



## Session 1. Identifying Corporation Tax Avoidance

**Moderator:**

***Eric Toder***  
*Tax Policy Center*

**Using IRS Data to Identify Income Shifting Firms**

***Lisa De Simone***  
*Stanford University*

**Income Shifting by U.S. Multinational Corporations**

***Amy Dunbar***  
*University of Connecticut*

**The Economic Effects of Special Purpose Entities on Corporate Tax Avoidance**

***Petro Lisowsky***  
*University of Illinois at Urbana-Champaign*

**Discussants:**

***Tim Dowd*** *Joint Committee on Taxation staff*  
***Eric Toder*** *Tax Policy Center*

# Using IRS Data to Identify Income Shifting Firms

Lisa De Simone  
Stanford Graduate School of Business

June 21, 2017



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# Overview

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## What

- Measure the likelihood that a U.S. multinational entity (MNE) shifts income out of the U.S. using intercompany transactions with foreign subsidiaries

## Why

- Increased international attention on income shifting: important to understand (i) magnitude, (ii) what types of firms shift income out of the U.S., and (iii) consequences
- Identifying income shifting is difficult
- Findings could inform potential cost/benefit of proposed tax reform that would alter income shifting incentives

## How

- Measure net outbound intercompany transfers using Form 5471 Schedule M
- Develop a prediction model of net outbound shifting
- Examine audit outcomes of net outbound firms and firms that shift more out (or less in) than expected

## Key Results

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Likelihood of net outbound income shifting via intercompany transactions

- Positively associated with tax haven operations, high tech industry membership, tax incentives, R&D, and foreign profitability
- Negatively associated with high percentage of foreign sales, gross profits, size, and capital expenditures
- Holdout sample tests to validate model

“Aggressive” income shifting

- Defined as having a positive residual in a continuous OLS model: shift more out (or less in) than expected (i.e., exhibit a higher continuous net outbound amount than expected)
- Positively correlated with net outbound income shifting
- On average, 45% of sample firm-years shift more out (or less in) than predicted

Likelihood of audit

- Net outbound or aggressive income shifters are *not* more likely to be audited

## Predicting Net Outbound Income Shifting via Inter-Company Transactions

Factors	Why?	Proxies
Intangible intensity	Easy to migrate IP; Allows for royalties and other IC payments	R&D, Advertising, SG&A, Capitalized intangibles, Capex
Unique offerings	Greater latitude in setting prices for IC transactions	GP%, High-tech industry membership
Global footprint	Support for presence of economic activity abroad	% Foreign sales, Dom/for ROS, Dom/For growth, Haven operations
Tax incentives	Incentive to shift to lower-tax jurisdictions	Foreign effective tax rate differential (lagged)
Debt	Alternative tax shields	Leverage, Interest
Tax Planning	Ability to expend resources to shift effectively	Size, BigN auditor

## Sample

<b>Firm-years in IRS Business Returns Transaction File 2005-2014</b>	<b>351,843</b>
Less:	
Observations without a matched Form 5471M	(306,379)
Observations with zero or missing Compustat <i>SALE</i>	(32,624)
Observations in a financial industry	(125)
Observations missing required data for estimation	(5,633)
Observations where <i>FTR</i> outside [-1,1]	(500)
Sample used for net outbound income shifting likelihood model	6,582
Less:	
Unable to match to IRS Audit Information Management System	(2,260)
Sample used for audit likelihood model	4,322

# Descriptive Statistics by Net Outbound Income Shifting

		OutShifter = 1 (n = 2,414)		OutShifter = 0 (n = 4,168)		Differences		
Variable		Mean	Median	Mean	Median	Mean	Median	
OutShift		0.074	0.033	(0.057)	(0.026)	0.131 ***	0.059 ***	Net inbound shifting on average
Sales		6,078	964.9	5,623	1,533	455.3	(568.1) ***	
Pre-tax Income		576.7	52.65	630.5	98.88	(53.84)	(46.22) ***	
ETR		0.215	0.238	0.249	0.281	(0.034) ***	(0.043) ***	More R&D Less capex
Intangible Intensity	R&D	0.075	0.024	0.051	0.014	0.024 ***	0.011 ***	
	AD	0.009	-	0.012	-	(0.003) ***	0.000	
	SG&A	0.293	0.236	0.271	0.225	0.022 ***	0.011	
	Intangibles	0.033	-	0.031	-	0.003	0.000	
	Capex	0.041	0.026	0.052	0.028	(0.012) ***	(0.001) **	
Unique Offerings	GP%	0.418	0.380	0.422	0.389	(0.005)	(0.009)	Less foreign sales %, return on sales
	HighTech	0.401	-	0.255	-	0.146 ***	0.000	
Global Footprint	ForeignSales%	0.402	0.380	0.424	0.417	(0.023) ***	(0.037) ***	
	FROS	0.034	0.021	0.037	0.028	(0.003) *	(0.006) ***	
	DROS	0.009	0.024	0.022	0.035	(0.013) ***	(0.012) ***	
	FSalesGrowth	0.196	0.095	0.165	0.086	0.031 ***	0.009 **	
	DSalesGrowth	0.106	0.067	0.090	0.058	0.016 ***	0.009 ***	
Tax Incentive	HasHaven	0.809	1.000	0.807	1.000	0.002	0.000	More growth
	Lag_FTR	0.144	0.146	0.115	0.108	0.029 ***	0.038 ***	
	Leverage	0.190	0.052	0.232	0.102	(0.043) ***	(0.050) ***	
Debt	Interest	0.014	0.005	0.016	0.008	(0.003) ***	(0.003) ***	More tax incentives to shift
	Size	20.75	20.69	21.10	21.15	(0.348) ***	(0.463) ***	
	BigN	0.840	1.000	0.867	1.000	(0.028) ***	0.000	
Tax Planning								Less debt, smaller

# Work in Process: Additional Descriptive Analysis

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## By 5471M Line Pair

- Net **inbound** shifting at mean (median) except for CSAs, Services, Commissions (IP, CSAs, Commissions, Insurance)

## By Size

- **Smallest** asset quartile (~< \$250M) is only quartile with net outbound income shifting on average

## By Industry

- **High Tech** and Fama-French 12 “Other” (Mines, Construction, Building Materials, Transportation, Hotels, Business Services, Entertainment) are only industries with net outbound income shifting on average

## By Year

- Net shifting **increasing over time**; net outbound at mean in 2012 and 2014

# Prediction Model: Likelihood of OutShifter = 1 (Net Outbound Shifting)

			(1)	(2)	(3): OLS
Intangible Intensity	RD	+	2.5464***	2.2769***	-0.0549***
	AD	+	-2.2679	-2.6301	-0.0602
	Intangibles	+	0.4484	0.4984*	0.0076
Unique Offerings	SGA	+	-0.3623	-0.4342	0.0286**
	Capex	-	-1.6361***	-1.7256***	-0.0193
Global Footprint	GP%	+	-1.166***	-1.0589***	-0.0819***
	HighTech	+	0.6274***	0.6276***	0.0382***
	ForeignSales%	+	-0.9729***	-0.9083***	-0.0881***
	Lag_FROS	+	1.9507***	1.5106	0.1130***
	Lag_DROS	?	0.0357	0.044	-0.0357***
Tax Incentive Debt	FSalesGrowth	+	0.0545	0.0541	0.0017
	DSalesGrowth	?	0.1329	0.1969	0.0035
Tax Planning	HasHaven	+	0.2964**	0.3109**	0.0139***
	LagFTR	+	0.4042***	0.4869**	0.0078
	Leverage	?	-0.2335	-0.1807	-0.0067
	Interest	?	1.0400	0.2744	0.0249
Stanford Graduate School	Size	?	-0.1016***	-0.1022**	-0.0035***
	Big5	+	0.0648	0.1042	-0.0092**

## Likelihood of Net Outbound Income Shifting:

+ R&D, HighTech, foreign return on sales, has haven operations, foreign tax rate differential

- Capex, gross profit %, foreign sales %, size

## Predictive Power

AUCs low but improving in revision (~0.70+)

Holdout sample analysis

## Aggressive Shifters

If positive residual in OLS model, shifting more out (or less in) than predicted

## Additional Tests: Firms that Shift More Out (Less in) than Expected

Aggressive Shifters vs. Net Outbound Income Shifters

	<u>OutShifter = 0</u>	<u>OutShifter = 1</u>	<u>Total</u>
<b>AggShifter = 0</b>	3,130	385	3,515
<b>AggShifter = 1</b>	1,038	2,029	3,067
<b>Total</b>	4,168	2,414	6,582

Percent of sample years firms are Aggressive Shifters

<u>Unique MNEs</u>	<u>Mean</u>	<u>p25</u>	<u>p50</u>
1,526	0.448	0.000	0.333

## Additional Tests: Audits by Year

Even ignoring most recent years (for which audits may not be initiated), **audit rate is declining**.

In future work, we would like to compare to average audit rates for all firms.

	OutShifter = 1 (n = 1,568)			AggShifter = 1 (n = 2,032)		
<u>Year</u>	<u>N</u>	<u>Audit = 1</u>	<u>Audit Rate</u>	<u>N</u>	<u>Audit = 1</u>	<u>Audit Rate</u>
2005	36	20	55.56%	67	36	53.73%
2006	152	91	59.87%	195	135	69.23%
2007	171	97	56.73%	233	144	61.80%
2008	166	102	61.45%	219	135	61.64%
2009	148	74	50.00%	229	129	56.33%
2010	226	98	43.36%	317	147	46.37%
2011	286	104	36.36%	336	123	36.61%
2012	264	63	23.86%	292	76	26.03%
2013	100	27	27.00%	122	32	26.23%
2014	19	7	36.84%	22	11	50.00%
Total	1,568	683	43.56%	2,032	971	47.79%

## Additional Tests: Likelihood that Audit = 1

Here and in revision,  
consistent evidence of **no  
different audit likelihood**  
for net outbound income  
shifters or firms that shift  
more out (or less in) than  
expected.

	<u>Shift</u> Variable =	<u>(1)</u> OutShifter	<u>(2)</u> AggShifter	<u>(3)</u> OutShifter	<u>(4)</u> AggShifter
Intercept	?	-0.0363	-0.1364	-11.5536***	-11.6247***
Shift	+	-0.2228**	0.0419	-0.0873	-0.0608
Size	+			0.5493***	0.5523***
Big5	+			0.0638	0.0668
ROS	+			1.0636***	1.0752***
NOL	-			0.1949	0.1899
Leverage	-			-0.5523***	-0.5398***
Observations		4,322	4,322	4,322	4,322
AUC		0.526	0.505	0.738	0.738

# Conclusions

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## Ongoing work

- Continuing to improve predictive power of the model
- Increased descriptive analysis to understand who the shifters are, how they vary over time

## Identification of firms with net outbound intercompany transactions

- Net *inbound* on average
- Net outbound for High Tech industry and IP transactions
- Increasing in R&D, High Tech industry membership, foreign return on sales, foreign effective tax rate differential
- Decreasing in capex, gross profit, foreign sales, size

## Audit likelihoods

- Net outbound shifters and firms that shift more out (or less in) than expected have no different likelihood of audit

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**Thank  
you!**



University of  
Connecticut  
*School of Business*

# **Income Shifting by U.S. Multinational Corporations**

## **7<sup>th</sup> Annual IRS-TPC Joint Research Conference on Tax Administration**

Ted Black (IRS RAAS), Amy Dunbar (UConn),  
Andrew Duxbury (James Madison), and Tom Schultz (Western Michigan)

June 21, 2017

# Research Question

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- **What is the question?**
  - Can we use new foreign tax information reporting (FTIR) data that includes payments of interest and royalties (FDAP income) to U.S. MNCs to estimate *tax compliant* income shifting?
    - We assume that the FDAP “footprint” from the FTIR data provides an empirical proxy measure for compliant income shifting.
- **Why important?**
  - OECD suggests that the FTIR data can be used to improve compliance
  - Similar to the effect of a 1099 on reporting behavior
- **How do we answer the question?**

# Approaches to estimating income shifting

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- **Prior research**
  - *magnitude* of income shifting
    - Rousslang (1997) and Christian and Schultz (2005) use a theoretical approach that assumes equal marginal after-tax rate of returns across jurisdictions.
  - *tax-motivated* income shifting
    - Hines and Rice (1994) use a production function with tax rates
    - Collins, Kemsley and Lang (1998) and Klassen and LaPlante (2012) use foreign return on sales.

# **Our approach: estimate compliant income shifting**

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1. Estimate magnitude of income shifting
2. Match FTIR and IRS data
3. Estimate compliant income shifting using FTIRC measures

# **Our approach: estimate compliant income shifting**

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## **1. Estimate magnitude of income shifting**

- Extend prior two-state model to an N-state: CFC /country by country basis

# N-State Income Shifting Model

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$$\frac{[Y_d + IS_T] * (1-t_d)}{K_d} = \frac{[Y_1 - IS_1] * (1-t_1)}{K_1} = \frac{[Y_2 - IS_2] * (1-t_2)}{K_2}$$

- Y = pretax income
- K= capital stock
- t = tax rate (T/Y) where T = level of taxes
- $IS_T$  = total income shift [ $IS_T = IS_1 + IS_2$ ]

1. Compute ATROC for each MNC and CFC;
2. Adjust for the income shift (IS) to equalize the ATROCs;
3. Aggregate the IS across all firms within N jurisdictions within year

# **Our approach: estimate compliant income shifting**

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## **1. Estimate magnitude of income shifting**

- Extend prior two-state model to an N-state: CFC /country by country basis
- Obtain measures of capital and income from IRS Forms 1120 and 5471

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11.1 :  $\frac{1}{100} = 1\%$  AED 000 1 1 100%

## Income Shifting Dataset: MNCs/CFCs

<u>Initial</u>		<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>
#MNCs										
18,009		6,147	6,560	7,009	7,799	8,356	8,777	9,418	10,085	10,626
	<u>#CFCs</u>									
	668,523	67,114	69,897	70,042	71,333	74,653	76,419	77,971	79,283	81,811
<u>Final</u>										
9,701		3,345	3,407	3,571	3,848	4,088	4,187	4,311	4,480	4,547
	214,049	22,304	21,521	21,642	22,890	24,436	25,230	25,533	25,315	25,178

More reasonable ATROCs but magnitude of shifting substantially reduced.

# Income Shifting Estimates – Positive Outbound Shifts (ISp)

(\$M)

<u>All CFCs</u>		
	<u>N-CFCs</u>	<u>ISp</u>
<b>2007</b>	22,304	<b>\$144,844</b>
<b>2008</b>	21,521	<b>161,884</b>
<b>2009</b>	21,642	<b>140,042</b>
<b>2010</b>	22,890	<b>181,310</b>
<b>2011</b>	24,436	<b>188,616</b>
<b>2012</b>	25,230	<b>165,990</b>
<b>2013</b>	25,533	<b>177,618</b>
<b>2014</b>	25,315	<b>179,714</b>
<b>2015</b>	25,178	<b>161,417</b>

# Income Shifting Estimates – Positive Outbound Shifts (ISp)

(\$M)

	<u>All CFCs</u>		<u>FTIR Countries</u>		<u>Non-FTIR Countries</u>		<u>Unidentified Country</u>	
	<u>N-CFCs</u>	<u>ISp</u>	<u>N</u>	<u>ISp</u>	<u>N</u>	<u>ISp</u>	<u>N</u>	<u>ISp</u>
<b>2007</b>	22,304	<b>\$144,844</b>	14,813	\$75,783	7,350	\$67,462	141	\$1,599
<b>2008</b>	21,521	<b>161,884</b>	14,145	79,088	7,277	76,986	99	5,811
<b>2009</b>	21,642	<b>140,042</b>	14,276	75,221	7,313	63,351	53	1,470
<b>2010</b>	22,890	<b>181,310</b>	15,121	90,049	7,725	89,200	44	2,062
<b>2011</b>	24,436	<b>188,616</b>	16,010	91,494	8,374	93,995	52	3,127
<b>2012</b>	25,230	<b>165,990</b>	16,601	79,829	8,569	82,828	60	3,333
<b>2013</b>	25,533	<b>177,618</b>	16,678	83,896	8,798	91,745	57	1,978
<b>2014</b>	25,315	<b>179,714</b>	16,386	81,565	8,877	97,363	52	786
<b>2015</b>	25,178	<b>161,417</b>	16,437	74,847	8,692	86,245	49	325

# Normalized ISp to CFCs Controlled by a Compliance Assurance Process (CAP)-MNC vs NonCAP-MNCs

	CAP					NonCAP				
	N					N				
	<u>MNCs</u>	<u>CFCs</u>	<u>ISp</u>	<u>Yd</u>	<u>NISp</u>	<u>MNCs</u>	<u>CFCs</u>	<u>ISp</u>		
<b>2007</b>	88	1,529	\$21,080			118	2,923	\$18,981		
<b>2008</b>	70	998	15,095			99	2,544	18,455		
<b>2009</b>	68	1,084	12,707			92	2,278	14,954		
<b>2010</b>	84	1,356	19,803			103	2,716	24,440		
<b>2011</b>	77	1,248	19,363			104	2,884	27,769		
<b>2012</b>	80	1,388	14,583			102	3,049	27,145		
<b>2013</b>	88	1,510	18,366			101	3,124	24,875		
<b>2014</b>	87	1,468	18,961			95	2,831	26,469		
<b>2015</b>	88	1,395	14,394			88	2,630	20,689		

# Normalized ISp to CFCs Controlled by a Compliance Assurance Process (CAP)-MNC vs NonCAP-MNCs

	CAP					NonCAP				
	N					N				
	<u>MNCs</u>	<u>CFCs</u>	<u>ISp</u>	<u>Yd</u>	<u>NISp</u>	<u>MNCs</u>	<u>CFCs</u>	<u>ISp</u>	<u>Yd</u>	<u>NISp</u>
<b>2007</b>	88	1,529	\$21,080	118,739	0.151	118	2,923	\$18,981	113,091	0.144
<b>2008</b>	70	998	15,095	80,579	0.158	99	2,544	18,455	94,908	0.163
<b>2009</b>	68	1,084	12,707	78,034	0.140	92	2,278	14,954	78,352	0.160
<b>2010</b>	84	1,356	19,803	105,422	0.158	103	2,716	24,440	98,139	0.199
<b>2011</b>	77	1,248	19,363	74,710	0.206	104	2,884	27,769	96,320	0.224
<b>2012</b>	80	1,388	14,583	85,602	0.146	102	3,049	27,145	104,134	0.207
<b>2013</b>	88	1,510	18,366	118,856	0.134	101	3,124	24,875	111,970	0.182
<b>2014</b>	87	1,468	18,961	124,384	0.132	95	2,831	26,469	131,880	0.167
<b>2015</b>	88	1,395	14,394	127,650	0.101	88	2,630	20,689	128,475	0.139

# Our approach: estimate compliant income shifting

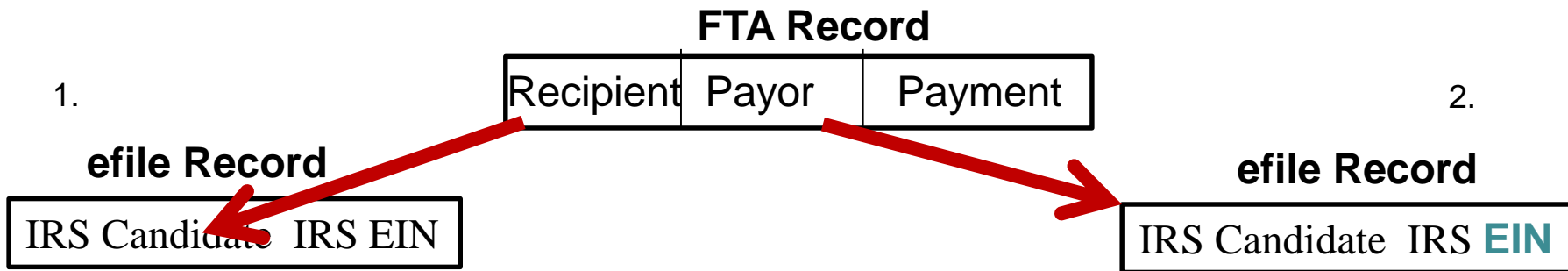
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1. Estimate magnitude of income shifting
2. Match FTIR and IRS data
  - Match U.S. MNC-related *payors* in the FTIR data to their Form 5471 data.
  - Use computational linguistics for matching process because no FTIR TIN.

# Identifying Related Payors that Report to FTA and IRS

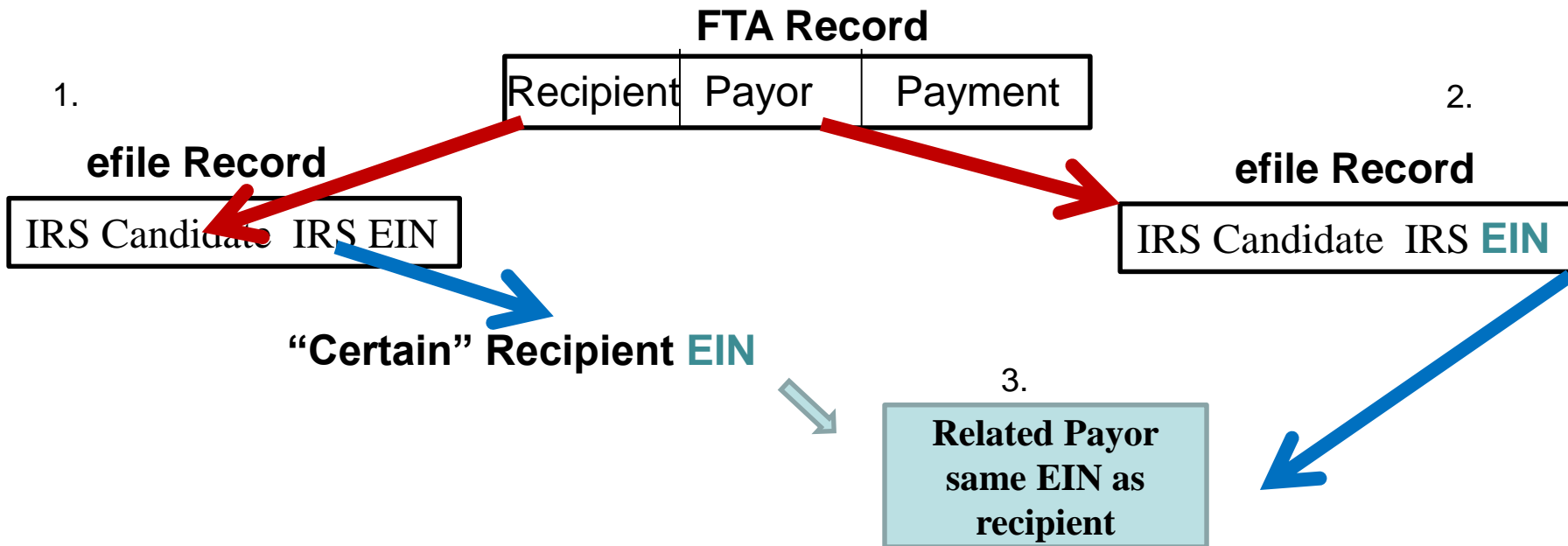
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1. Match FTA recipient to IRS corporate efile – identify “certain” match
2. Match FTA payor to IRS corporate efile
3. Determine if matched payor EIN matches a “certain” match recipient EIN



# Identifying Related Payors that Report to FTA and IRS

1. Match FTA recipient to IRS corporate efile – identify “certain” match
2. Match FTA payor to IRS corporate efile
3. Determine if matched payor EIN matches a “certain” match recipient EIN



## Foreign Tax Information Reporting Data: 2007-2012 (\$M)

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	<u>Payments Made To</u> <u>Corporations</u>	<u>Any Recip</u>	<u>Percent</u> <u>Corp FDAP</u>
<b><u>FDAP Payments</u></b>			
Dividends	175,745	284,712	36.0%
Interest	<b>62,598</b>	153,852	19.4%
Royalties	<b>68,489</b>	114,287	14.4%
Capital Gains	1,881	4,127	0.5%
<b><u>Non-FDAP Payments</u></b>			
Other income	<u>77,609</u>	<u>234,547</u>	
	<b>\$386,322</b>	<b>\$791,525</b>	

## Recipients Matching: Certain/Uncertain

	<u>Certain</u>	<u>Uncertain</u>	<u>Total</u>
N (unique)	63,921	159,311	223,232
\$ M	\$265,649	\$117,322	\$382,971
Total			<b>\$386,322</b>
% of recipients	28.6%	71.4%	
% of income	<b>69.4%</b>	30.6%	

The recipient matching process found multiple potential matches for 223,232 unique recipients, but there were recipients that could not be matched at all. For example, the name on the data record was simply random characters. These certain and uncertain matches account for \$382,971/\$386,322 (99%) of the payments to U.S. corporate recipients.

# Recipients Matching: Certain/Uncertain

## Payors: Related/Unrelated

	<u>Certain</u>	<u>Uncertain</u>	<u>Total</u>
N (unique)	63,921	159,311	223,232
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% of recipients	28.6%	71.4%	
% of income	69.4%	30.6%	

Certain and uncertain matches account for 99% of the payments to U.S. corporate recipients.

	<u>Related</u>	<u>Unrelated</u>	<u>Total</u>
N (unique)	7,911	39,165	47,076
Dividends	\$99,910	\$75,835	\$175,745
Interest	36,388	26,210	62,598
Royalties	42,011	26,478	68,489
Capital Gains	182	1,699	1,881
Other	33,510	44,100	77,610
Total	<u>\$212,001</u>	<u>\$174,321</u>	<b>\$386,322</b>
<b>% of payors</b>	16.8%	83.2%	
<b>% of payments</b>	<b>54.9%</b>	45.1%	

The related payors make payments to US beneficial owners that average \$27M (\$212,000/7,911) over the 2007-2012. The unrelated payors remit an average \$4.5M to US beneficial owners.

# Recipients Matching: Certain/Uncertain

## Payors: Related/Unrelated

	<u>Certain</u>	<u>Uncertain</u>	<u>Total</u>
N (unique)	63,921	159,311	223,232
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Certain and uncertain matches account for 99% of the payments to U.S. corporate recipients.

	<u>Related</u>	<u>Unrelated</u>	<u>Total</u>
N (unique)	7,911	39,165	47,076
Dividends	\$99,910	\$75,835	\$175,745
<b>Interest</b>	36,388	26,210	62,598
<b>Royalties</b>	42,011	26,478	68,489
Capital Gains	182	1,699	1,881
Other	33,510	44,100	77,610
Total	<b>\$212,001</b>	<b>\$174,321</b>	<b>\$386,322</b>
<b>% of payors</b>	16.8%	83.2%	
<b>% of payments</b>	54.9%	45.1%	

The related payors make payments to US beneficial owners that average \$27M (\$212,000/7,911) over the 2007-2012. The unrelated payors remit an average \$4.5M to US beneficial owners.

# **Our approach: estimate compliant income shifting**

---

- 1. Estimate magnitude of income shifting**
- 2. Match FTIR and IRS data**
- 3. Estimate compliant income shifting using FTIRC measures**
  - Compute two compliance measures

# Foreign Tax Information Reporting Compliance (FTIRC)

## Measures

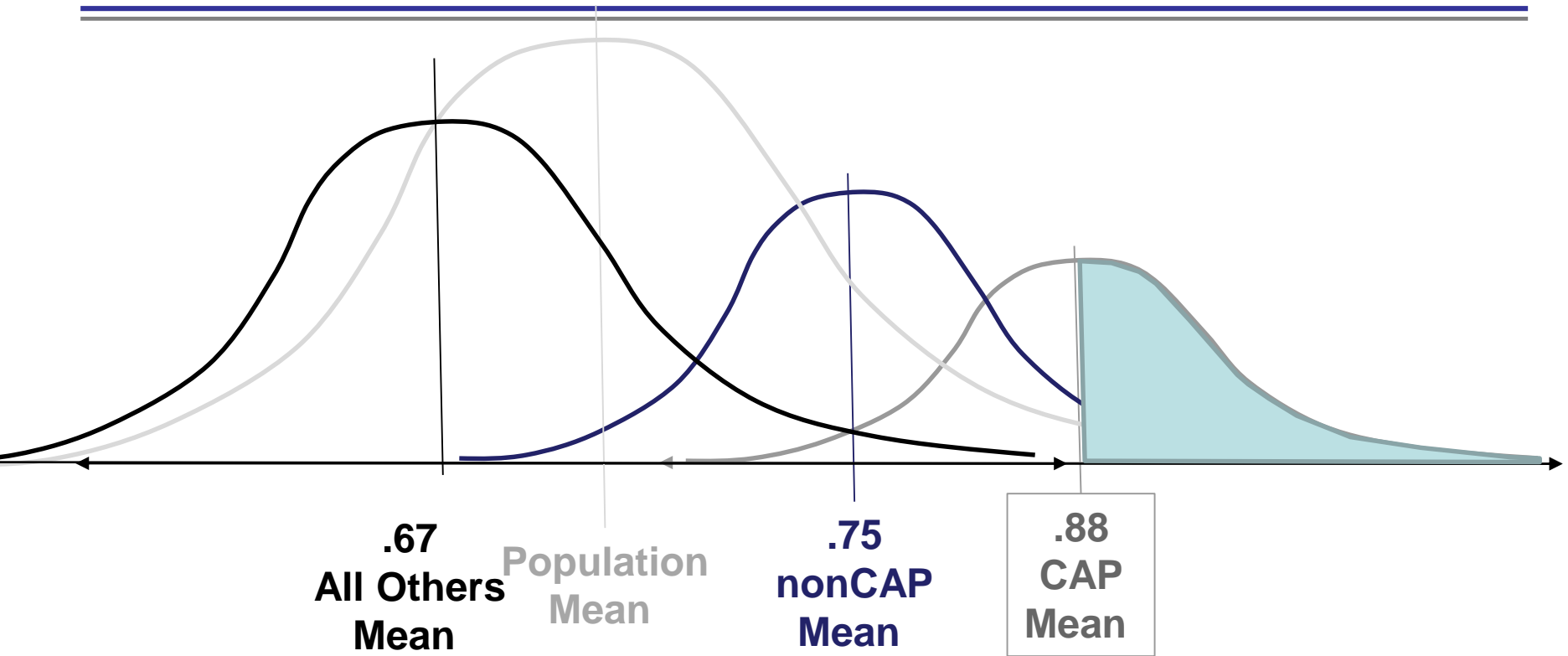
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### FTIRC1

- the ratio of the matched recipients to all recipients for each related payor, weighted by the FDAP payments.
  - The percent of all payments reported to the FTA for recipients matched to the corporate efile.

### FTIRC2

# FTIRC1 – Recipient Filing



# Foreign Tax Information Reporting Compliance (FTIRC)

## Measures

---

### FTIRC1

- the ratio of the matched recipients to all recipients for each related payor, weighted by the FDAP payments.
  - The percent of all payments reported to the FTA for recipients matched to the corporate efile.

### FTIRC2

- the ratio of expense reported by the CFC to the FTA, relative to the expense reported by the CFC to the IRS.
  - FTA royalties/IRS royalties
  - FTA interest/IRS interest

## FTIRC2 Compliance Adjustment Factor (CAF)

---

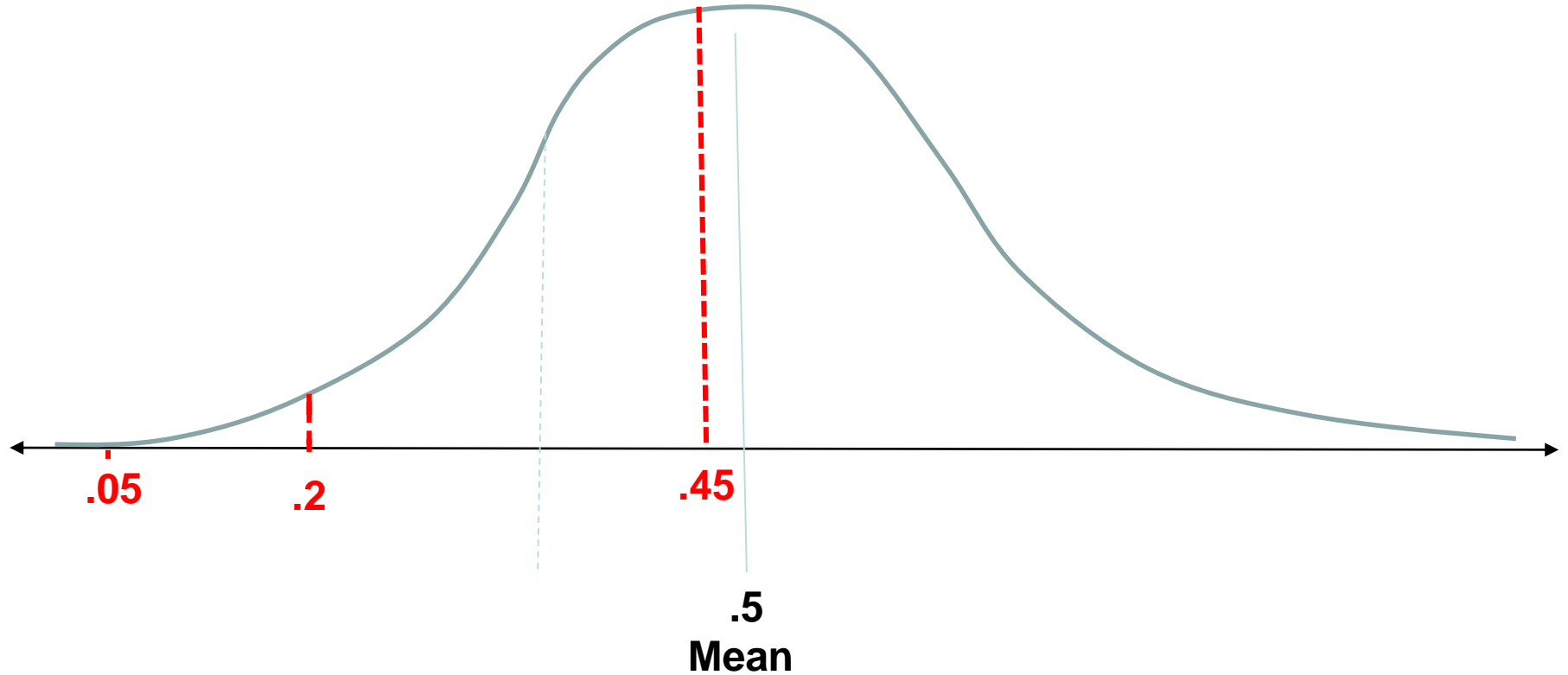
If a CFC's

- $FTIRC2 < \text{mean FTIRC2 for the CFC's group,}$

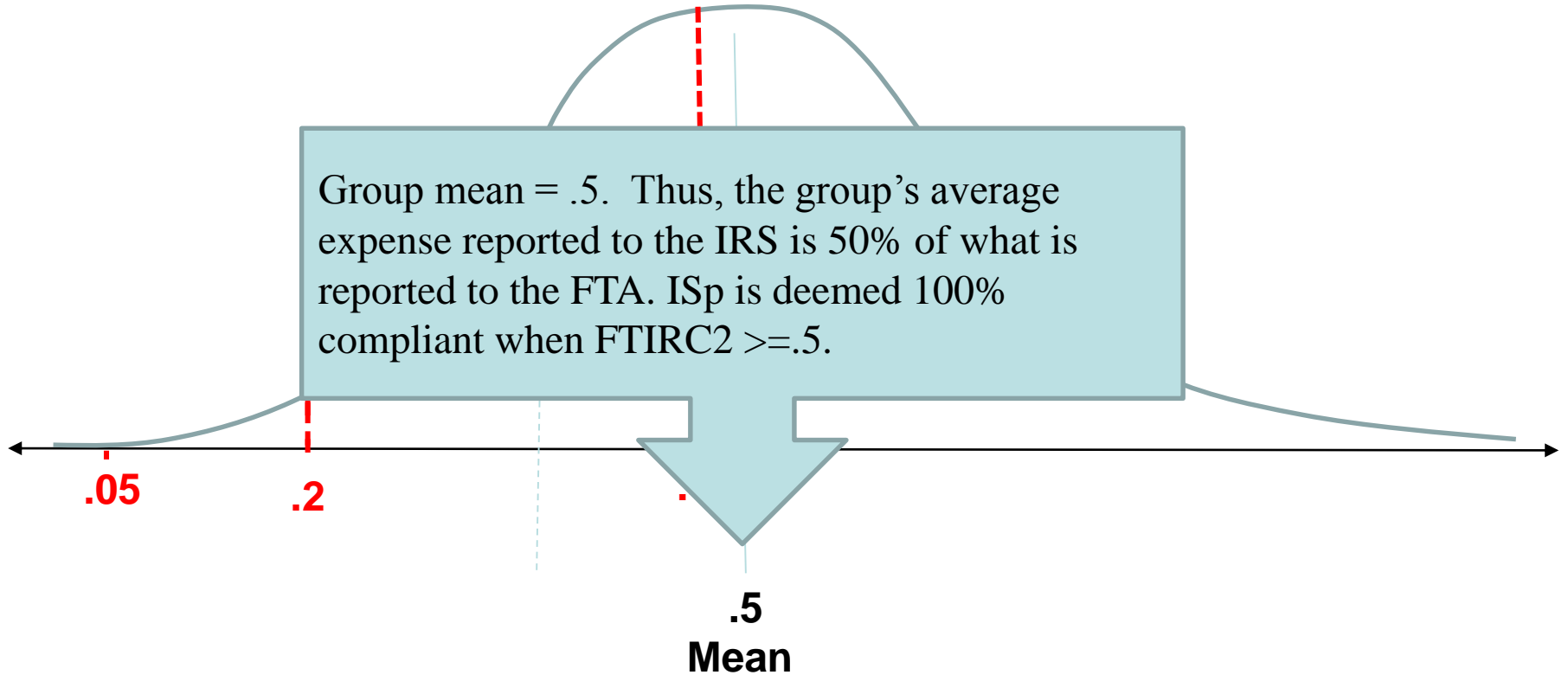
Then we compute

- $CAF = FTIRC2 / \text{mean FTIRC2.}$
- Then compute a weighted average of the royalty and interest CAFs, where the weights are the relative share of (interest or royalty) expense

# FTIRC2 – Compliance Adjustment Factor



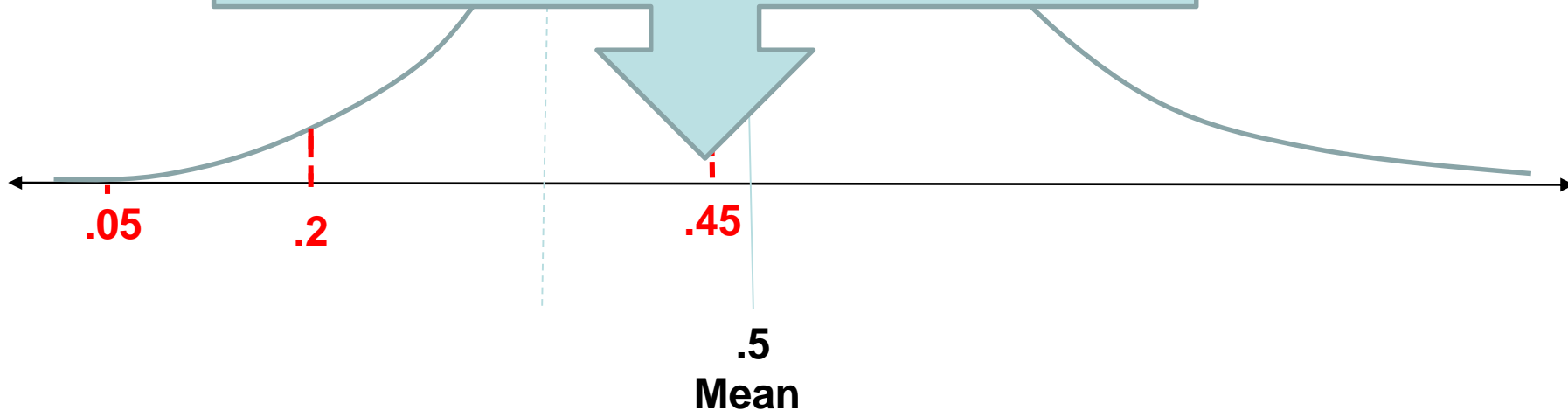
# FTIRC2 – CAF



# FTIRC2 – CAF

$FTIRC2 = .45$ .  $CAF = .45/.5 = 90\%$

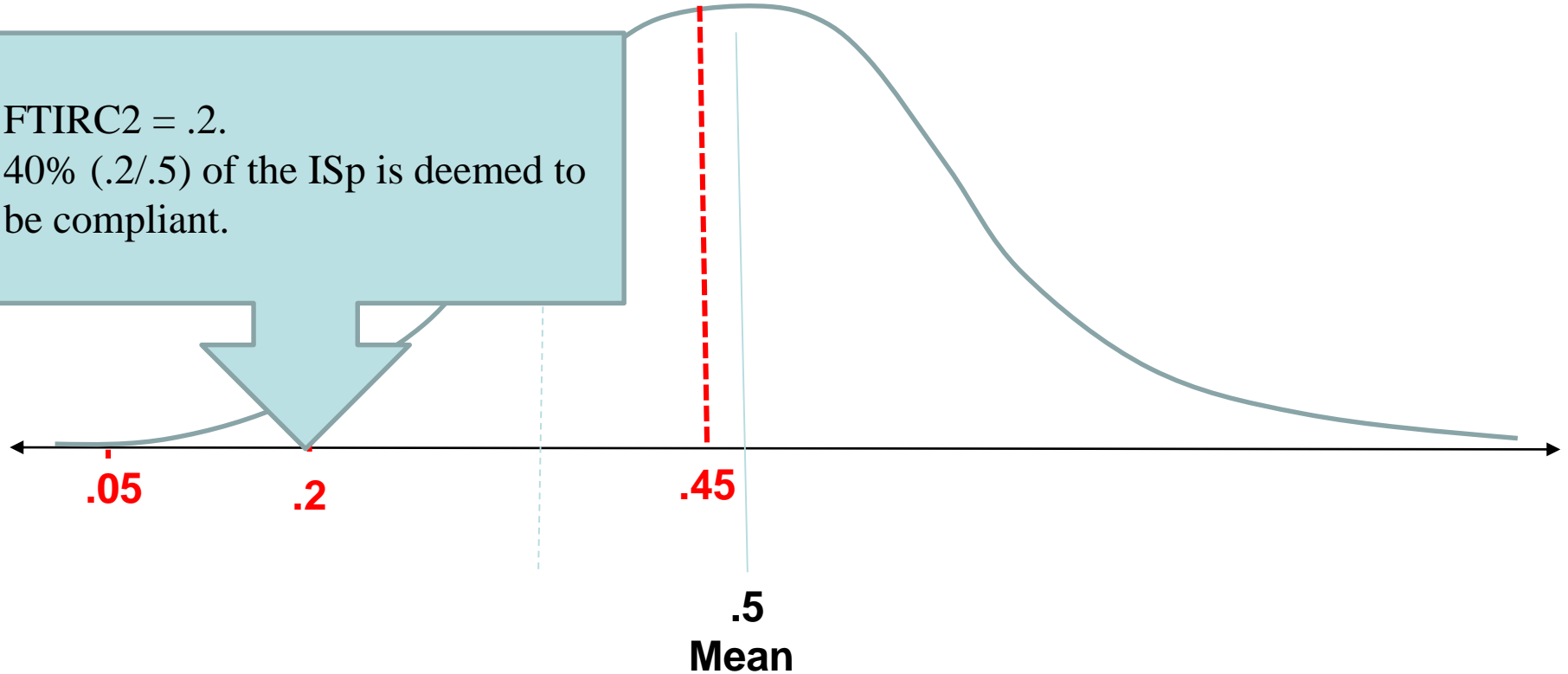
The CFC's royalty expense reported to the IRS is 45% of what is reported in the source country. Because this CFC's FTIRC2 is below the mean, 90% (.45/.5) of the ISp is deemed to be compliant.



# FTIRC2 – CAF

FTIRC2 = .2.

40% ( $.2/.5$ ) of the ISp is deemed to be compliant.



# Compliant Income Shifting Estimates

	Compliance Adjustment Factor								
	ISp			Compliant ISp			(Percent Compliant)		
	CAP	nonCAP	others	CAP	nonCAP	others	CAP	nonCAP	others
<b>2007</b>	9,518	13,958	51,039	4,135	6,150	22,523	<b>0.434</b>	<b>0.441</b>	<b>0.441</b>
<b>2008</b>	6,559	12,771	56,683	3,058	5,970	25,077	<b>0.466</b>	<b>0.467</b>	<b>0.442</b>
<b>2009</b>	12,928	14,705	48,533	6,177	6,663	21,940	<b>0.478</b>	<b>0.453</b>	<b>0.452</b>
<b>2010</b>	10,633	20,167	58,241	5,035	9,435	26,362	<b>0.474</b>	<b>0.468</b>	<b>0.453</b>
<b>2011</b>	12,212	18,254	61,226	5,591	8,170	26,965	<b>0.458</b>	<b>0.448</b>	<b>0.440</b>
<b>2012</b>	10,049	16,185	53,660	4,800	7,280	23,699	<b>0.478</b>	<b>0.450</b>	<b>0.442</b>

# Conclusion

---

- FTIRC1 showed expected differences between CAP, nonCAP and all other filers.
- FTIRC2 did not support the conclusion that CAP taxpayers are more compliant.
  - Further study is needed to confirm the attributes used to create the groups.

Income Shifting by U.S. Multinational Corporations  
by Black, Dunbar, Duxbury, and Schultz

and

Using IRS Data to Identify Income Shifting Firms  
by Simone, Mills, and Stomberg

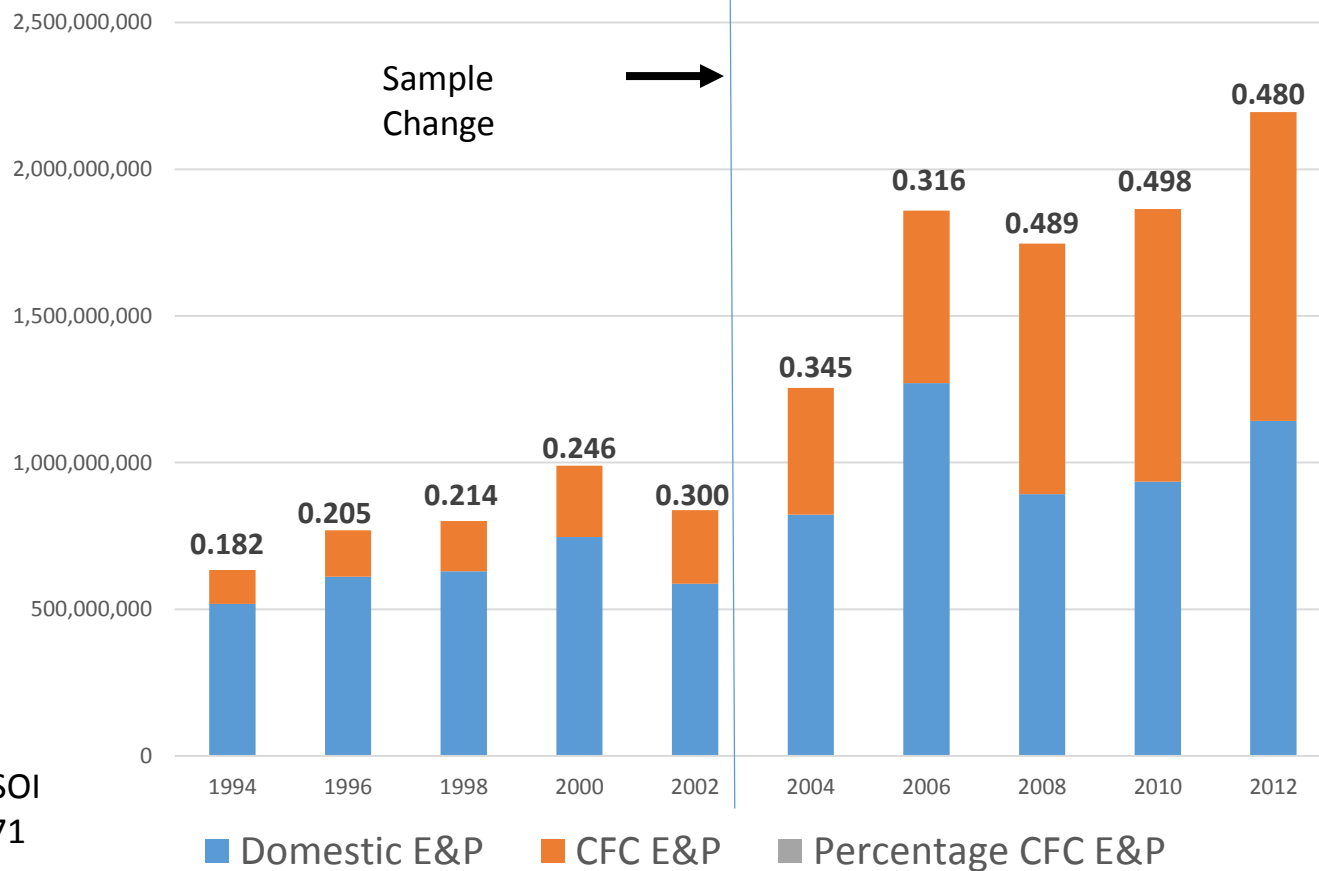
Discussion by

Tim Dowd, Joint Committee on Taxation

# Profit Shifting

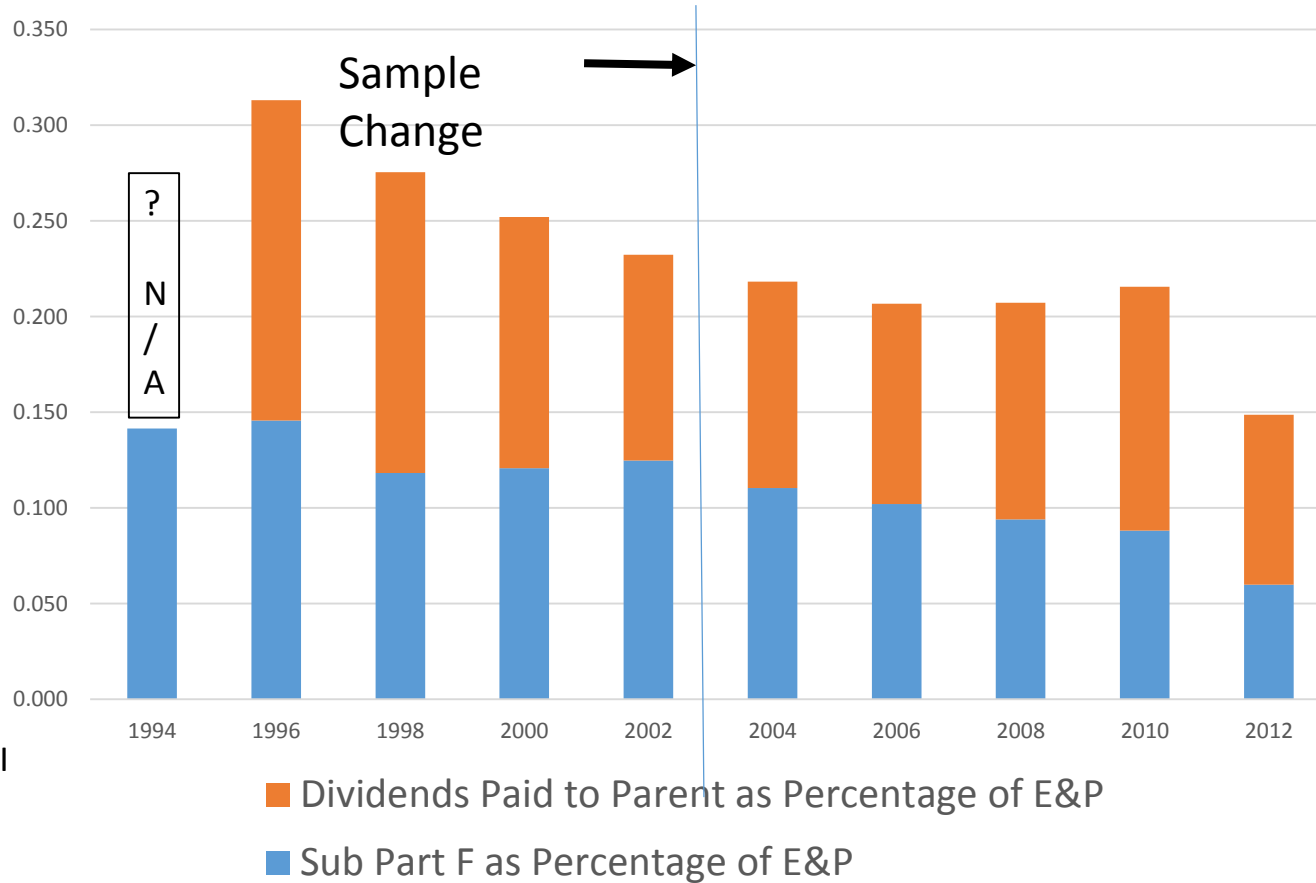
- Both papers look at the profit shifting of US corporations.
  - Black, et al. objective is to quantify the amount of US base erosion from Shifting and understand foreign CFC compliance.
  - Simone, et al. objective is to use third party publicly available data to identify profit shifting corporations.
- These are important questions for policy makers, investors, and the IRS.
- Why? Because there is a lot of money out there, and it is in low tax jurisdictions.

## Corporate Earnings and Profits



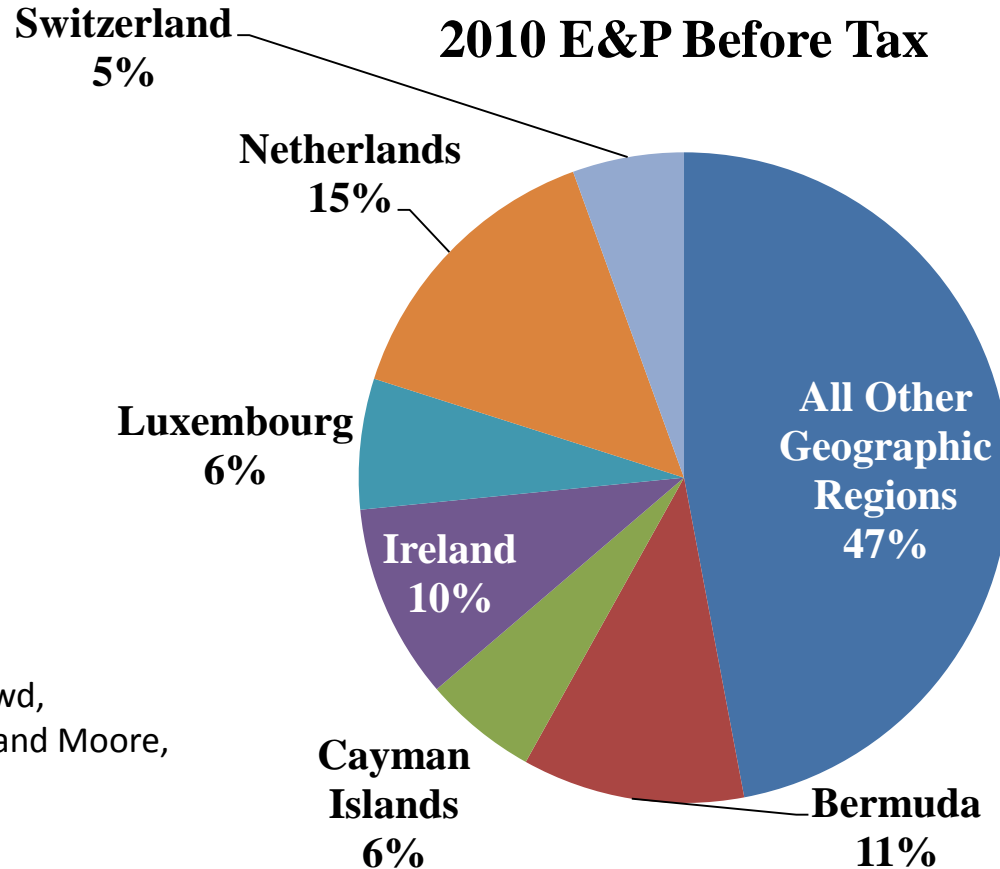
Source: IRS, SOI  
Corp and 5471  
Study

## Distributions to Parent as a Percent of CFC E&P



Source: IRS, SOI  
5471 Study

**Figure 7a: 2010 Foreign Earnings and Profits before tax for US multi-national corporations**



Source: Dowd,  
Landefeld, and Moore,  
April 2017.

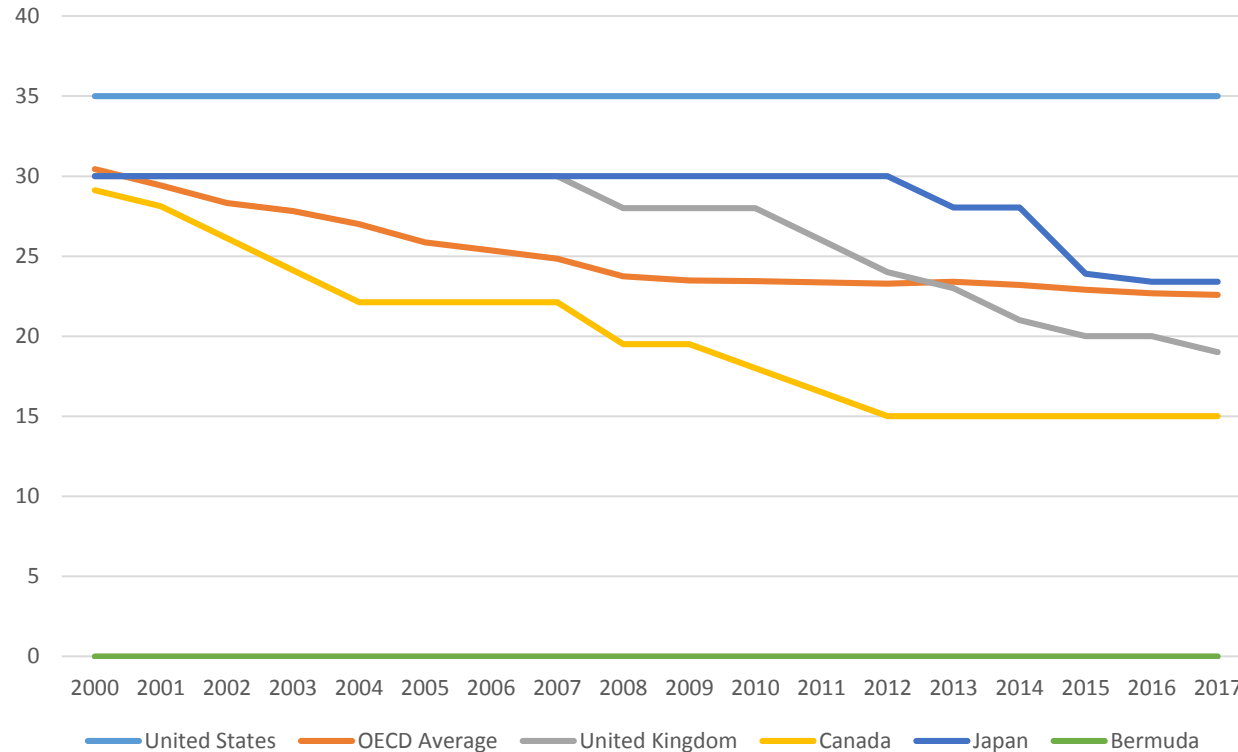
# Economic and Population Growth

- Increased foreign E&P could be driven by more rapid foreign population and economic growth:

	U.S.	ROW
Pop Growth 1994-2015	20%	27%
GDP Growth 1994-2015	50%	67%

# Corporate Tax Rates

Selected Corporate Central Government Tax Rate



# Income Shifting by US Multinationals

- Premise: Variation in after-tax rates of return on investment are driven by profit shifting. In the absence of profit shifting
  - $ATROI_j = ATROI_i = ATROI_{\text{worldwide}} = ATROI_{\text{US}}$
- ➔ can calculate the amount of shifted income in order to equalize the observed after tax rates of return.
- Authors sum up all positive shifted income in each CFC-country.
  - Find that over the period 2007-2015, there was positive average income shifted of \$166 billion a year.

# Income Shifting by US Multinationals

## ISM Information Reporting and CAP

- Find that much more shifting occurring in non-participant countries.
- Also much more shifting occurring with non-cap corporations.
- But, there are inference problems here:
  - Information reporting country results:
    - Are these generally higher tax countries?
    - Is this where there are negative shifting out occurring?
    - Etc..
  - CAP Program results:
    - Rollout of new compliance program might → choose the easy to understand returns.
    - Invitation only → sample selection problems.
    - Application only later with requirement that the corporation “display a general willingness to be transparent and cooperative the IRS.”

# Income Shifting by US Multinationals

## ISM Suggestions

- The authors make two related assumptions:
  - 1. all positive income shifted to CFCs is shifted out of the U.S.
  - 2. ignore negative income shifted out of CFCs.
- These assumptions are wrong because they assume shifting out of CFCs into other CFCs is from the US.
- Corporations engage in considerable foreign to foreign income shifting.

# Income Shifting by US Multinationals

## ISM Suggestions

	US Parent	German CFC	Cayman CFC	Sum of IS
True Income Shifting	-100	-50	+150	0
Assume Positive CFC Only	-150	0	+150	0

# Using IRS Data to Identify Income Shifting Firms

- Premise:
  - Net Outbound Payments to Related Parties Signify Shifting Activity.
  - Authors find that 37% of their sample are shifters.
- Run logit model to predict who is a shifter using publicly available data for the independent variables.
- Test model on out of sample data.
- Test aggressiveness of shifters by looking at the intensity of shifting.
- Test IRS Audit propensity against both the likelihood model and the intensity model

# Using IRS Data to Identify Income Shifting Firms

## *Results*

- Firms that engage in RD and High Tech are likely to be net outbound shifters.
- Firms that have large capital expenditures are less likely to be shifters.
- Havens increase likelihood.
- The lagged tax gap between the US and foreign increases the likelihood.
- Find that “Aggressive income shifters also have greater R&D expense, capital expenditures, gross profit percentages, foreign sales intensities, domestic sales growth and worldwide sales (*Size*) at the mean and median relative to other MNEs.”
- And that net related party shifting is not correlated with the probability of an audit.

# Using IRS Data to Identify Income Shifting Firms

## *More Data/Heterogeneity of Corporations*

- Net Shifters shifted on average 7% of gross sales.
  - What does this look like at the 75<sup>th</sup> percentile? 90<sup>th</sup> percentile?
- Net related party payments can be decomposed.
  - Net payments for stock in trade.
  - Net payments for tangible property.
  - Net payments for Intangible income.
  - Net dividends.
  - Net interest.

# Using IRS Data to Identify Income Shifting Firms

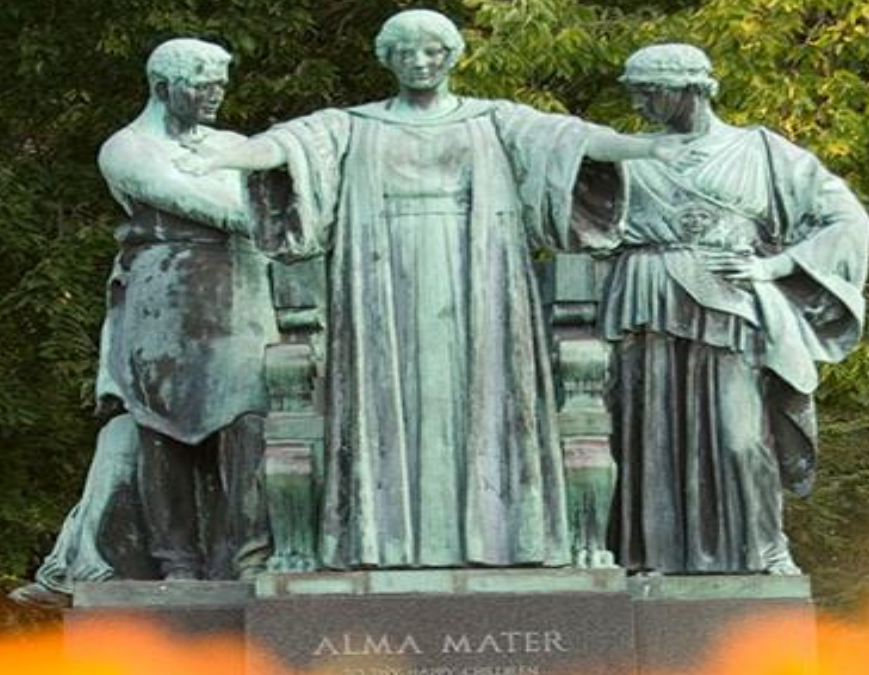
## *Likelihood Model*

- Authors use lagged values of foreign taxes to avoid endogeneity.
  - Do we care about endogeneity here?
- Authors use a logit model and try an out of sample prediction.
  - Maybe a linear probability model will give better predictions.

# Using IRS Data to Identify Income Shifting Firms

## *Shifting Intensity and Audits*

- Zero effect of shifters on audit probability. Was IRS getting it wrong?
  - Not clear.
  - Audit regressions with **change in liability indicator** as the dependent variable would answer whether the net outbound related party payment measure is the right measure of income shifting.
    - In other words, is the premise of the paper correct?
- Effect of size on shifting (-) and audits (+).
  - ➔ size shouldn't be used as a determinant of audits.
  - However, historically it has been a major determinant. So, maybe it has been effective. Can this be teased out with firms crossing the audit size threshold?



## The economic effects of special purpose entities on corporate tax avoidance

**Paul Demeré**  
*Univ. of Georgia*

**Michael Donohoe**  
*Univ. of Illinois*

**Petro Lisowsky**  
*Univ. of Illinois, NoCeT*



ILLINOIS

# Overview

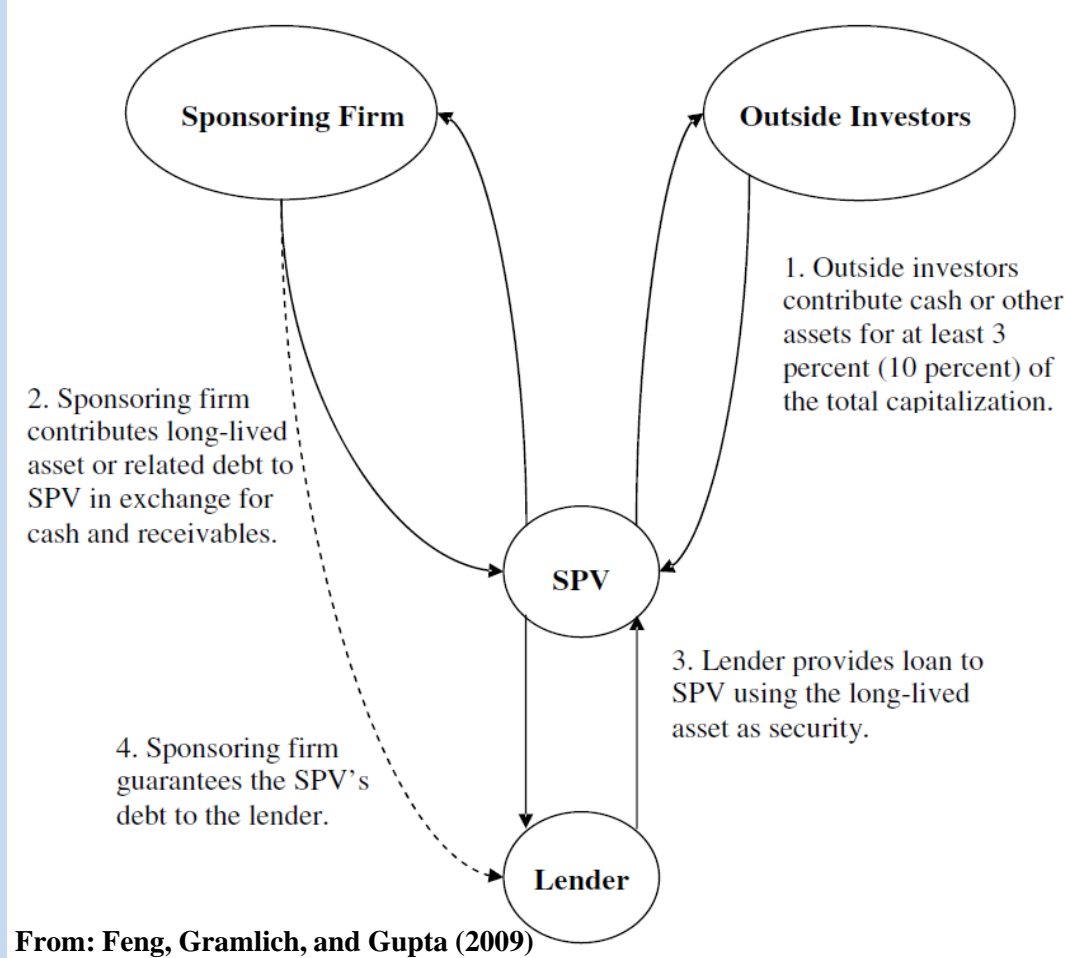
- **Goal: Examine how SPEs facilitate corporate tax avoidance**
- **Special Purpose Entities (SPEs)**
  - Separate legal entities created by a sponsor-firm to perform narrow, pre-defined business activities or series of transactions (**Feng Gramlich Gupta 2009**)
- **Research questions**
  - To what extent are transactions used **within** SPEs for tax avoidance?
  - How **large** are the total corporate tax savings facilitated by SPEs?
  - For which transactions do SPEs **enhance** relative tax savings?

# Overview

## ■ Motivation

- Many papers and reports study different tax advantaged *transactions*
- Few studies on the *organizational structures* facilitating transactions
  - Mostly on multinational firms seeking to shift income
- Most evidence on tax revenue losses is anecdotal
  - But, SPEs have many *non-tax* applications
- Corporate use of SPEs is large (**50% of S&P 500**) and growing (**600%**)
- Prior research focuses on determinants of SPEs, but **not** effects.
- What are the corporate tax effects of these structures?

# Background on SPEs



# Tax Advantages of SPEs

- ***Facilitate* tax avoidance**
  - Enable sponsors to conduct a greater **level** of tax-advantaged transactions
  - Enhance the tax **efficiency** (i.e., relative tax savings) of such transactions, holding level constant

$$\textit{Total Tax Savings} = f(\textit{Level}, \textit{Efficiency})$$

# Disadvantages of SPEs

- **Non-tax and tax costs of SPEs are potentially large**
  - Reduce information quality **Feng et al. (2009)**
  - Increase regulatory scrutiny **IRB 2011-39; Inland Revenue (2013)**
  - Enhance public pressure **Dyreng et al. (2016)**
  - Result in large tax penalties **Wilson (2009)**
  - Result in higher taxes **Wittendorff (2010)**
- **Key drivers of SPE use (Feng et al. 2009)**
  - **Financial reporting pressures, governance, and others**
  - **Tax avoidance not necessarily a major objective for SPEs**
- **Is tax avoidance via SPEs economically significant?**

# Research Design

- Measures of SPE use
  - Identification using Feng et al. (2009) approach
  - Python script: LLP, LLC, LP, and other pass-thru subs in Exhibit 21
    - Mitigates selection bias (mandatory disclosure)
    - *SPETOT* = log of (one plus) the total number of SPEs
      - Winsorize at top 1% to mitigate outliers
    - *SPEBIN* = indicator for firm-years with an SPE; 0 otherwise
- Measures of tax avoidance
  - Forward-looking ETRs estimated over three years ( $t$  to  $t+2$ )
    - *GETR* (GAAP ETR) = total tax expense / pre-tax book income
    - *CETR* (Cash ETR) = worldwide cash taxes paid / pre-tax book income

# Research Design

- Empirical model

- $ETR = \beta_{i0} + \beta_1 SPE_{it} + \sum_{j=2}^{11} \beta_j TAT_{jit} + \sum_{j=12}^{20} \beta_j CTRL_{jit} + \delta_{0t} + \epsilon_{it}$ 
  - **TAT** vector of variables capturing Tax-Advantaged Transactions
  - **CTRL** vector of control variables (for ETR regressions)
    - Also include other structures (haven, business segments)
  - Firm and year fixed-effects → generalized difference-in-differences
    - Adapt model to examine our research questions: Path and Moderation

- Sample selection

- Compustat [1997-2011]
  - Publicly traded; domestic; positive total assets
  - Drop negative three-year pre-tax income; regulated/financial firms
  - Require two future years of data for future ETRs
    - 25,533 observations from 4,566 unique firms

# Main Results

- Descriptive statistics
  - Temporal distribution

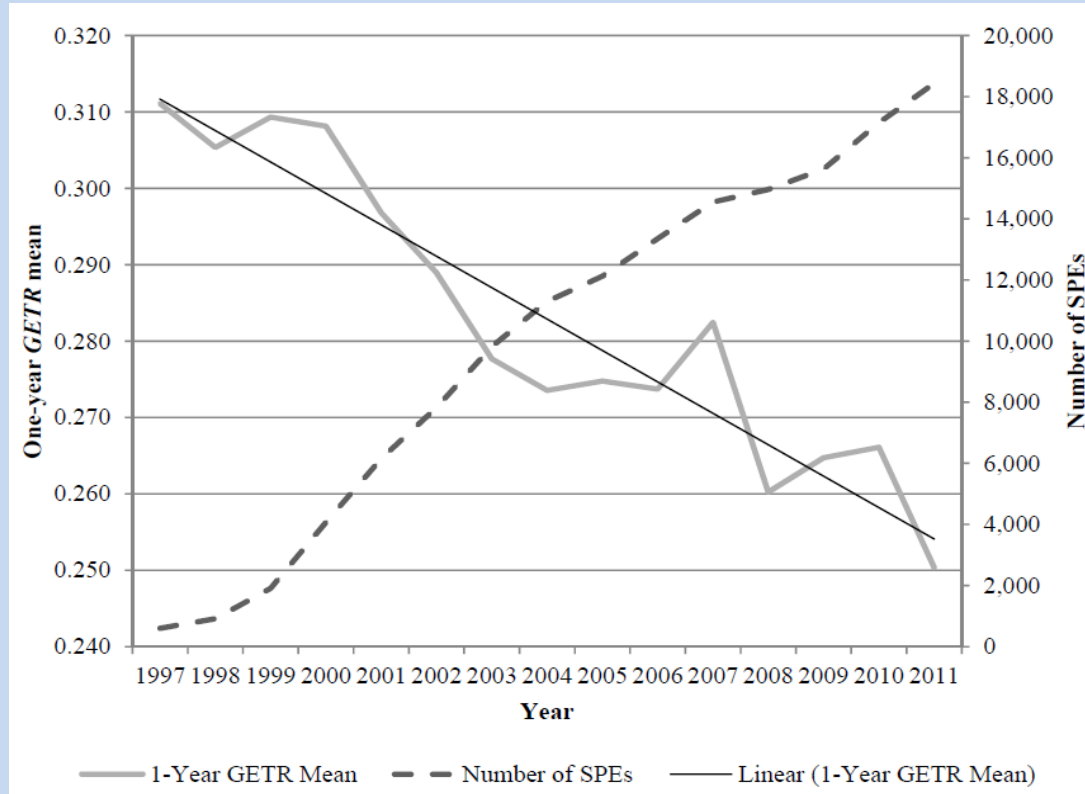
Year	(1) Total SPEs	(2) SPE Users	(3) SPEs Per User [(1)/(2)]	(4) Non- Users	(5) Total Obs. [(2)+(4)]	(6) SPE Use [(2)/(5)]
1997	605	165	3.67	1,589	1,754	9.4%
1998	917	207	4.43	1,517	1,724	12.0%
1999	1,910	268	7.13	1,372	1,640	16.3%
2000	4,075	520	7.84	1,556	1,556	33.4%
2001	6,161	607	10.1	1,010	1,617	37.5%
2002	7,827	726	10.78	1,071	1,797	40.4%
2003	9,823	811	12.25	1,054	1,856	43.2%
2004	11,302	839	13.47	970	1,809	46.4%
2005	12,125	875	13.86	909	1,784	49.0%
2006	13,353	876	15.24	828	1,704	51.4%
2007	14,552	917	15.87	805	1,722	53.3%
2008	14,961	910	16.44	785	1,695	53.7%
2009	15,634	921	16.98	708	1,629	56.5%
2010	17,147	971	17.66	666	1,637	59.3%
2011	18,436	999	18.45	610	1,609	62.1%
Total	148,828	10,603	14.04	14,930	25,533	41.5%

600% increase

# Main Results

- Descriptive statistics

- Time trends in SPEs and one-year GAAP ETR (*GETR*)



# Main Results

- Descriptive statistics
  - Industry distribution

NAICS Industry	(1)		(2)		(3)		(4)	
	Total SPEs		SPE Users		Non-Users		Total [(2+3)]	
	Obs.	%	Obs.	%	Obs.	%	Obs.	SPE Use
62: Health Care	24,872	16.7	381	3.6	256	1.7	637	59.8%
71: Arts & Entertainment	2,274	1.5	112	1.1	78	0.5	190	58.9%
81: Other Services	1,173	0.8	83	0.8	62	0.4	145	57.2%
23: Construction	5,447	3.7	228	2.2	172	1.2	400	57.0%
56: Administrative & Support Services	5,351	3.6	366	3.5	335	2.2	701	52.2%
44: Consumer Retail	11,757	7.9	468	4.4	526	3.5	994	47.1%
72: Accommodation & Food Services	5,793	3.9	319	3.0	367	2.5	686	46.5%
54: Professional Services	4,605	3.1	569	5.4	660	4.4	1,229	46.3%
53: Real Estate	6,568	4.4	298	2.8	348	2.3	646	46.1%
45: Miscellaneous Retail	1,604	1.1	249	2.3	308	2.1	557	44.7%
21: Mining, Oil, & Gas Extraction	8,388	5.6	656	6.2	818	5.5	1,474	44.5%
32: Wood & Petroleum Products Manufacturing	10,942	7.4	1,451	13.7	1,888	12.6	3,339	43.5%
31: Food & Apparel Manufacturing	7,965	5.4	695	6.6	968	6.5	1,663	41.8%
51: Information	19,099	12.8	994	9.4	1,398	9.4	2,392	41.6%
49: Couriers & Warehousing	99	0.1	38	0.4	55	0.4	93	40.9%
42: Wholesale Trade	3,226	2.2	493	4.6	717	4.8	1,210	40.7%
61: Education	490	0.3	44	0.4	78	0.5	122	36.1%
48: Transportation	9,567	6.4	352	3.3	626	4.2	978	36.0%
33: Other Manufacturing	19,225	12.9	2,742	25.9	5,121	34.3	7,863	34.9%
99: Other	246	0.2	35	0.3	75	0.5	110	31.8%
11: Agriculture, Forestry, & Fishing	137	0.1	30	0.3	74	0.5	104	28.8%
Total	148,828	100.0	10,603	100.0	14,930	100.0	25,533	41.5%

More  
intangibles /  
legal risk

Less  
Intangibles /  
legal risk

# Main Results

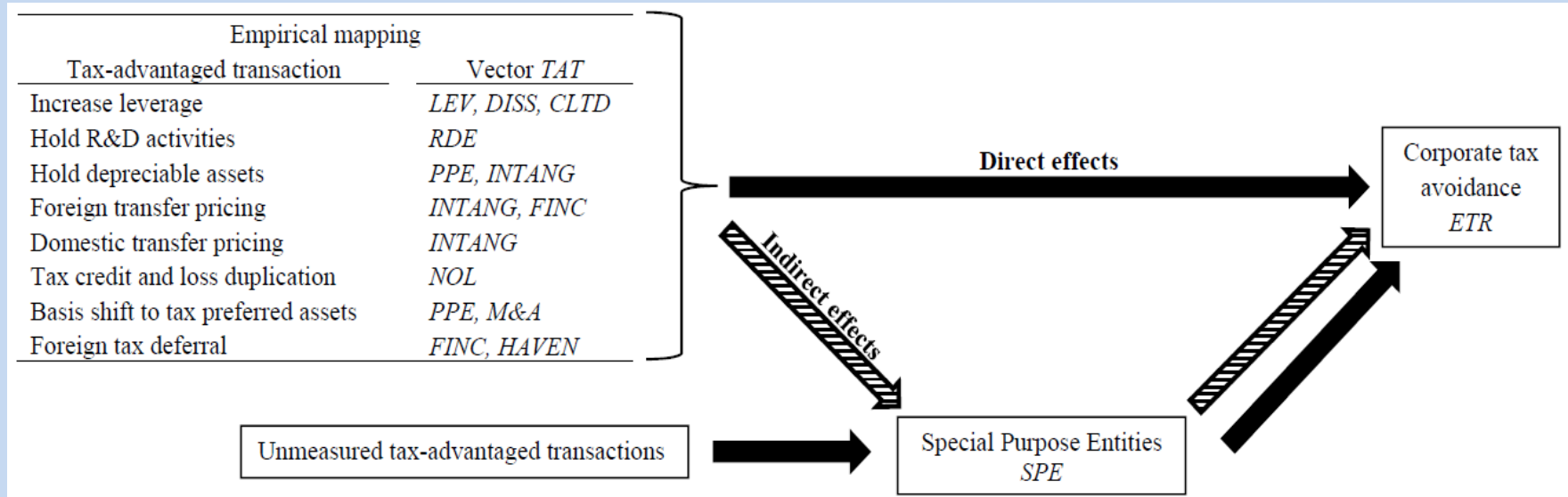
- Relation between SPEs and corporate tax avoidance

	(1)			(2)			(3)			(4)		
	<i>GETR</i>			<i>GETR</i>			<i>CETR</i>			<i>CETR</i>		
	Coeff.		<i>t</i> -stat	Coeff.		<i>t</i> -stat	Coeff.		<i>t</i> -stat	Coeff.		<i>t</i> -stat
<b>Measures of SPE use (<i>SPE</i>)</b>												
<i>SPETOT</i>	-0.010	***	-3.95				-0.008	***	-2.68			
<i>SPEBIN</i>				-0.014	***	-2.75				-0.012	**	-2.44

- First large-sample evidence on the **overall** relation between SPEs and ETRs
  - SPEs facilitate tax avoidance above and beyond common tax-advantaged transactions (*TAT*) and controls (*CTRL*)
- Results serve as an important starting point
  - Overall Effects = Direct Effects + Indirect Effects
    - Path Analysis (RQ1 and RQ2)
  - Moderation Analysis (RQ3)

# Main Results

## ■ Path analysis diagram



- With *SPE* in the model, coefficients for *TAT* capture direct effect of measured transactions on ETRs, *absent* the use of SPEs (solid arrows)

## ■ Path analysis steps

- Map each tax-advantaged transaction to at least one *TAT* variable
- Estimate model **with and without** *SPE* to obtain path coefficients

# Main Results

## Level of tax-advantaged transactions used within SPEs (RQ1)

	Panel A: <i>GETR</i>							Panel B: <i>CETR</i>						
	<i>Total</i>		<i>Direct</i>		<i>Indirect (within)</i>			<i>Total</i>		<i>Direct</i>		<i>Indirect (within)</i>		
	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	%	Coeff.	t-stat	Coeff.	t-stat	Coeff.	t-stat	%
<i>SPETOT</i>			-0.037	-3.95						-0.027	-2.68			
<b>Tax-advantaged transactions (<i>TAT</i>)</b>														
<i>LEV</i>	-0.030	-2.55	-0.029	-2.46	-0.001	-1.87	3.6	-0.053	-4.19	-0.052	-4.12	-0.001	-1.79	1.8
<i>DISS</i>	0.036	3.45	0.035	3.37	0.001	2.04	2.5	0.028	2.58	0.027	2.51	0.001	1.87	2.6
<i>CLTD</i>	-0.026	-2.60	-0.026	-2.58	0.000	0.89	1.2	-0.016	-1.52	-0.016	-1.50	0.000	0.65	1.1
<i>RDE</i>	-0.016	-1.59	-0.015	-1.49	-0.001	-2.61	6.6	-0.010	-0.97	-0.009	-0.89	-0.001	-2.12	8.7
<i>PPE</i>	-0.027	-1.85	-0.027	-1.88	0.000	0.70	1.4	0.028	1.94	0.028	1.92	0.000	0.79	1.3
<i>INTANG</i>	-0.052	-3.64	-0.050	-3.51	-0.002	-2.39	3.5	0.019	1.31	0.020	1.39	-0.001	-1.74	6.1
<i>NOL</i>	-0.066	-5.24	-0.065	-5.15	-0.001	-2.83	2.0	-0.025	-2.23	-0.024	-2.16	-0.001	-2.03	3.3
<i>M&amp;A</i>	0.010	1.17	0.010	1.19	0.000	0.40	1.4	0.031	3.46	0.031	3.46	0.000	0.26	0.2
<i>FINC</i>	-0.029	-3.01	-0.028	-2.96	-0.001	-1.21	1.7	-0.034	-3.62	-0.034	-3.59	0.000	0.76	0.7
<i>HAVEN</i>	-0.017	-1.86	-0.011	-1.21	-0.006	-3.72	34.6	-0.001	-0.13	0.003	0.31	-0.004	-2.59	331.2

- **Negative Indirect** → SPEs result in *more* tax avoidance for given variable
  - **Example:** A one std. dev. increase in *LEV* results in a 0.030 std. dev. decrease in *GETR*, where 0.001 occurs from leverage *within* SPEs and 0.029 occurs from leverage *outside* of SPEs
  - **Indirect%** → 3.6% of total tax savings from *LEV* occurs within SPEs
- SPEs facilitate a greater **level** of specific transactions such that an economically large portion of the total **cash** tax savings occurs *within* SPEs
  - **Lev (1.8%); NOL (3.3%); R&D (8.7%); intangibles (6.1%); haven (all)**

# Main Results

- Total tax savings facilitated by SPEs (RQ2)
  - **SPE users:** *GETR* and *CETR* are 1.6 and 1.2% points lower than non-users
  - **Firm-level:** GAAP and cash tax savings of **\$9.84M** and **\$7.77M** per year
  - **Sample-level:** cash tax savings alone averages **\$82B** (as high as **\$165B**)
    - 1.9% (up to 3.7%) of total U.S. corporate tax revenues collected
- Comparisons:
  - **Havens** (\$1.3B); **round-tripping** (\$33.0B); **shelters** (\$12.4B); **derivs** (\$3.8B)

# Main Results

	Panel A: <i>GETR</i>			Panel B: <i>CETR</i>		
	(1)	(2)	(2)/(1)	(1)	(2)	(2)/(1)
	Main Effect	Interaction	Change	Main Effect	Interaction	Change
	( <i>t</i> -stat)	( <i>t</i> -stat)	(%)	( <i>t</i> -stat)	( <i>t</i> -stat)	(%)
<i>SPETOT</i>	-0.038*** (-3.30)			-0.031*** (-2.59)		
<b>Tax-advantaged transactions (<i>TAT</i>)</b>						
<i>LEV</i>	-0.034*** (-3.17)	-0.002 (-0.21)	0%	-0.046*** (-4.09)	0.022** (2.19)	47.8% ↓
<i>DISS</i>	0.032*** (3.44)	0.011 (1.59)	0%	0.020** (2.10)	-0.001 (-0.16)	0%
<i>CLTD</i>	-0.026*** (-2.84)	0.014* (1.52)	53.8% ↓	-0.015 (-1.55)	0.007 (0.91)	0%
<i>RDE</i>	-0.027** (-2.57)	-0.025** (-2.30)	92.6% ↑	-0.009 (-0.96)	-0.010 (-0.96)	0%
<i>PPE</i>	-0.029** (-2.19)	-0.001 (-0.06)	0%	0.026** (2.05)	0.007 (0.65)	0%
<i>INTANG</i>	-0.051*** (-3.61)	-0.037*** (-3.30)	72.5% ↑	0.026* (1.89)	-0.013 (-1.07)	0%
<i>NOL</i>	-0.059*** (-4.76)	0.028** (2.23)	47.5% ↓	-0.028** (-2.50)	-0.001 (-0.06)	0%
<i>M&amp;A</i>	0.009 (1.21)	0.005 (0.60)	0%	0.030*** (3.54)	-0.016** (-2.09)	53.3% ↑
<i>FINC</i>	-0.031*** (-3.41)	0.008 (0.98)	0%	-0.037*** (-4.17)	0.012 (1.43)	0%
<i>HAVEN</i>	-0.008 (-0.88)	0.003 (0.32)	0%	0.004 (0.40)	0.006 (0.69)	0%
Intercept	-0.001* (-1.71)			-0.001 (-0.96)		

## Example: R&D

### Main

One s.d. increase in *SPETOT* results in a 0.038 s.d. decrease in *GETR* (at the mean of all variables).

One s.d. increase in *RDE* results in a 0.027 s.d. decrease in *GETR*.

### Interaction

For one s.d. increase in *SPETOT*, effect of one s.d. increase in *RDE* is assoc. with further 0.025 s.d. decrease in *GETR* (for total of 0.052).

### |Change| (%)

Incremental reduction in *GETR* due to increase in *SPETOT* (-0.025 / -0.027)

- Debt (NOLs) within SPEs is 47.8%-53.8% (47.5%) *less* tax efficient
- R&D and intangibles-based trans. 92.6% and 72.5% *more* tax efficient

# Other Tests

- Tax aggressiveness
  - SPEs facilitate some, but not overly, aggressive tax positions
- SPEs in domestic vs. foreign jurisdictions
  - *GETR* (but not *CETR*) results stronger for U.S. MNCs
  - Majority of tax savings from avoiding U.S. federal income taxes
- SPEs by industry
  - Despite high-tech/intangibles anecdotes, results pervasive across industries
- Endogenous choice to use SPEs
  - Heckman two-stage model, PSM, and entropy balancing
- Robust to:
  - Analyses relating to minority interest
  - Changes in Exhibit 21 disclosures (“disappearing subs”) and disclosure regimes

# Bottom Line

## ■ Results

- SPEs facilitate a greater **level** of specific transactions such that an economically large portion of the total cash tax savings occurs **within** SPEs
  - **Lev (1.8%); NOL (3.3%); R&D (8.7%); intang (6.1%); haven (all)**
- SPEs facilitate an economically large amount of total tax savings
  - **\$82.4 billion (sample); 2% of U.S. corporate tax revenue**
- SPEs enhance the tax **efficiency** of some transactions
  - **R&D (92.6%) and intangibles (72.5%)**

## ■ Contributions

- Differ from traditional tax avoidance research (the “what”)
  - **Organizational structures (the “how”)**
- First **large-sample empirical estimates** of tax savings facilitated by SPEs
- First to use **path** and **moderation** analysis to separate **level** from **efficiency**



Thank you!  
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## **Session 1**

# **Identifying Corporation Tax Avoidance**

## ***Discussion of***

- **The Economic Effects of Special Purpose Entities on Corporate Tax Avoidance (Pete Lisowsky)**

***Eric Toder***  
*(Tax Policy Center)*

***IRS-TPC Research Conference***  
***June 21, 2017***



## Session 1. Identifying Corporation Tax Avoidance

**Moderator:**

***Eric Toder***  
*Tax Policy Center*

**Using IRS Data to Identify Income Shifting Firms**

***Lisa De Simone***  
*Stanford University*

**Income Shifting by U.S. Multinational Corporations**

***Amy Dunbar***  
*University of Connecticut*

**The Economic Effects of Special Purpose Entities on Corporate Tax Avoidance**

***Petro Lisowsky***  
*University of Illinois at Urbana-Champaign*

**Discussants:**

***Tim Dowd*** *Joint Committee on Taxation staff*  
***Eric Toder*** *Tax Policy Center*