Investment and Capital Constraints: Repatriations Under the AJCA

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April 4, 2019

Introduction

Two Big Questions

1. To what extent do financing frictions constrain investments that firms would otherwise make?
2. Did firm that repatriated under the American Jobs Creation Act significantly increase their domestic investment?

Previous Literature

DFF

Dharmapala, Foley, and Forbes (2011), "Watch What I Do, Not What I Say: The Unintended Consequences of the Homeland Investment Act" *JF*.

BK

Blouin and Krull (2009), "Bringing it Home: A Study of the Incentives Surrounding the Repatriation of Foreign Earnings Under the American Jobs Creation Act of 2004" *JAR*.

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Findings

- Examine Use of Funds repatriated under the AJCA
- Find no increase in investment due to repatriation
- Repatriated Funds were used to increase payments to shareholders
- However they both employ two different research designs

In contrast, Faulkender and Petersen find:

- AJA led to large increases in investment among subset of firms that are capital constrained
- Experimental design of former authors did not isolate constrained firms properly

- American Jobs Creation Act (AJCA) signed into law in 2004 by President George W Bush
- Encouraged domestic investment by lowering the tax costs of repatriating income US firms had sitting abroad
- Firms have an incentive to keep cash abroad
  - The longer the deferral, the lower the present value of the tax to bring cash home
  - This assumes investment opportunities are same in both countries and no capital market imperfections
- But, what if we relax the above assumption?

Background

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Do the incentives align?

- In a world without financial frictions, firms will invest in all positive NPV projects
- If US has domestic high NPV projects, firms will repatriate, use domestic internal funds, or capital markets
- With financial frictions, the cheapest method wins
- Then, the AJCA assumes by design that firms are financially constrained, having no domestic internal funds or access to capital markets

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Background

There are three firms:

1. Firms with little or no foreign earnings in low-tax jurisdictions
2. Firms that repatriate foreign income under AJCA and are constrained
3. Firms that repatriate foreign income under AJCA and not constrained

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- Prior work by BK and DFF use a DID where sample of firms is divided into treated and untreated group controlling for firm characteristics
- But, there are THREE groups!
- Difference between findings here and previous work lies in this idea

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Demonstration

- Group 1: Firms with no tax-advantage in foreign earnings, do not increase response variable
- Group 2: Firms with tax-advantaged foreign earnings increase response variable with repatriation
- Group 3: Firms with tax-advantaged foreign earnings increase response variable without repatriation

What's the Difference?

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BK

- Run a standard DID by including dummy variable which is equal to 1 in year firm repatriates and zero otherwise
- Coefficient then measures increase in response variable for firms that do not repatriate (Group 3) versus the increase in response variable for firms that do not repatriate (Group 1 and 2)

What's the Difference?

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BK

- Cannot know if effect is due to:
  - Repatriation (comparison of group 3 to group 2)
  - Or due to differences between firms with and without foreign earnings in low-tax jurisdictions (difference between group 1 and both group 2 and 3)

- Because first group (in BK) has higher increase in investment than the second group, coefficient on AJCA dummy is positive, even when there is no effect

$DID_{BK} = Diff[Group\ 3] - Diff[Group\ 1\ and\ 2]$

What's the Difference?

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DFF

- Use instrumental variable approach
  - IV: firm's foreign tax rate is lower than US and whether firm's foreign subsidiaries are in tax havens
- Replaces AJCA dummy in BK with probability that firm repatriates
- Firms wih unrepatriated income in low-tax countries have high probability of repatriation

What's the Difference?

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DFF

Coefficient measures the increase in the response variable for firms with high probability of repatriation (Groups 2 and 3) independent of whether they actually repatriate income versus the increase in the response variable for firms with low probability of repatriation (Group 1)

$DID_{DFF} = Diff[Group\ 2\ and\ 3] - Diff[Group\ 1]$

- Estimating the coefficient this way will make it larger and positive than BK finding even if effect is zero

Analogy

That's sick bro!

- Group 1
    - People that are healthy
- Group 2 and 3
    - People that are sick
- Group 3
    - Sick people given a treatment

-If you wanted to evaluate the performance of a treatment, you would not compare change in helath of those who received the treatment (3) to those who did not (1 and 2) - as BK do.

- You would not compare the change in the health of those that were predicted to receive the treatment (the sick 2 and 3) to those who are unlikely to receive the treatment

Empirics

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Goal

Conditional on being able to tae advantage of the tax subsidy on repatriation in the AJCA, do firms invest ore or increase equity payouts if they repatriated under the AJCA.

- Three groups $\implies$ two coefficients, not 1, in DID

$$\text{BK} \quad Y_{it} = \alpha \text{AJCA}_{it} + \beta X_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

$$\text{DFF} \quad Y_{it} = \alpha \Pr[\text{Repat}] + \beta X_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

$$\text{FP} \quad Y_{it} = \alpha_1 \Pr[\text{Repat}]_{it} + \alpha_2 (\text{AJCA}_{it} - \Pr[\text{Repat}]_{it}) + \beta X_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

$$= \alpha_2 \text{AJCA}_{it} + (\alpha_1 - \alpha_2) \Pr[\text{Repat}]_{it} + \beta X_{it} + \mu_i + \lambda_t + \varepsilon_{it}$$

Data

- Collect AJCA data from firms' 10-ks
- Searched using Perl script for AJCA from 2004 - 2006
  - 804 that discussed repatriation, did not repatriate
  - 442 firms repatriated income ($298 billion repatriated)
  - Remaining sample of firms from this period did not disclose

- Need to measure both firm's current and recent history of foreign profits, and stock of foreign profits that are classified as permanently reinvested abroad

Characterisitcs of firms that repatriated income under the AJCA

BK $\quad Y_{it} = \alpha \text{AJCA}_{it} + \beta X_{it} + \mu_i + \lambda_t + \varepsilon_{it}$

DFF $\quad Y_{it} = \alpha \text{Pr}[\text{Repat}] + \beta X_{it} + \mu_i + \lambda_t + \varepsilon_{it}$

FP $\quad Y_{it} = \alpha_1 \text{Pr}[\text{Repat}]_{it} + \alpha_2 (\text{AJCA}_{it} - \text{Pr}[\text{Repat}]_{it}) + \beta X_{it} + \mu_i + \lambda_t + \varepsilon_{it}$

$\quad\quad = \alpha_2 \text{AJCA}_{it} + (\alpha_1 - \alpha_2) \text{Pr}[\text{Repat}]_{it} + \beta X_{it} + \mu_i + \lambda_t + \varepsilon_{it}$

Characterisitcs of firms that repatriated income under the AJCA

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Table 3
Summary statistics of firm characteristics

	Firm Repatriated	Firm Did Not Repatriated
Log(Market Value of Assets)	8.48[1]	6.01
	[8.41[1]]	[6.03]
Log(Sales)	7.64[1]	4.92
	[7.57[1]]	[4.92]
Log(Employment in M)	8.92[1]	6.36
	[8.95[1]]	[6.23]
Market Value of Assets/	2.18[1]	2.02
Book Value of Assets	[1.66[1]]	[1.32]
EBIT/BVA (%)	10.43[1]	−1.41
	[9.66[1]]	[3.23]
Cash Flow/BVA (%)	11.85[1]	−4.10
	[11.72[1]]	[7.11]
Approved Investment/BVA (%)	11.71[1]	12.52
	[9.53[1]]	[7.38]
Repatriation Amt/BVA (%)	7.82[1]	
	[5.30[1]]	
Debt/MVA	15.11[1]	17.24
	[12.12[1]]	[10.74]
Cash/MVA	7.06[1]	12.21
	[4.46[1]]	[5.50]
Dividend & Net Repurch/MVE (%)	3.55[1]	2.61
	[2.38[1]]	[0.24]
Effective Marginal Tax Rate (%)	22.68[1]	18.22
[Graham's after-interest tax rate]	[34.70[1]]	[19.41]
Foreign pretax income/	30.70[1]	4.86
Total pretax income (%)	[19.87[1]]	[0.00]
Permanently Reinvested Earnings / BVA	8.53[1]	0.72
	[3.92[1]]	[0.00]

Empirical Analysis

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1. Examine which firm characterisitcs are associated with likelihood of repatriating under AJCA
   - Estimate cross-sectional model of who repatriates using M/B, size, preinvestment profitability
2. Use these variables to predict whether firms repatriate or not
3. Use second set of variabels to measure firm's stock of unrepatriated earnings
   - log of one plus firm's permanently reinvested foreign earnings - use dummy = 1 if greater than zero.
4. Measure tax benefit of repatriation
   - compare taxes that would have been paid on the foreign income had it been taxed in US at 35% to the actual foreign taxes paid. Scale by market value of assets

Table 4
Estimated probability of repatriation

	1	2	3	4
Dependent Variable:	Repatriate Yes/No	Repatriate Yes/No	Repatriate Amount	Repatriate Consider
Log(Market Value of Assets)	0.5724[1]	0.2709[1]	0.0104[1]	0.1552[1]
	(0.0277)	(0.0463)	(0.0034)	(0.0272)
Market Value of Assets/Book Value of Assets	−0.2246[1]	−0.2149[1]	−0.0055	0.0198
	(0.0426)	(0.0657)	(0.0042)	(0.0307)
Preinvestment earnings/BVA	6.6233[1]	4.2053[1]	0.3262[1]	1.3151[1]
	(0.4565)	(0.7262)	(0.0533)	(0.4294)
Ln[1+Perm Reinvested Earn]		0.1177[1]	0.0127[1]	0.1533[1]
		(0.0320)	(0.0026)	(0.0282)
Perm Reinvested Earn>0 (=1 if yes)		3.0042[1]	0.2014[1]	2.5132[1]
		(0.2665)	(0.0195)	(0.1180)
Ln[1+For Earnings (3 yrs)]		0.1239[5]	0.0159[1]	0.1050[5]
		(0.0604)	(0.0044)	(0.0445)
Foreign Earnings (3 years)>0 (=1 if yes)		0.1375	−0.0114	0.6936[1]
		(0.2886)	(0.0206)	(0.1742)
Estimated Repatriation Tax/ MVA		61.5837[1]	8.2719[1]	38.3484[5]
		(21.5557)	(1.9611)	(18.3477)
Tax Loss Carryforward/MVA		−1.4411[5]	−0.0948[5]	−0.2623[10]
		(0.6513)	(0.0419)	(0.1477)
Pseudo-R^2	0.2106	0.4472	0.7520	0.3719
Number of Observations	5272	4950	4933	4950

The table contains cross-sectional logits, where the dependent variable is whether the firm repatriated foreign income under the American Jobs Creation Act in 2004 or later (columns 1 and 2). The independent variables are based on values for the firm in 2003 and in some cases prior years. A tobit model is estimated in column 3, and the dependent variable is the amount of the repatriation standardized by the market value of assets or zero. Column 4 contains an ordered logit estimation where the dependent variable is 2 if the firm repatriated foreign income under the AJCA, 1 if it discussed repatriation of foreign income under the AJCA in their 10-K but did not repatriate (e.g., considered), and 0 otherwise. White standard errors are reported in parentheses.

Table 5
Investment incentives of the AJCA

	1	2	3	4	5
Firm Repatriated under AJCA =1 if yes	0.0015				
	(0.0030)				
Pr[Firm Repatriates]		−0.0054	−0.0042	−0.0082[10]	−0.0056
		(0.0049)	(0.0051)	(0.0048)	(0.0054)
Residual[Firm Repatriates]			0.0037	−0.0044	−0.0012
			(0.0032)	(0.0036)	(0.0036)
Residual*Capital Constrained				0.0257[1]	0.0374[5]
				(0.0097)	(0.0179)
Log(Market Value of Assets)	−0.0084[1]	−0.0084[1]	−0.0084[1]	−0.0090[1]	−0.0101[1]
	(0.0023)	(0.0023)	(0.0023)	(0.0023)	(0.0024)
Market Value of Assets/Book Value of Assets	0.0070[1]	0.0069[1]	0.0069[1]	0.0071[1]	0.0065[1]
	(0.0011)	(0.0011)	(0.0011)	(0.0011)	(0.0011)
Preinvestment earnings/BVA	0.0120	0.0118	0.0118	0.0167	0.0135
	(0.0114)	(0.0114)	(0.0114)	(0.0115)	(0.0114)
Capital Constrained if Year > 2003, 0 otherwise				−0.0138[1]	−0.0157[1]
				(0.0030)	(0.0030)
R^2	0.7205	0.7206	0.7206	0.7210	0.7343
Number of Observations	37294	37294	37294	37294	34209

The table contains panel regressions of approved domestic investment to book value of assets on firm characteristics and controls for whether the firm was likely to repatriate as well as whether it did. Column 1 contains a dummy variable equal to one in the year the firm repatriated and following years and zero otherwise (BK method). In Column 2, the dummy variable is replaced by the probability that the firm repatriates under the AJCA in years 2004 and beyond and is zero otherwise (DFF method). The probability of repatriation is based on the coefficient estimates from Table 4, Column 2. In Column 3, both the probability of repatriation and the residual (the dummy variable from Column 1 minus the probability of repatriation) are included. In Columns 4 and 5, the residual is interacted with a measure of capital constraints. In Column 4, capital constrained is measured as the percentage of the fiscal years during 2000 to 2003 in which the firm's investment expenditures exceeded its internal cash flow. In Column 5, capital constrained is measured the same way if the firm does not have an S&P long-term debt or commercial paper rating and is zero otherwise. Each regression contains a dummy variable for each firm and each year. Standard errors clustered by firm are reported in parentheses. The sample runs from 2000 to 2007.