



Burch Conference, June 2009

Day 2: Behavioral Evidence

Investment Location
Profit Shifting
Tax Payments and Location of Expenses
Debt-Equity Decisions
Repatriations



The impact of taxation.

- Until 20 years ago, our understanding of the impact of international taxation was rather a muddle.
- In particular, serious people voiced serious questions about whether international taxation had any impact on investment and other aspects of firm behavior.
- What changed? New data became available, but more importantly, people began looking at the data more rigorously.
- Nobody now asks whether taxation matters; we now ask how much taxation matters, and how the effects vary with circumstances.



What we know about the impact of taxation on FDI.

- The bottom line: virtually all the reliable evidence points to large effects of taxation on the location, volume, and character of foreign direct investment (FDI).
- Even granting the premise that taxation has important effects, it is still important to know the associated magnitudes of behavioral responses, since these are critical to assessing the impact of tax policies in practice, and to optimal tax design.



Older evidence.

- Very old evidence (e.g., 1950s) comes from surveys, in which managers indicate that they mostly ignore taxation issues.
 - Consistent with FDI behavior in the 1950s, when FDI was concentrated in high-tax countries in Europe, USA, Canada, etc.
 - Modern surveys show just the opposite, with managers consistently ranking tax considerations as one of the top two or three factors (along with costs) determining investment location.
- Older quantitative evidence comes from time series, shows that FDI is positively affected by after-tax rates of return. This evidence is, however, open to multiple interpretations.
- There is an important issue of how one thinks about, and measures, the burden of taxation.



The early modern studies.

- Cross-sectional evidence (e.g., Grubert and Mutti, REStat 1991 or Hines and Rice, QJE 1994): U.S. firms tend to invest in low tax foreign locations. They do so for two reasons:
 - Keep a higher fraction of profits earned there.
 - Can reallocate taxable income among locations.
- Evidence for foreign tax havens.



Who and what are tax havens?

- Tax havens are low-tax locations that attempt to attract investment.
- Not a new phenomenon: the same countries that were major tax havens in 1980 are major tax havens today.
- The major tax havens include mostly small countries; only seven had populations exceeding one million in 1982.
- American investment in 1982 – and in 1999 – was concentrated in tax havens out of proportion to the economic sizes of these countries. (Separately, American firms reported very high income levels in these places.)

Who are the major tax havens?

Andorra	Grenada	Nauru !
Anguilla	Hong Kong *	Netherlands Antilles
Antigua and Barbuda	Ireland *	Niue !
Aruba !	Isle of Man	Panama
Bahamas	Jordan *	Saint Kitts and Nevis
Bahrain	Lebanon *	Saint Lucia
Barbados	Liberia	Saint Vincent and the Grenadines
Belize	Liechtenstein	Samoa !
Bermuda	Luxembourg *	San Marino !
British Virgin Islands	Macao *	Seychelles !
Cayman Islands	Maldives	Singapore *
Channel Islands	Malta	Switzerland *
Cook Islands	Marshall Islands	Tonga !
Cyprus	Mauritius !	Turks and Caicos Islands
Dominica	Monaco	Vanuatu
Gibraltar	Montserrat	Virgin Islands (U.S.) !

! Not included in Hines-Rice tax haven list.

* Not included in OECD tax haven list.

Tax Havens in the World Economy (1999)

		U.S. multinational share of							
		Population	GDP	Total assets	Net property, plant and equipment	Sales	Net income	Compensation of employees	Thousands of employees
All tax havens		0.8%	2.3%	15.7%	8.4%	13.4%	30.0%	6.1%	5.7%



Investment levels as functions of local taxes.

- To what extent do countries with lower tax rates receive greater amounts of inbound foreign investment and associated employment?
- Hines and Rice (1994) analyze U.S. data, finding significant effects: 1% lower tax rates are associated with 3% greater local use of property plant and equipment and 3% greater employment (as measured by wages).
- Other papers find similar patterns; Altshuler and Grubert report that effects increase over time.
- This correlation does not PROVE that taxes influence investment to this extent, since other things differ between countries, but it is highly suggestive, particularly given other evidence.

TABLE III
EFFECT OF TAX RATES ON LOCATION OF FACTORS OF PRODUCTION

	Dependent variable: log (employee compensation) OLS			Dependent variable: log (property, plant, and equipment) OLS			Dependent variable: log (employment) OLS					
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Constant	2.89 (0.33)	3.46 (0.43)	3.88 (0.54)	2.21 (2.15)	3.95 (0.35)	4.44 (0.46)	4.73 (0.54)	3.54 (1.67)	0.39 (0.32)	0.63 (0.43)	0.40 (0.47)	-0.38 (1.09)
Tax	-2.88 (0.98)	-9.25 (3.43)	-6.87 (1.92)	34.08 (38.20)	-3.33 (1.08)	-9.23 (3.76)	-6.59 (2.00)	26.56 (31.96)	-0.99 (0.95)	-3.69 (3.40)	-1.04 (1.68)	18.14 (19.29)
Tax ²		10.65 (5.50)		-88.90 (82.13)		9.95 (6.08)		-72.53 (69.21)		4.51 (5.46)		-41.65 (41.48)
log (GDP)	1.08 (0.08)	1.11 (0.08)	1.23 (0.10)	1.42 (0.34)	0.99 (0.08)	1.03 (0.09)	1.12 (0.11)	1.27 (0.28)	0.89 (0.07)	0.91 (0.08)	0.89 (0.09)	0.99 (0.17)
Adjusted R ²	.76	.77			.68	.69			.71	.71		
S.E.E.	1.15	1.18	3.65	1.31	1.30	1.31	3.14	1.40	1.15	1.14	1.84	1.14
No. of observations	72	72	72	72	73	73	73	73	72	72	72	72

*Instruments for Tax and Tax² are Log Population and (Log Population)².
Note. Standard errors appear in parentheses.



Some relevant multinational decisions

- Discrete choices:
 - To serve foreign market through export or production abroad
 - To shift production abroad for cost reasons
 - Which – and how many – foreign locations to choose
 - To expand by acquisition or greenfield investment
- Continuous choices:
 - Conditional on location, how much to invest
 - Conditional on “real” activity, how to shift profit through use of debt, transfer pricing, etc
 - Choice of dividend repatriation



Location Choice

- 2 statistical approaches used so far
 1. Choose exactly one of a number of possible locations (Devereux & Griffith, 1998)
 - This doesn't allow for companies to be present in several countries simultaneously
 2. Choose to locate or not locate in each place (Buettnner & Ruf, 2006, Barrios et al, 2008)
 - This assumes each choice independent of the others
- Need to model *number* of locations chosen, and condition on that, which locations



Data

- Aggregate capital stock
- Flows of Foreign Direct Investment
 - Aggregate and bilateral
- Capital owned abroad by US companies
 - BEA, split by country and industry
- Firm level data
 - Confidential data on foreign affiliates and parents (BEA, US Treasury, Bundesbank, ONS)
 - Consolidated accounting data (Compustat and Datastream)
 - Unconsolidated accounting data, with ownership information (Amadeus and Orbis)



Aggregate v Micro Data

- Mostly interested in aggregate effects
 - How much capital is there in country i , and who owns it?
 - Aggregate data can encompass equilibrium responses eg. How tax rates affect aggregate capital stock
- Micro data
 - Can address the separate decisions that add up to aggregate effects
 - In principle, allows us to identify more precisely role of different aspects of tax system
 - Is more detailed, so we can control for more factors
 - Allows us to identify differences in behaviour between types of companies



Aggregate v Micro Data

- Micro data
 - Is much more effective if we can identify variation in effective tax rates across companies
 - But usually interested in national tax system
 - Variation clearly does occur through choice of assets, debt, etc – and rate of profit, but these may all be correlated with the independent variable, so endogeneity problem
 - Example is commonly used “effective tax rate” ie. tax charge as proportion of pre-tax profit



Measuring tax (1)

- Discrete choices should depend on comparison of post-tax profit of each option - affected by an *average tax rate*
- 2 approaches
 1. Backward-looking: ratio of tax charge to pre-tax profit
 - Depends on past and current investment, profit, debt, etc
 2. Forward-looking: for hypothetical investment project, ratio of NPV of tax to NPV of pre-tax profit
 - Necessarily a simplification of actual tax position



Measuring tax (2)

- Continuous choices affected by marginal considerations
 - Affected by a marginal tax rate
 - Investment affected by an effective marginal tax rates, taking into account allowance rates as well as statutory rates
 - Can compute this for hypothetical investment project
- Location of profit depends at the margin on differences in statutory rates



Impact on investment in the U.S.

- U.S. states tax corporate income at rates that vary from 0% to 12%.
- We can compare investments in U.S. states from countries that exempt foreign income from taxation with investments from countries that tax foreign income and provide foreign tax credits.
- The second group should be less sensitive to state tax differences, whereas the first group should be extremely sensitive.
- For example, French investment should be more attracted to Texas, where there is no state corporate tax, than should British investment, since the U.K. taxes the Texas income.
- The evidence (Hines, "Altered States," *American Economic Review*, 1996) is consistent with this.



Evidence in Hines (1996).

- Comparing only zero-tax states to the highest-tax states, investors from exemption countries tend to concentrate their U.S. investments in the zero-tax states. Japanese and British investors, on the other hand, differ little between these states.
- The regression analysis indicates that 1% state tax rate differences are associated with 9-11% differences between the investment intensities of exemption investors and those from countries that tax worldwide income.
- The simplest empirical exercise is simply to look at numbers of businesses that foreign investors own in each state. Here too there are important tax effects: 1% higher taxes are associated with 3% fewer affiliates of exemption country investors compared to worldwide investors.

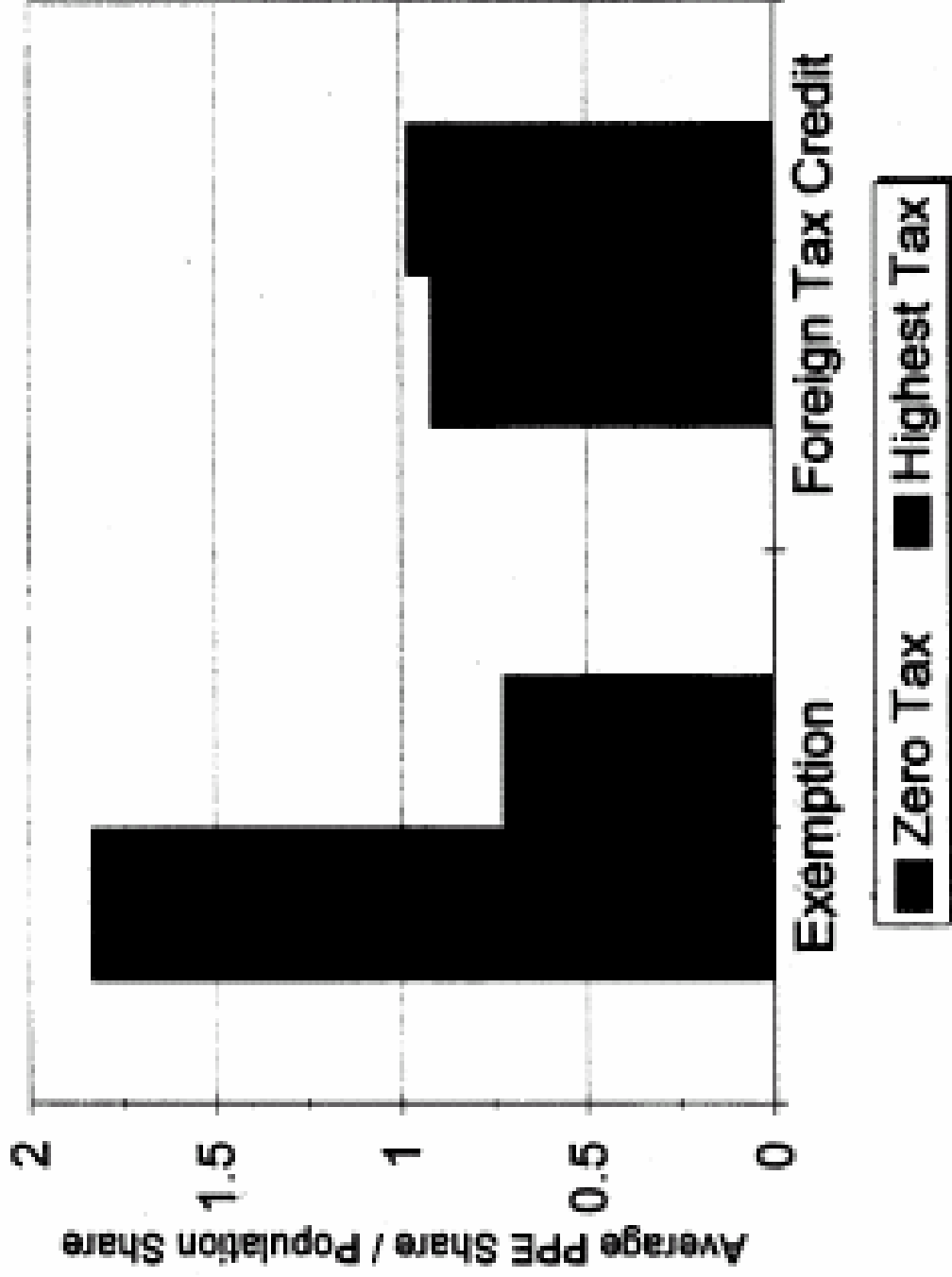


FIGURE 3. INVESTMENT-TO-POPULATION RATIOS IN HIGHEST-TAX STATES AND IN ZERO-TAX STATES

TABLE 5—STATE TAXES AND SHARES OF TOTAL AFFILIATED ESTABLISHMENTS, 1987
(DEPENDENT VARIABLE: STATE SHARE OF TOTAL AFFILIATES)

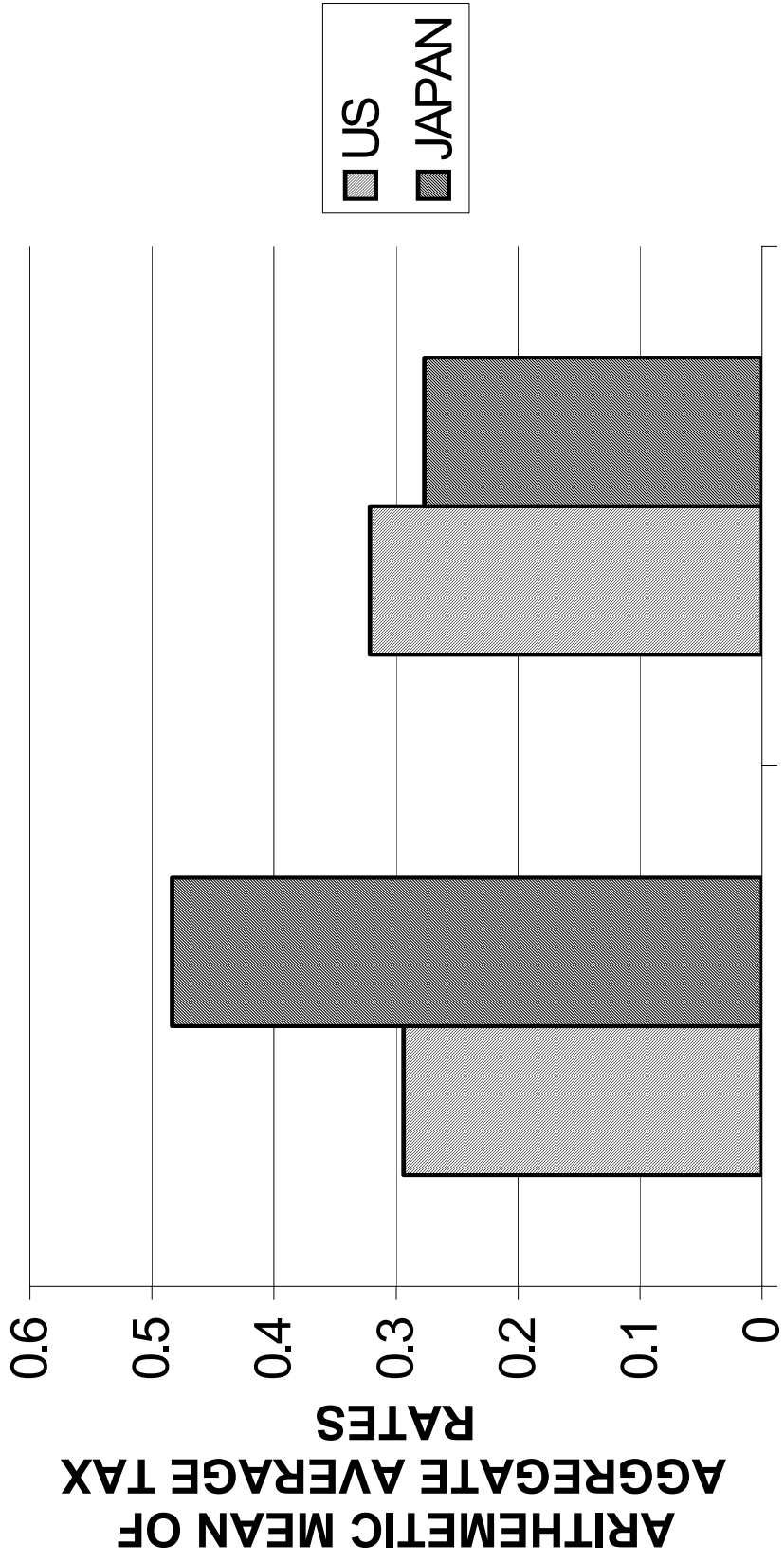
Variable	Regression			
	(i)	(ii)	(iii)	(iv)
Tax	-3.1596 (0.7179)	3.8511 (2.6396)	-3.0753 (0.7265)	4.3682 (2.6753)
(Tax) ²		-54.3027 (19.6918)		-57.3377 (19.8527)
ψ_{ij}			0.0493 (0.0634)	0.0733 (0.0631)
Adjusted R ² :	0.930	0.931	0.930	0.931
n:	350	350	350	350



Are tax concessions to foreign investors effective?

- Paper: Hines, “Tax sparing and direct investment in developing countries,” 2001.
- “Tax sparing” is the practice of granting foreign tax credits for taxes *that would have been paid* in the absence of special concessions to foreign investors. “Tax sparing” increases the impact of local tax concessions to investors from countries that tax worldwide incomes.
- Compare Japanese and American investment.
 - Japan offers tax sparing, the U.S. does not.
 - Japanese firms appear to receive tax concessions in countries with sparing agreements.
 - Greater Japanese investment concentration results.
 - Effects persist when using UK tax sparing as an instrument for Japanese tax sparing.

AVERAGE TAX RATE

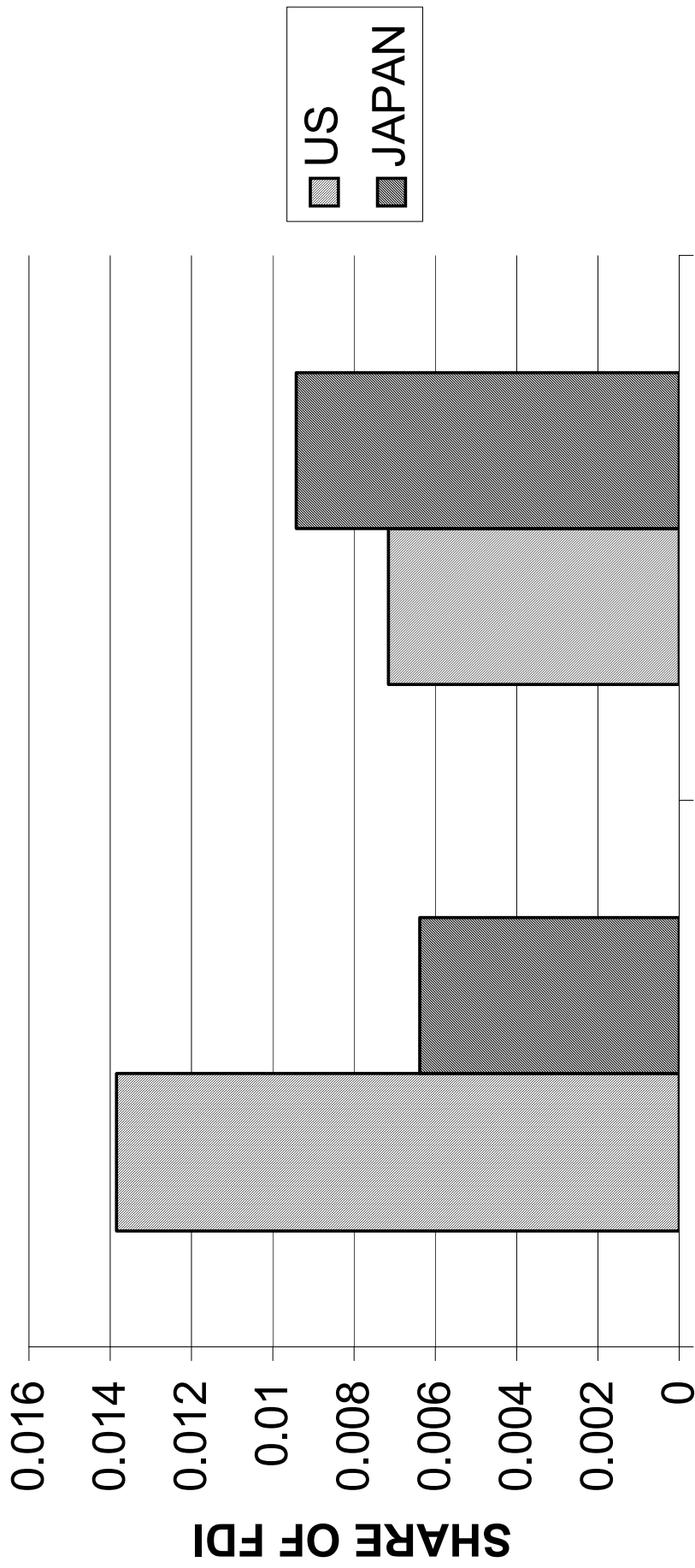


NO SPARING

SPARING

JAPANESE TAX TREATY PROVISION

"TAX SPARING" AND FDI



NO SPARING

SPARING

JAPANESE TAX TREATY PROVISION

Home country tax effects on FDI.

- Paper: “International taxation and multinational firm location decisions,” Oxford Centre for Business Taxation working paper 08/25, October 2008.
- Authors: Salvador Barrios (EC), Harry Huizinga (Tilburg University), Luc Laeven (IMF), and Gaetan Nicodeme (EC).
- Data (Amadeus) on European multinationals in 33 European countries, 1999-2003.
- Focuses on the impact of home tax regimes.



The method of analysis.

- The paper takes the sample of all new foreign subsidiaries established between 1999 and 2003, and asks:
 - What factors determine where the subsidiary is located?
 - What factors determine the home country of the parent of that subsidiary.
- The statistical problems are immense, and the paper takes only a simple pass at them; nonetheless, the results are interesting.



Findings.

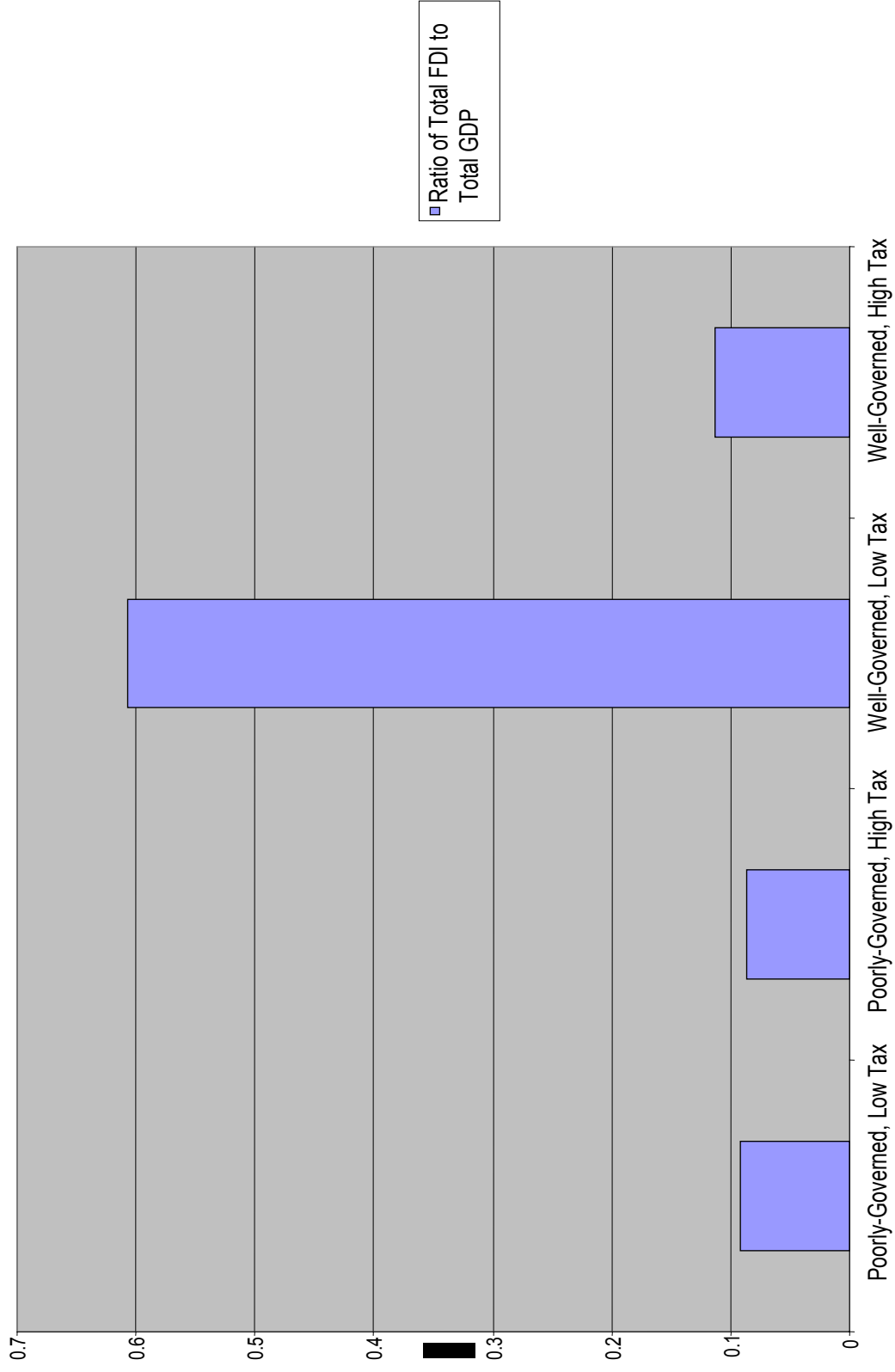
- 1% higher local taxes reduce the probability of a subsidiary being located there by 0.6% (controlling for economic and political conditions, geographic proximity, other factors).
- Cross-border taxes (dividend withholding taxes and home country taxes on foreign income) have significant and slightly larger negative effects (1% lower probability for 1% higher taxes) than local effective taxes.
- Turning the method around, the paper considers who owns an affiliate. 1% higher taxes on ownership of an affiliate reduces by 3% the likelihood that a parent will own it.



Are tax effects uniform?

- The statistical analysis typically imposes that a given tax rate difference has the same effect everywhere; put differently, empirical work looks for average tax effects.
- It is unlikely to be the case that tax rate differences have the same effects in all circumstances.
- Dharmapala and Hines (Day 4 readings) find that tax effects have much stronger effects on U.S. foreign direct investment among countries that score well on World Bank governance indicators. Doubtless this reflects that investors may feel that low tax rates do them little good in some parts of the world.
- We need more analysis of when and how tax rates have differential effects on investment.

Ratio of US FDI to GDP for 4 Groups of Countries





Profit shifting.

- There is considerable evidence that the location of taxable income is sensitive to national tax rate differences.
- This evidence comes in several forms.
 - Higher reported profit rates in low-tax locations.
 - Greater royalty and interest payments to related parties (and also to unrelated parties) in high-tax locations.
 - Foreign affiliates in low-tax locations run large reported trade surpluses with related parties, compared to affiliates in high-tax locations.
 - Direct evidence that prices charged for related party transactions seem to be affected by tax rate differences.
 - None of the statistical evidence proves that anyone is violating the law, though it is consistent with models of avoidance that have that feature.



Profit rates and taxes.

- Several studies look at profit rates of foreign affiliates as functions of local tax rates.
- The concept is that, if firms reallocate taxable income, then higher tax rates should be associated with lower reported profit rates.
- The difficulty is that you do not know what profit rates would be in the absence of manipulation. But it is possible to observe inputs such as capital and labor, control for these, and see to what extent the differences that remain are correlated with tax rates.
- Everyone (e.g., Grubert and Mutti, 1991; Hines and Rice, 1994; Huizinga and Laeven, 2008) reports that high taxes go with low profit rates.



Huizinga and Laeven study.

- A simple model of tax avoidance through income shifting.
- Data for firms in 33 European countries in 1999; they look at the determinants of earnings before interest and taxes, controlling for other inputs.
- They report significant effects of taxes on reported profits, consistent with (though smaller than) the results of Hines and Rice (1994) for U.S. data.

Table 4
 Estimation of the profit shifting equation

	(1)	(2)	(3)	(4)	(5)	(6)
Labor	0.620*** (0.052)	0.629*** (0.052)	0.625*** (0.052)	0.628*** (0.053)	0.466*** (0.072)	0.477*** (0.071)
Capital	0.256*** (0.035)	0.241*** (0.035)	0.243*** (0.035)	0.241*** (0.036)	0.305*** (0.048)	0.302*** (0.047)
Per capita income	-0.158*** (0.055)	-0.144*** (0.053)	-0.274** (0.113)	-0.143*** (0.057)	-0.035 (0.081)	-0.050 (0.076)
<i>C</i>	-1.017*** (0.312)	-0.850*** (0.297)	-0.843*** (0.309)		-1.749*** (0.590)	
Eastern Europe* <i>C</i>			-0.354 (0.927)			
Eastern Europe			-0.368 (0.294)			
<i>C vis-à-vis</i> parent				-0.975*** (0.346)		-1.309** (0.654)
<i>C vis-à-vis</i> other subsidiaries				-0.493 (0.800)		-3.711*** (1.325)
Industry dummies	No	Yes	Yes	Yes	Yes	Yes
<i>F</i> -test of no significance of industry dummies (<i>p</i> -value)		0.00	0.00	0.00	0.00	0.00
Observations	1218	1218	1218	1218	428	428
<i>R</i> -squared	0.67	0.69	0.69	0.69	0.66	0.66

Table 7
Aggregate profit shifting elasticities

Country	Semi-elasticity as to top statutory tax rate (1)	Elasticity as to top statutory tax rate (2)
Austria	1.07	0.38
Belgium	2.75	1.13
Bulgaria	0.96	0.27
Czech Republic	0.69	0.25
Denmark	1.37	0.45
Estonia	2.09	0.56
Finland	0.58	0.17
France	0.52	0.21
Germany	0.28	0.15
Hungary	1.55	0.30
Italy	0.44	0.19
Luxembourg	0.68	0.26
Netherlands	2.92	1.05
Norway	0.51	0.15
Poland	2.21	0.77
Portugal	2.86	1.10
Romania	1.88	0.73
Slovak Republic	1.05	0.43
Spain	0.83	0.30
Sweden	1.30	0.38
United Kingdom	0.96	0.30
Average	1.31	0.45

Table 8

Estimates of international profit shifting and national tax revenue losses

Country	\bar{B}_i	\bar{S}_i	\bar{S}_i/\bar{B}_i	\bar{E}_i	\bar{E}_i/\bar{B}_i	dT_i
Austria	122.32	16.15	0.132	2.30	0.019	4.71
Belgium	3084.39	32.90	0.011	11.05	0.004	8.78
Bulgaria	14.08	1.86	0.132	0.17	0.012	0.45
Czech Republic	459.29	120.65	0.263	14.55	0.032	37.14
Denmark	1609.56	54.59	0.034	1.86	0.001	16.87
Estonia	8.67	0.81	0.094	0.08	0.009	0.19
Finland	3961.81	268.20	0.068	9.25	0.002	72.51
France	13600.00	51.45	0.004	39.00	0.003	4.98
Germany	15500.00	-2104.03	-0.136	239.98	0.015	-1260.14
Hungary	25.18	5.65	0.224	0.70	0.028	0.89
Italy	10100.00	-113.79	-0.011	20.82	0.002	-55.53
Luxembourg	27.15	1.82	0.067	0.17	0.006	0.62
Netherlands	329.07	24.60	0.075	1.90	0.006	7.94
Norway	1785.06	43.42	0.024	2.49	0.001	11.46
Poland	199.74	15.80	0.079	1.62	0.008	4.82
Portugal	62.26	-2.97	-0.048	0.08	0.001	-1.14
Romania	25.25	1.76	0.070	0.28	0.011	0.56
Slovak Republic	6.46	-0.12	-0.018	0.01	0.001	-0.05
Spain	2832.08	103.95	0.037	9.30	0.003	33.13
Sweden	3849.94	300.28	0.078	23.13	0.006	77.60
United Kingdom	8224.46	448.83	0.055	25.02	0.003	127.14
Total	65826.77	-728.19	-0.011	403.76	0.006	-907.07

This table reports the estimated changes in national tax revenues due to international profit shifting. For this purpose, we use the instrumental variables estimate of $\hat{\gamma}$ from the model in Table 6, column 1. To estimate a multinational firm's true profits in country i , we use $B_i = B_i^f / (1 - \hat{\gamma} C_i)$. Profits shifted into country i by a firm are estimated as $S_i = -\hat{\gamma} B_i^f C_i / (1 - \hat{\gamma} C_i)$. Expenses incurred by shifting profits into country i by a firm are estimated by $E_i = (1/2\hat{\gamma})(S_i)^2 / B_i$. Firm-level data are aggregated to national true profits, \bar{B}_i , inward profit shifting \bar{S}_i , and aggregate profit shifting costs \bar{E}_i and their ratios \bar{S}_i/\bar{B}_i and \bar{E}_i/\bar{B}_i . The estimated national tax change, dT_i , in country i is calculated using tax system data and estimates of bilateral aggregated tax base shifting \bar{S}_{ij} and bilateral shifting expenses \bar{E}_{ij} in country i for a multinational domiciled in country j . Figures on \bar{B}_i , \bar{S}_i , \bar{E}_i , and dT_i are reported in millions of US dollars.



More evidence on profit shifting.

- Kim Clausing (2001) finds that 10% lower affiliate tax rates are associated with 4.4% greater trade surpluses with the U.S. parent company; furthermore, affiliates in low-tax countries have greater reported exports to related affiliates.
- Clausing (2003) finds that 1% lower affiliate tax rates are associated with 2% higher prices for U.S. goods imports (relative to prices paid to unrelated parties for the same category of goods) and 1.8% lower export prices.
- Harris, Morck, Slemrod and Yeung report that U.S. firms with tax haven affiliates have lower U.S. taxes/U.S. sales than do other firms.

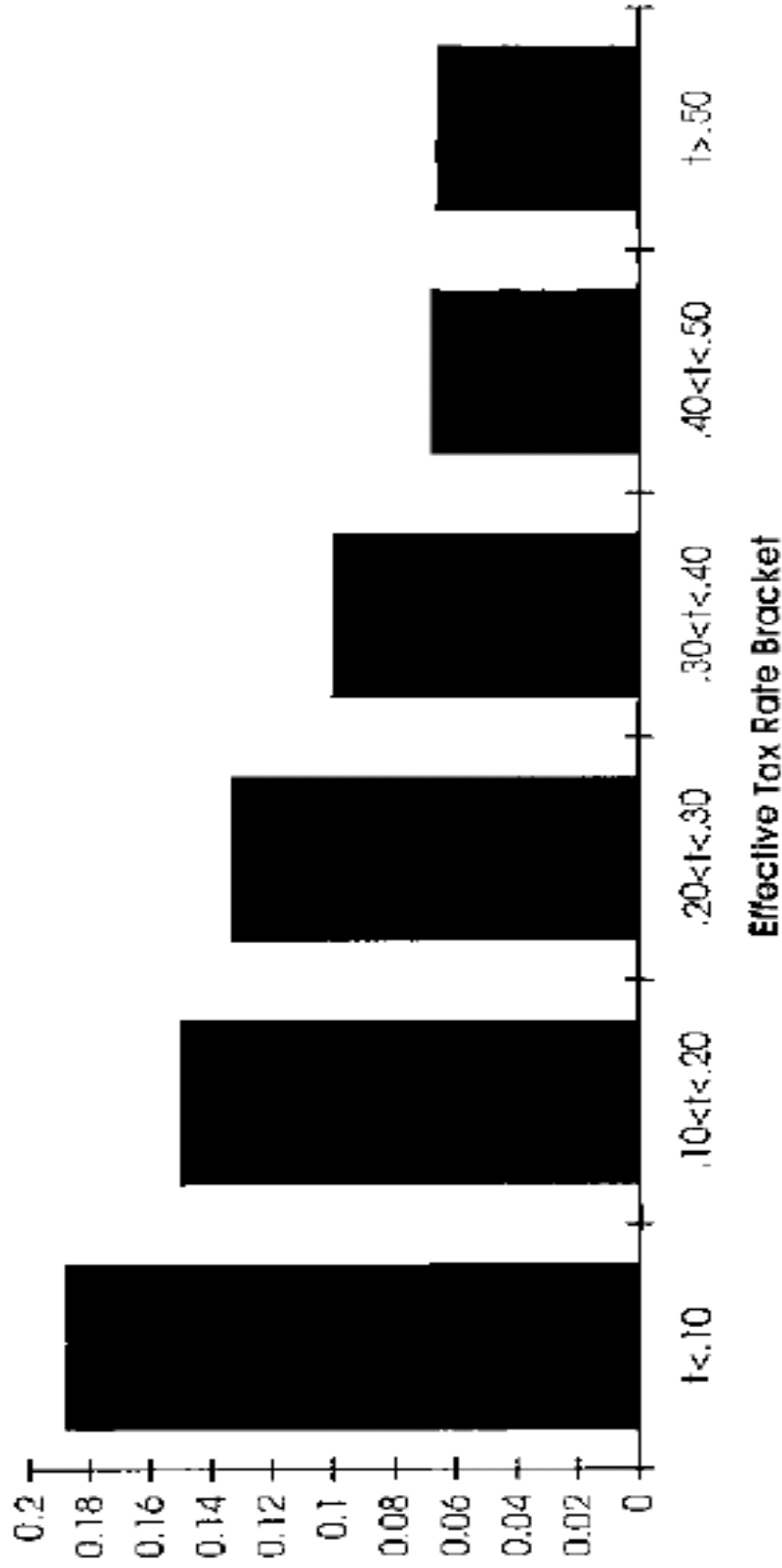


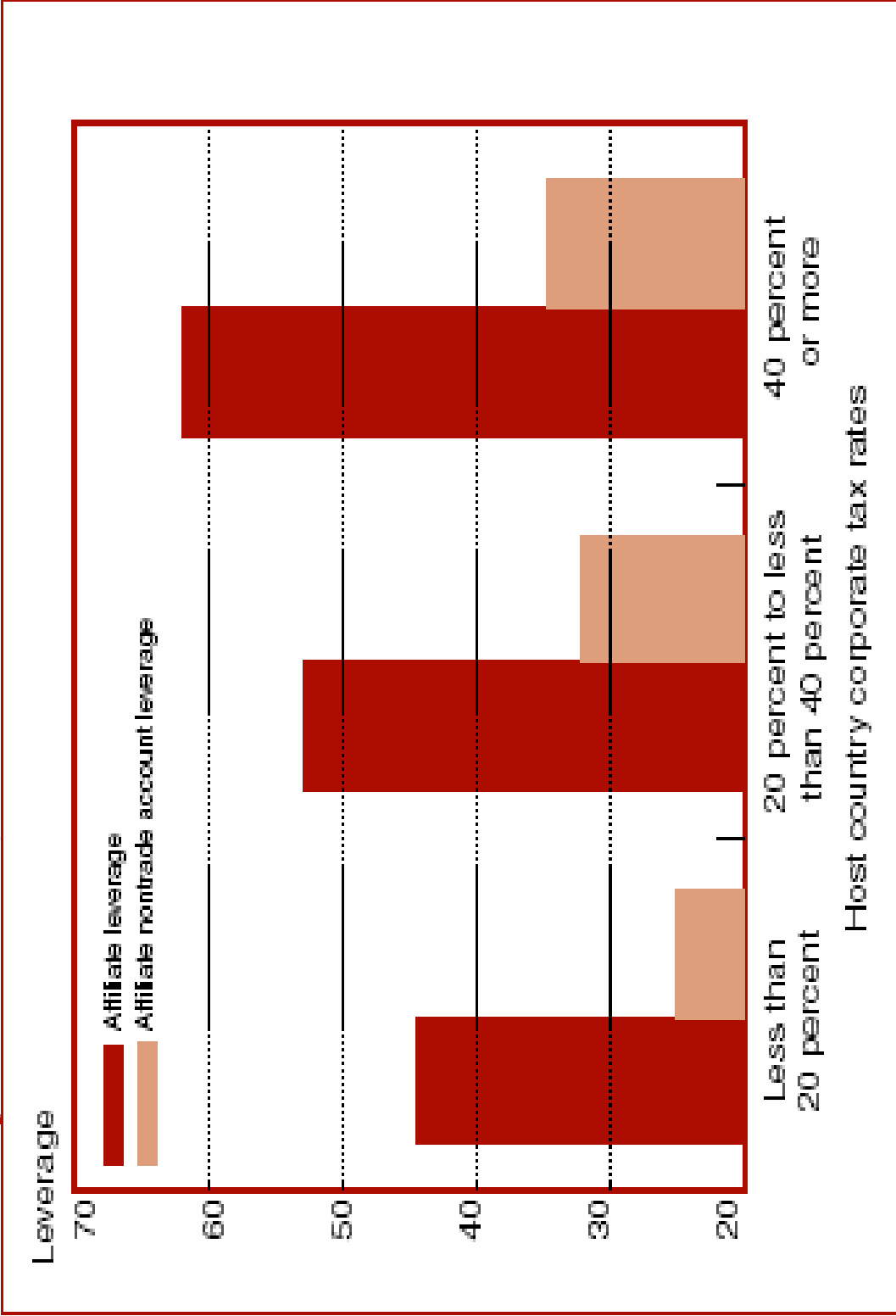
Fig. 7.3 The share of total sales destined for affiliates in other countries



Use of debt.

- It cannot come as a surprise that firms use greater debt in high-tax locations.
- Evidence on financing is reported in Desai, Foley and Hines, "A multinational perspective on capital structure choice and internal capital markets," *Journal of Finance*, December 2004.
- Evidence for U.S. firms in 1982-1994.
- 10% higher local tax rates are associated with 2.8% greater debt/asset ratios *within the same firms*.
- The elasticity of debt/assets is greater for borrowing from U.S. parent companies (0.35) than borrowing from unrelated parties (0.19).

Chart 2. Affiliate Capital Structure and Host Country Tax Rates, 1994





More on debt.

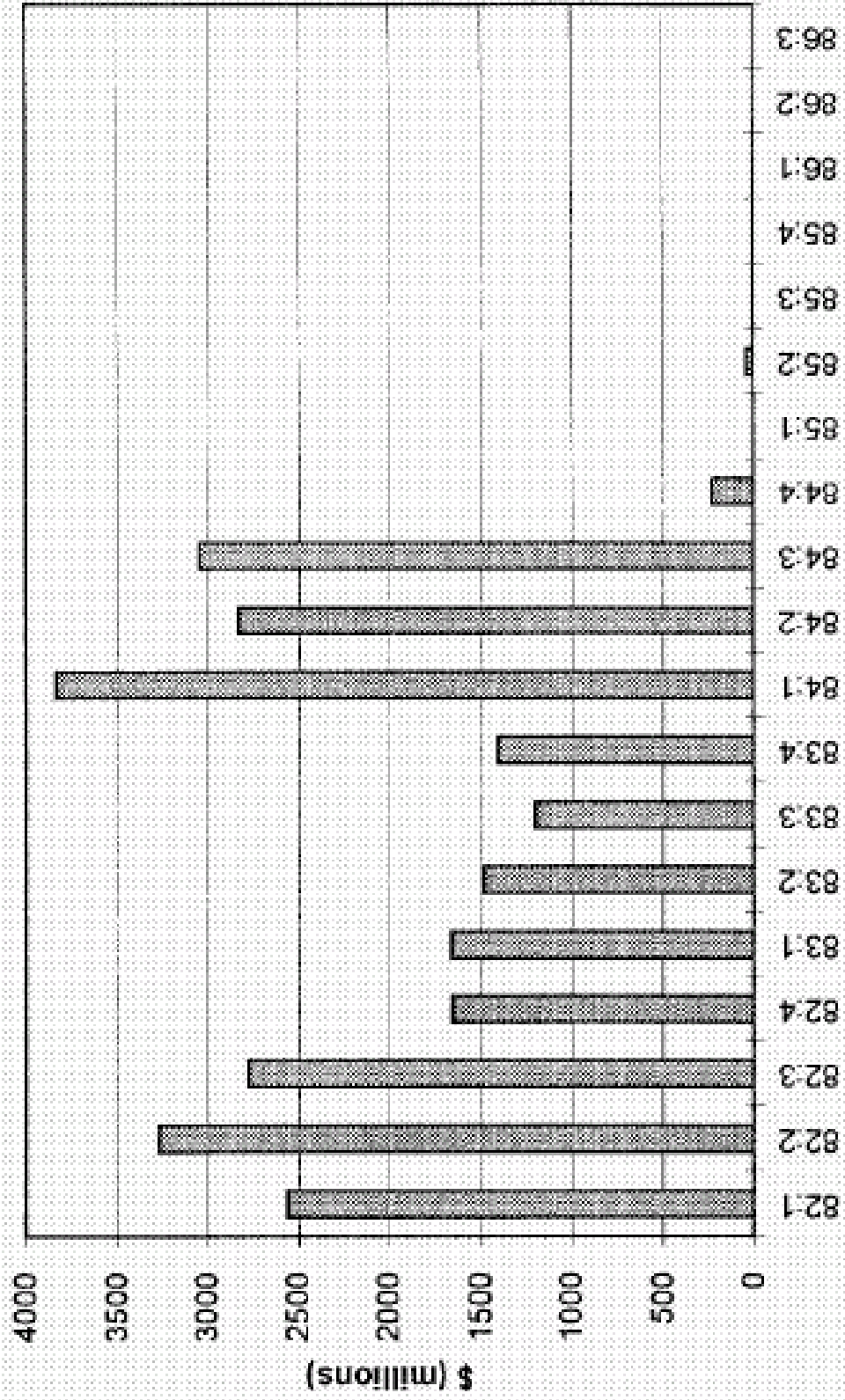
- Desai, Foley and Hines report that U.S. firms use parent company debt to substitute for unavailability or costliness of 3rd party debt in many countries.
- 1% higher local interest rates due to legal and capital market conditions are associated with 1.3% reduced external borrowing and 0.8% greater parent lending (both as a fraction of assets).
- Part of the benefit of a multinational structure is the ability to deploy capital around the world to overcome local problems. This in turn carries tax implications, though may be only partly tax motivated to start with.



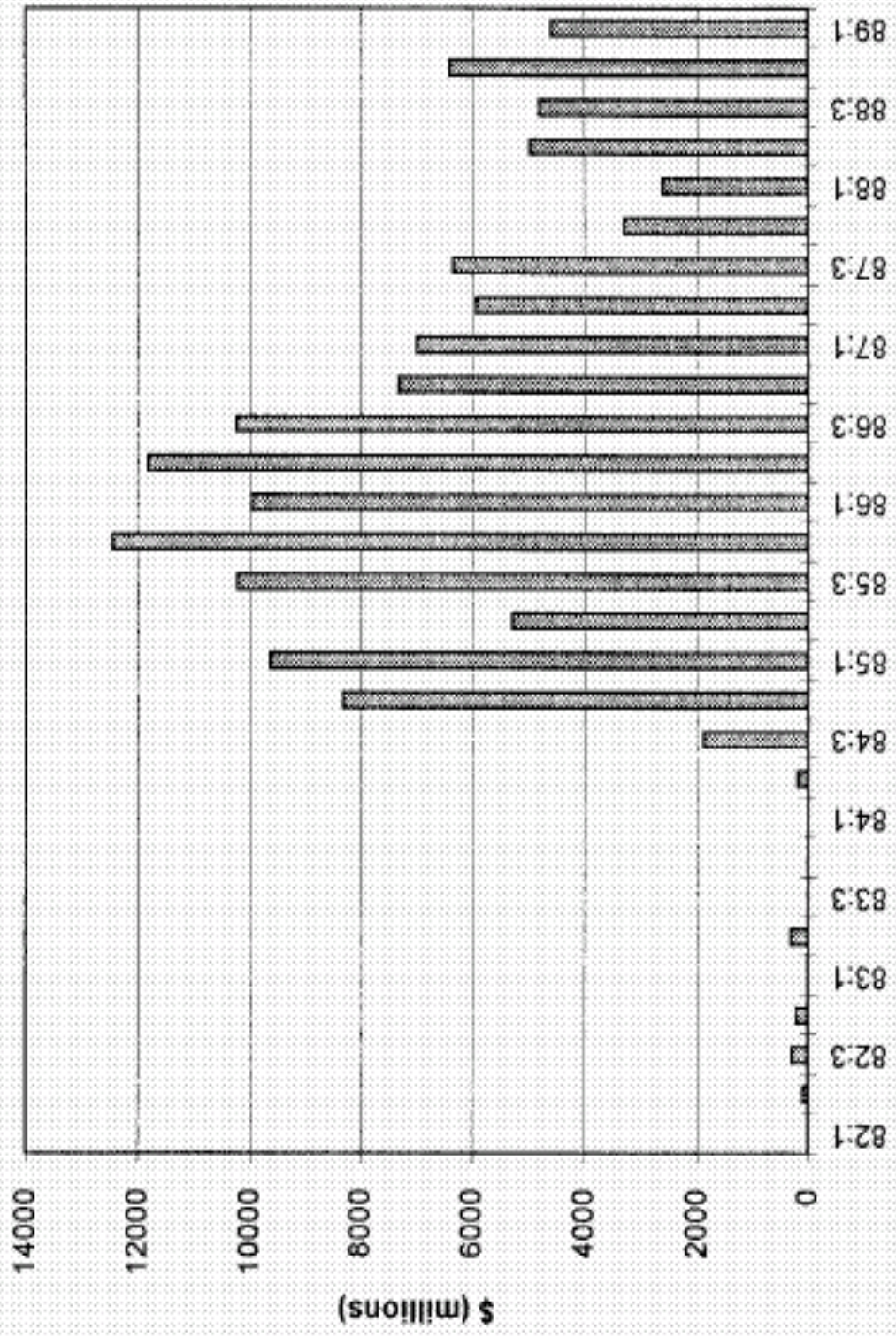
An interesting debt episode.

- Leslie Papke (2000) documents the U.S. handling of the tax treaty between the U.S. and the Netherlands Antilles.
- Prior to 1984, the U.S. treaty with the N.A. provided zero withholding on portfolio interest, making the N.A. the ideal conduit for borrowing by issuing bearer bonds (!) on the Eurodollar market. The only other way to get zero withholding was with treaty partners who identified the lenders.
- After 1984, the U.S. repealed withholding taxes on portfolio interest for everyone.
- As a result, borrowing through the N.A. all but disappeared, to be replaced by direct borrowing.

Bond Issues from the Netherlands Antilles by U.S. Corporate Finance Affiliates



New Bond Issues Sold Abroad by U.S. Corporations





How effective are multinational firms at avoiding taxes?

- They obviously devote energy and resources to avoiding taxes.
- But: corporations around the world (including in the U.S.) pay quite a bit in taxes. So it appears that there are significant limits to their abilities to avoid.
- Note that this is consistent with the investment evidence: if avoidance were costless and perfect, then there should be no effect of taxation on FDI.



Repatriations.

- The U.S. system of taxing foreign income on repatriation creates incentives to choose the timing of repatriations selectively in order to minimize associated tax obligations.
 - This consideration becomes more important at lower foreign tax rates.
 - Note that, if repatriation taxes are not time-varying, then (perhaps counterintuitively) the repatriation tax does not affect the timing of repatriations.
- American firms repatriate roughly half of their foreign profits on average each year.



Tax effects.

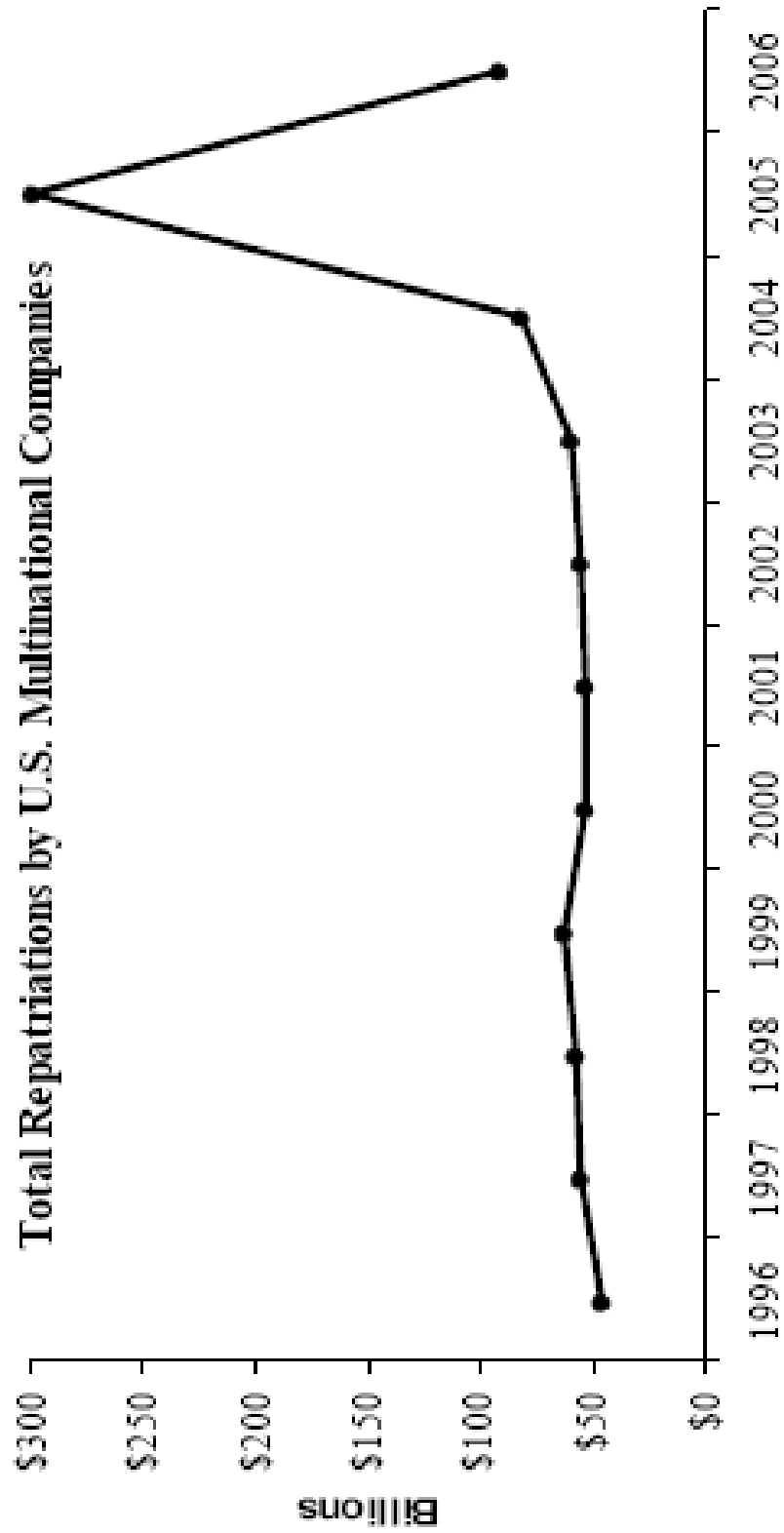
- How should we think about avoidance?
 - Altshuler and Grubert (2003) argue that firms ought to be able to avoid repatriation taxes altogether with financial transactions.
 - Note that, even if firms successfully avoided all repatriation taxes, it would not follow that the repatriation taxes were not burdensome to them.
- Do American firms delay repatriation to avoid the associated taxes?
 - Hines and Hubbard (1990) and Desai, Foley and Hines (2001) report that firms are least likely to repatriate \$\$ from low-tax foreign locations; DFH also find that this appears for foreign subsidiaries but not for foreign branches, consistent with tax incentives.
 - The strongest evidence comes from the 2004 HIA, a one-time 85% exclusion of dividends received in 2005.



What happened in 2005?

- A surge in repatriations: went from about \$60b/year to \$362b in 2005.
- The Dharmapala, Foley and Forbes ask what firms did with repatriated funds.
 - The HIA required that the funds be used for permitted investments: investment, R&D, new employment, certain acquisitions.
 - HIA funds could not be used for dividends, share buybacks, or executive compensation.
- DFF find that repatriations were not associated with greater investment or employment expenses, but with payouts to shareholders: \$1 of repatriations was associated with \$0.91 of share buybacks and \$0.08 of dividends.

Figure 1
Total Repatriations by U.S. Multinational Companies





How do we know what firms would have done in the absence of HIA?

- One of the problems of inference is that firms that wanted to do lots of share buybacks in 2005 would normally be expected to repatriate more from their foreign subs than do other firms.
- DFF use an instrumental variables strategy in which they predict the likelihood of repatriation in 2005 on the basis of:
 - Holding high levels of cash abroad.
 - Use of tax haven holding companies.
- The results appear to be sensitive to the use of these instruments.

Table 2

First Stage Regressions

Notes: The dependent variable is the earnings repatriated by foreign affiliates to their parent scaled by lagged consolidated assets. The High Cash Abroad Dummy is equal to one for firms that, in 2004, have a ratio of cash holdings outside of the U.S. to total firm assets that is above the sample median and is otherwise equal to zero. The Haven or Holding Company Dummy is equal to one for firms that, in 2004, either have operations in a tax haven or use a holding company abroad and is otherwise equal to zero. The 2005 Dummy is equal to one in 2005 and zero in other years. Leverage is the ratio of total debt to the sum of total debt and the market value of equity. Tobin's q is calculated as the ratio of the book value of firm assets plus the market value of firm equity less the book value of firm equity to the book value of firm assets. Industry median values of Tobin's q are used if firm specific ones are unavailable. Lagged Cash/Lagged Assets measures the lagged ratio of consolidated cash holdings to consolidated assets. Profitability is calculated as the ratio of consolidated net income to consolidated assets. Each specification is an OLS specification that includes firm and year fixed effects. Heteroskedasticity-consistent standard errors that correct for clustering at the firm level appear in parentheses. F-statistic for Instruments indicates the results of Wald tests for the joint significance of the instruments following Stock and Yogo (2005).

Dependent Variable:	(1)	(2)	(3)	(4)	(5)	(6)
High Cash Abroad Dummy * 2005 Dummy	0.0113 (0.0026)		0.0101 (0.0026)	0.0109 (0.0026)		0.0098 (0.0025)
Haven or Holding Company Dummy * 2005 Dummy		0.0089 (0.0025)	0.0071 (0.0024)		0.0087 (0.0025)	0.0070 (0.0024)
Lagged Leverage				-0.0016 (0.0024)	-0.0014 (0.0024)	-0.0017 (0.0024)
Lagged Tobin's q				-0.0004 (0.0004)	-0.0005 (0.0004)	-0.0004 (0.0004)
Lagged Cash/Lagged Assets				0.0083 (0.0054)	0.0112 (0.0056)	0.0081 (0.0054)
Lagged Profitability				-0.0036 (0.0047)	-0.0028 (0.0047)	-0.0033 (0.0047)
Firm and year dummies?	Y	Y	Y	Y	Y	Y
No. of Obs.	5,846	5,846	5,846	5,846	5,846	5,846
R-Squared	0.4061	0.4028	0.4087	0.4070	0.4041	0.4095
F-Statistic for Instruments	18.13	12.89	11.38	17.49	12.52	11.11

The Effects of Repatriations on U.S. Capital Expenditures, U.S. Employment, and R&D

Notes: The dependent variable in columns 1-2 is the ratio of capital expenditures by U.S. MNEs in the U.S. to lagged consolidated assets. In columns 3-4 it is the ratio of the first difference of U.S. MNE employment in the U.S. to lagged consolidated employment, and in columns 5-6 it is research and development expenditures scaled by lagged consolidated assets. Repatriations/Lagged Assets is the earnings repatriated from foreign affiliates to their parent scaled by lagged consolidated assets. Leverage is the ratio of total debt to the sum of total debt and the market value of equity. Tobin's q is calculated as the ratio of the book value of firm assets plus the market value of firm equity less the book value of firm equity to the book value of firm assets. Industry median values of Tobin's q are used if firm specific ones are unavailable. Lagged Cash/Lagged Assets measures the lagged ratio of consolidated cash holdings to consolidated cash. Profitability is calculated as the ratio of consolidated net income to consolidated assets. Each specification includes firm and year fixed effects. The specifications in columns 1, 3, and 5 are OLS specifications, and the specifications in columns 2, 4, and 6 are IV specifications that instrument for Repatriations/Lagged Assets using the Haven or Holding Company Dummy interacted with the 2005 Dummy and the High Cash Abroad Dummy interacted with the 2005 Dummy. The Haven or Holding Company Dummy is equal to one for firms that, in 2004, either have operations in a tax haven or use a holding company abroad and is otherwise equal to zero. The High Cash Abroad Dummy is equal to one for firms that, in 2004, have a ratio of cash holdings outside of the U.S. to total firm assets that is above the sample median and is otherwise equal to zero. The 2005 Dummy is equal to one in 2005 and zero in other years. Heteroskedasticity-consistent standard errors that correct for clustering at the firm level appear in parentheses.

Dependent Variable:	U.S. Capital Expenditures/Lagged Assets			Change in U.S. Employment/ Lagged Employment		R&D/Lagged Assets	
	(1)	(2)	(3)	(4)	(5)	(6)	(6)
Repatriations/Lagged Assets	0.0174 (0.0254)	-0.1450 (0.1488)	-0.2739 (0.1649)	-0.3247 (1.0481)	0.0140 (0.0242)	-0.1103 (0.1426)	
Lagged Leverage	-0.0381 (0.0064)	-0.0383 (0.0064)	-0.2859 (0.0387)	-0.2859 (0.0386)	-0.0039 (0.0030)	-0.0041 (0.0030)	
Lagged Tobin's q	0.0036 (0.0008)	0.0035 (0.0008)	0.0165 (0.0042)	0.0165 (0.0042)	0.0063 (0.0011)	0.0062 (0.0011)	
Lagged Cash/Lagged Assets	-0.0091 (0.0139)	-0.0071 (0.0142)	0.0358 (0.0601)	0.0368 (0.0650)	-0.0243 (0.0112)	-0.0228 (0.0117)	
Lagged Profitability	0.0227 (0.0073)	0.0221 (0.0073)	0.1007 (0.0490)	0.1005 (0.0490)	0.0138 (0.0055)	0.0134 (0.0055)	
Firm and year dummies?	Y	Y	Y	Y	Y	Y	Y
Instrument with Haven or Holding Company Dummy * 2005 Dummy and High Cash Abroad Dummy * 2005 Dummy?	N	Y	N	Y	N	Y	
No. of Obs.	5,477	5,477	4,932	4,932	5,846	5,846	
R-Squared	0.5688		0.2005		0.8722		

The Effects of Repatriations on Dividends and Repurchases

Notes: The dependent variable in columns 3-4 is the ratio of cash dividends to lagged consolidated assets; in columns 5-6 it is the ratio of repurchases of common and preferred shares to lagged consolidated assets, and in columns 1-2 it is the sum of these two. Repatriations/Lagged Assets is the earnings repatriated from foreign affiliates to their parent scaled by lagged consolidated assets. Leverage is the ratio of total debt to the sum of total debt and the market value of equity. Tobin's q is calculated as the ratio of the book value of firm assets plus the market value of firm equity less the book value of firm equity to the book value of firm assets. Industry median values of Tobin's q are used if firm specific ones are unavailable. Lagged Cash/Lagged Assets measures the lagged ratio of consolidated cash holdings to consolidated cash. Profitability is calculated as the ratio of consolidated net income to consolidated assets. Each specification includes firm and year fixed effects. The specifications in columns 1, 3, and 5 are OLS specifications, and the specifications in columns 2, 4, and 6 are IV specifications that instrument for Repatriations/Lagged Assets using the Haven or Holding Company Dummy interacted with the 2005 Dummy and the High Cash Abroad Dummy interacted with the 2005 Dummy. The Haven or Holding Company Dummy is equal to one for firms that, in 2004, either have operations in a tax haven or use a holding company abroad and is otherwise equal to zero. The High Cash Abroad Dummy is equal to one for firms that, in 2004, have a ratio of cash holdings outside of the U.S. to total firm assets that is above the sample median and is otherwise equal to zero. The 2005 Dummy is equal to one in 2005 and zero in other years. Heteroskedasticity-consistent standard errors that correct for clustering at the firm level appear in parentheses.

Dependent Variable:	Payouts/Lagged Assets		Dividends/Lagged Assets		Repurchases/Lagged Assets	
	(1)	(2)	(3)	(4)	(5)	(6)
Repatriations/Lagged Assets	0.1072 (0.0586)	1.0844 (0.4582)	0.0198 (0.0152)	0.0807 (0.1022)	0.0832 (0.0514)	0.9108 (0.4043)
Lagged Leverage	-0.0381 (0.0097)	-0.0363 (0.0102)	-0.0177 (0.0030)	-0.0176 (0.0030)	-0.0136 (0.0077)	-0.0122 (0.0081)
Lagged Tobin's q	0.0041 (0.0019)	0.0046 (0.0020)	-0.0005 (0.0006)	-0.0004 (0.0006)	0.0052 (0.0015)	0.0057 (0.0016)
Lagged Cash/Lagged Assets	0.0725 (0.0172)	0.0598 (0.0183)	0.0124 (0.0067)	0.0117 (0.0068)	0.0564 (0.0130)	0.0449 (0.0137)
Lagged Profitability	0.0511 (0.0102)	0.0538 (0.0120)	0.0104 (0.0034)	0.0106 (0.0034)	0.0410 (0.0083)	0.0435 (0.0101)
Firm and Year Dummies?	Y	Y	Y	Y	Y	Y
Instrument with Haven or Holding Company Dummy*2005 Dummy and High 2004 Cash Dummy*2005 Dummy?	N	Y	N	Y	N	Y
No. of Obs.	5,433	5,433	5,750	5,750	5,520	5,520
R-Squared	0.5209		0.6726		0.4809	



What do executives say?

- Graham, Hanlon and Shevlin survey of firms with member of the Tax Executive Institute; 744 out of 2806 responded (this is a great response rate), and after various exclusions 411 firms.
- They report that over 60% of repatriated funds came from overseas cash holdings.
- The two most common reported uses of the funds were for paying down debt and repurchasing shares; the third most common use was for U.S. investment.
- Very little reported use of repatriated funds for dividends or share buybacks.

Figure 1
Sources of Repatriated Cash
(N=112)

Survey responses to question: How were the funds obtained that were repatriated (specifically consider only the qualifying dividends under Section 965)?

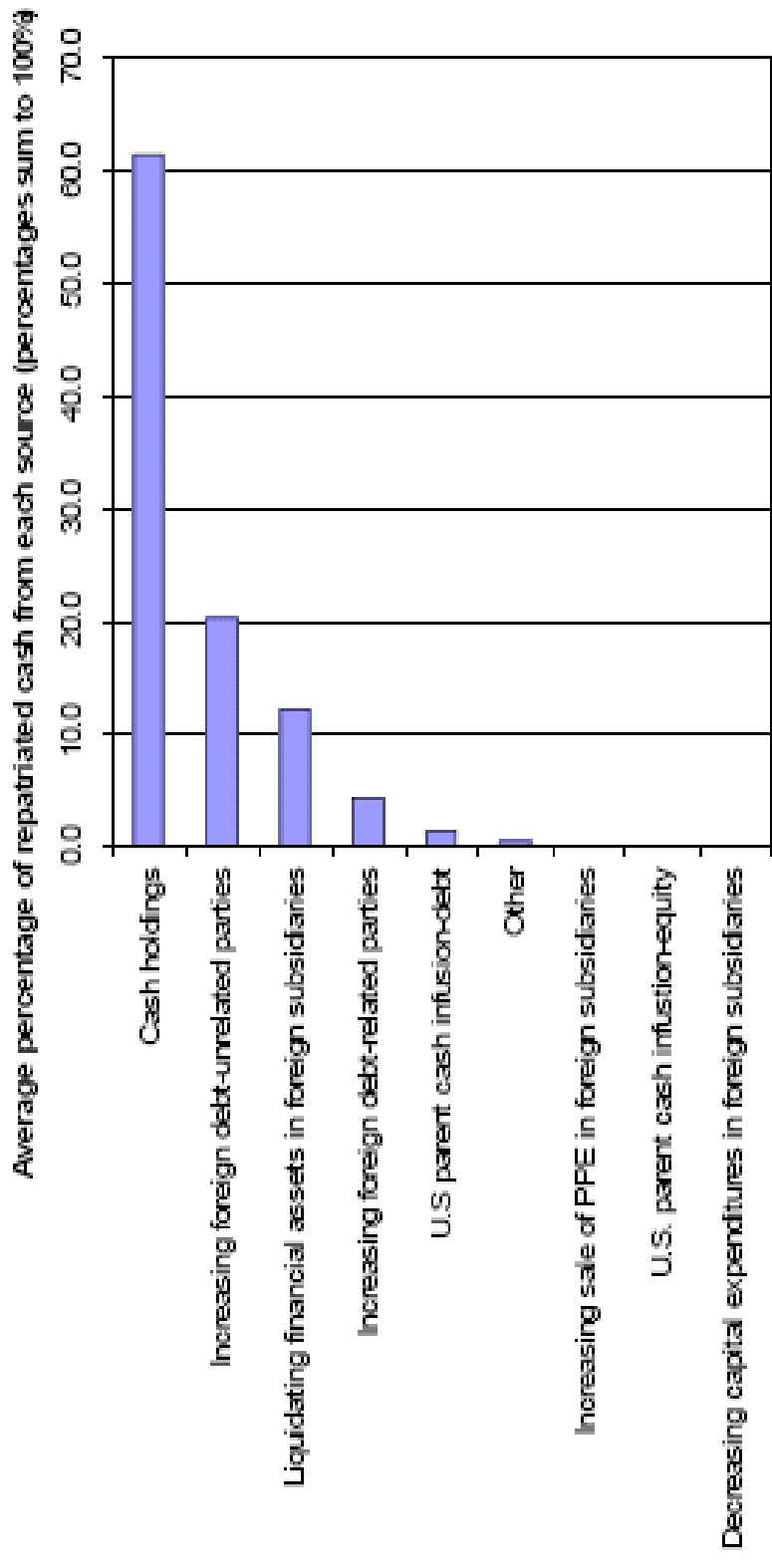
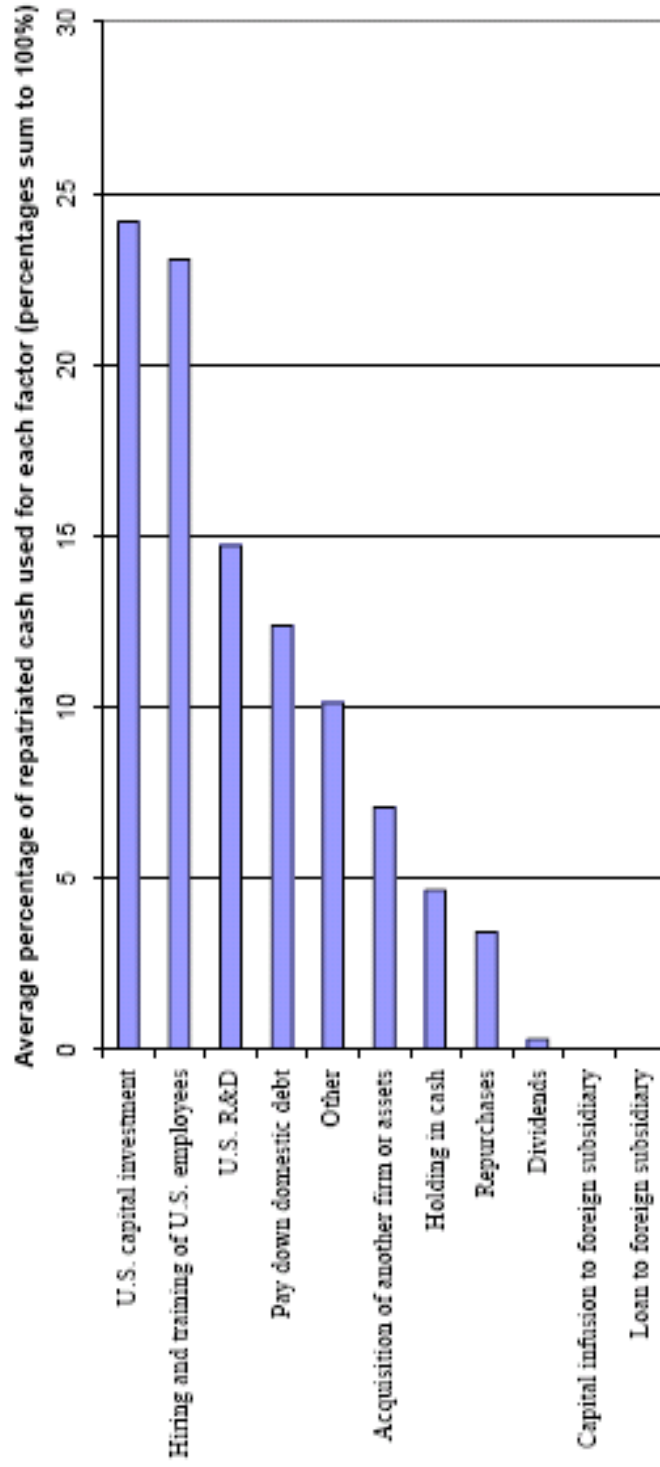


Figure 2
Uses of Repatriated Cash
 (N=111)

Survey responses to question: At the end of the tax year 2006, what have been the uses of the cash dividends repatriated to the U.S. (specifically consider only the qualifying dividends under Section 965)?



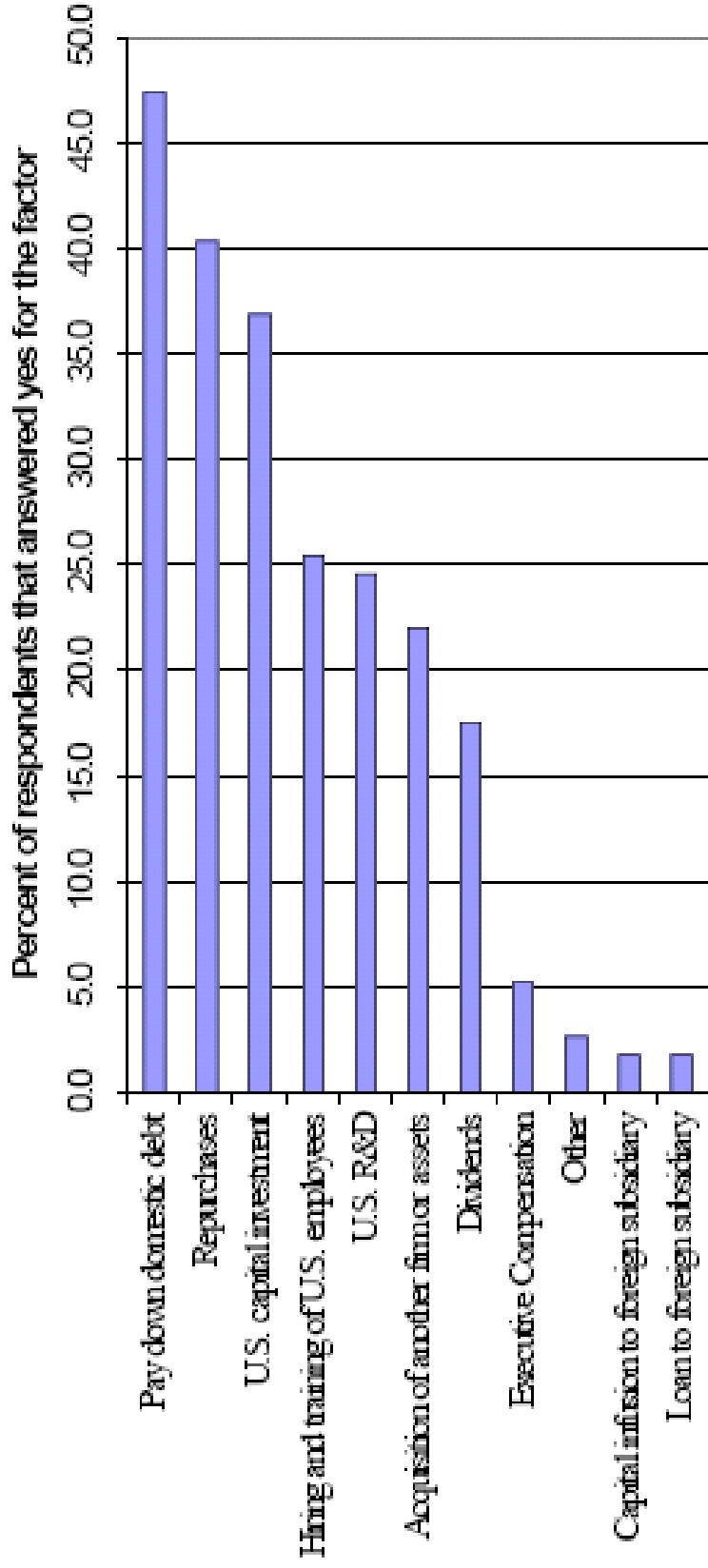


How can we reconcile these responses with the econometric evidence?

- The tracing implicit in the HIA does little to prevent avoidance.
- Graham, Hanlon and Shevlin asked respondents whether they used “freed up” cash to repurchase shares, and many report that they did (though they report other uses too, including U.S. investment.
- Note that the table presents just fractions answering “yes,” not amounts.

Figure 3
Uses of Cash “Freed Up” by the Cash Repatriated
(N=109)

Survey responses to the question: Recognizing the fungibility of cash, did the availability of the repatriated funds for the purposes indicated above free up other cash for any of the following?





Effects of the HIA on future actions.

- One of the potential costs of a “one time” policy like the HIA is that it may discourage repatriations as firms wait for the next one.
- Graham Hanlon and Shevlin find that many firms repatriating under the HIA took actions to avoid repatriating subsequent foreign profits.
- Also, many firms anticipate that the HIA might be repeated.

Figure 4 (continued)
Actions Taken to Avoid the Repatriation Tax

Survey responses to the question: Because of the U.S. tax policy to tax foreign earnings, has your company taken any of the following actions to finance U.S. operations in order to avoid repatriating the foreign earnings (in years where the Section 965 election was not available)?

Panel B: Repatriators Only

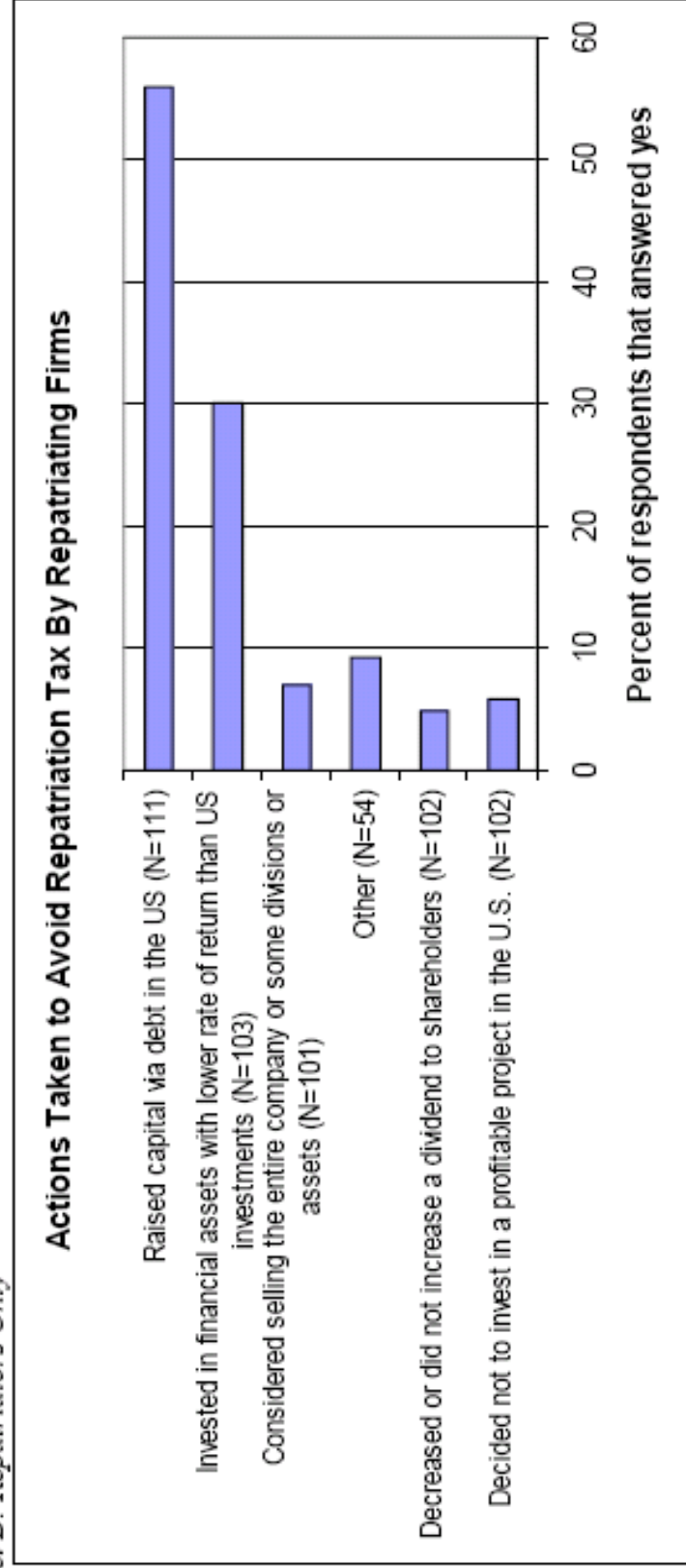


Figure 6
Probability of Another 'One-Time' DRD

Panel A:

Survey responses to the question: Approximately what probability does your company assess on the likelihood that sometime during the foreseeable future there will be another tax rate reduction on repatriated foreign earnings (similar to the one-time DRD under Section 965). (Check one probability.) (N=287)

