in the sample from 1999-2017 operate as for-profit. Africa, Latin America, the Caribbean have the largest number of MFIs with a combined 1,222 unique institutions. By country, India has the most MFIs in the sample, both total MFIs and for-profit/non-profit. MFIs in Bangladesh are primarily non-profit (97.5%) while those in Mexico are mainly for-profit (90%). In terms of legal status banks and non-banking financial institutions tend to be for-profit and Credit Unions and Non-governmental organizations are typically non-profit.

For-profit MFIs tend to have more administrative expenses, lower social performance (depth), pay higher salaries, are more profitable, and have more staff turnover when using t-tests for a difference in means between non-profit and for-profit MFIs. For-profit MFIs also appear to charge higher interest rates than non-profit. Non-profit MFIs appear to be busier, have larger boards and more females on the board, and a greater percentage of female borrowers.

The determinants of for-profit MFIs saturating a country as opposed to non-profit MFIs can be greater understood by examining the formal institutions and cultural dimensions within each country. Formal institutions and development are collected from Country Profit and Institutional Assessment (CPIA) index from the World Bank and are included in the analysis of (i) determinants of for-profit MFIs, (ii) MFI financial performance, and (iii) MFI social performance. The findings suggest formal institutions such as; business regulatory environment, property rights, social protection, and a developed financial sector, have a positive effect on the likelihood of for-profit MFIs

within a country. Financial performance is also associated with countries with higher measures of human resources, business regulatory environment, public resource use, and social protection. MFI social performance (smaller loan size) is associated with more development in all seven variables of CPIA formal institution metrics.

Using Hofstede's cultural dimensions to proxy for informal institutions and cultural characteristics within each country I find that cultures with greater degrees of power distance, individualism, masculinity and indulgence tend to have more for-profit MFIs. Greater power distance and more collectivism societies appear to have better financial performance in the MFIs consistent with the group lending models employed by many for-profit and non-profit institutions alike. Social performance also appears to improve within cultures with a greater degree of power distance, individualism, masculinity, and indulgence; while a negative relation in social performance is shown for larger, for-profit MFIs and cultures with higher uncertainty avoidance and long term orientation.

The future avenues for research in this field could explore the economic impacts of the growth in Microfinance Institutions (both for-profit and non-profit) within individual cities and communities. In my future research I will seek to collect more granular data from both MFIs within a community and from the borrowers and entrepreneurs regarding the effects the increase in MFIs and access to capital.

CHAPTER 3

CONCLUSION

Increased globalization has led to several new avenues of research in international finance, specifically corporate tax inversion and microfinance institutions.

In the first essay I study corporate tax inversion which is a reorganization by which a domestic firm changes its tax-domicile from the United States to a foreign country with a lower corporate tax rate. Through hand collecting data I find that there were 43 U.S. public firms on the NYSE/AMEX/NASDAQ in 15 different industries that reincorporated in another country over the period 1983 to 2015. These changes in legal tax domicile were once simple restructurings which allowed the inverting firm to claim a new tax domicile, but as a result of stricter regulations, firms have become more creative in how to invert and most occur through a merger or acquisition of a foreign based firm and then the U.S. based firm changes the incorporation to the country with a lower corporate tax rate. In the 1990's the tax-free islands of the Caribbean were the standard for inverting firms, but since the American Jobs Act of 2004 the majority of inversion firms are reincorporating in Europe. Large firms that are less profitable are more likely to invert and the inversion target location is more likely to have greater tax freedom and investment freedom. The overall market reaction of the inversion announcement is positive and significant over a seven day (-3, +3) event window and this is driven by

more recent inversions (post 2004) to non-tax haven countries (Canada, Australia, and European). Ex-post, the inverted firms show no significant change in taxes compared to a matched sample when controlling for industry, size, sales, and profitability. These results call for future research to examine the effects of inversion on shareholder value and studying the target firms in the inversion merger/acquisitions both pre- and post-inversion. Initial evidence suggests that these acquisitions may be value creating given the positive market reaction for the announcing firm post 2004.

In the second essay I explore the differences among non-profit and for-profit Microfinance institutions, specifically the determinants in social and financial performance and the role of formal institutions within a country and informal cultural institutions. Using a large dataset of more than 2,400 individual MFIs from 120 countries I find that for-profit institutions consist of nearly half of the MFIs in the sample from 1999-2017. India has the most MFIs in the sample, both total MFIs and for-profit/non-profit. MFIs in Bangladesh are primarily non-profit (97.5%) while those in Mexico are mainly for-profit (90%). I find that for-profit MFIs tend to have more administrative expenses, lower social performance (depth), pay higher salaries, are more profitable, and have more staff turnover when using t-tests for a difference in means between non-profit and for-profit MFIs. For-profit MFIs also appear to charge higher interest rates than non-profit. Non-profit MFIs appear to be busier, have larger boards and more females on the board, and a greater percentage of female borrowers. The determinants of for-profit MFIs saturating a country as opposed to non-profit MFIs can be greater understood by examining the formal institutions and cultural dimensions within each country. The findings suggest formal institutions such as; business regulatory environment, property rights, social protection, and a developed

financial sector, have a positive effect on the likelihood of for-profit MFIs within a country. Financial performance is also associated with countries with higher measures of human resources, business regulatory environment, public resource use, and social protection. MFI social performance (smaller loan size) is associated with more development in all seven variables of CPIA formal institution metrics. Using Hofstede's cultural dimensions to proxy for informal institutions and cultural characteristics within each country I find that cultures with greater degrees of power distance, individualism, masculinity and indulgence tend to have more for-profit MFIs. Greater power distance and more collectivism societies appear to have better financial performance in the MFIs consistent with the group lending models employed by many for-profit and non-profit institutions alike. Social performance also appears to improve within cultures with a greater degree of power distance, individualism, masculinity, and indulgence; while a negative relation in social performance is shown for larger, for-profit MFIs and cultures with higher uncertainty avoidance and long term orientation. The future avenues for research in this field could explore the economic impacts of the growth in Microfinance Institutions (both for-profit and non-profit) within individual cities and communities. In my future research I will seek to collect more granular data from both MFIs within a community and from the borrowers and entrepreneurs in order to study the effects on the borrower, institution, and community.

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APPENDIX A

DESCRIPTIVE SUMMARY STATISTICS BY PROFIT STATUS

Descriptive Summary Statistics by Profit Status

Panel A

		Profit Status	
Outreach		**Non-profit**	**Profit**
Large		21.46%	31.55%
Medium		19.97%	22.49%
Small		58.58%	45.96%
	Total	100.00%	100.00%

Panel B

Age			
Mature		72.20%	56.90%
New		10.54%	20.08%
Young		17.27%	23.02%
	Total	100.00%	100.00%

Panel C

Legal Status			
Bank		0.93%	24.14%
Credit Unition/Coop		26.33%	2.09%
NBFI		13.04%	61.27%
NGO		57.62%	1.29%
Other		1.30%	1.12%
Rural Bank		0.79%	10.10%
	Total	100.00%	100.00%

Panel D

		Profit Status	
Diamonds		**Non-profit**	**Profit**
0		2.85%	0.85%
1		5.32%	4.99%
2		8.97%	12.61%
3		34.78%	28.67%
4		39.40%	41.53%
5		8.69%	11.35%
	Total	100.00%	100.00%

Panel E

Target Market			
Broad		44.35%	46.98%
High End		3.86%	6.84%
Low End		48.81%	38.00%
Small Business		2.98%	8.18%
	Total	100.00%	100.00%

Panel F

Scale			
Large		25.30%	43.40%
Medium		24.59%	24.63%
Small		50.11%	31.98%
	Total	100.00%	100.00%

APPENDIX B

CORRELATION MATRICES

Correlation Matrices with Hofstede's Cultural Dimensions in Panel A and Country Policy and Institutional Assessment Variables in Panel B

Panel A

	power distance	individualism	masculinity	uncertainty avoidance	long term orientation	indulgence vs restraint
power distance	1.0000					
individualism	0.2732	1.0000				
masculinity	0.5193	0.3253	1.0000			
uncertainty avoidance	-0.4973	-0.4556	-0.2293	1.0000		
long term orientation	0.0597	0.2047	-0.3462	-0.4946	1.0000	
indulgence vs restraint	0.0376	-0.1397	0.3711	0.4853	-0.6982	1.0000

Panel B

	human resources	business regulatory	public resource	financial sector	property rights	social protection	transparency accountability
human resources	1.0000						
business regulatory	0.4271	1.0000					
public resource	0.5794	0.3432	1.0000				
financial sector	0.3647	0.4089	0.3670	1.0000			
property rights	0.5611	0.5727	0.5380	0.5219	1.0000		
social protection	0.4894	0.5079	0.5667	0.4099	0.5535	1.0000	
transparency accountability	0.4092	0.3482	0.4424	0.5736	0.6607	0.4070	1.0000