



Fiscal Affairs Department

Tax Policy & Investment *The Eric Zwick papers*

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FISCAL AFFAIRS DEPARTMENT

NATIONAL TAX ASSOCIATION, MAY 19, 2017



Distortions From Corporate Tax Policy

Income shifting – see <i>Heckemeyer and Overesch 2013</i>	
<ul style="list-style-type: none">- Domestic (legal form)- International (BEPS)	<ul style="list-style-type: none">- PIT versus CIT- CIT rate differences
Financial behavior – see <i>IMF 2016</i>	
<ul style="list-style-type: none">- Domestic (debt bias)- International (debt shifting)	<ul style="list-style-type: none">- Cost of capital for debt vs. equity- CIT rate differences
Investment behavior – see <i>De Mooij and Ederveen 2008</i>	
<ul style="list-style-type: none">- Domestic (traditional focus on intensive margin)- International (more focus on location of FDI)	<ul style="list-style-type: none">- Intensive – cost of capital/METR- Extensive – cash flow/AETR

Results From earlier Meta Study on FDI

- ▶ “*Corporate tax elasticities: a reader’s guide to empirical findings*, Oxford Review of Economic Policy”
 - ▶ 427 elasticities from 31 studies on the impact of tax on FDI
 - ▶ Derive uniformly defined semi-elasticity: $\% \Delta fdi / \Delta tax$
 - ▶ Explain systematic variation in findings by variation in study choices (meta analysis)
 - ▶ Consider various indicators of investment (FDI; PPE; Greenfield; M&A; #locations)
 - ▶ Consider various tax indicators (statutory rate; metr, aetr, atr)
- ▶ Some key findings
 - ▶ Mean semi-elasticity is around -3
 - ▶ Studies using EATR systematically larger; STR systematically smaller than EMTR
 - ▶ Studies using #locations systematically smaller; PPE systematically larger than FDI

- ▶ Bottom line: neoclassical investment theory falls short to explain FDI – extensive margin
- ▶ Zwick papers: this is also the case for domestic investment
 - ▶ Based on improved analysis: using better data and better methodology than before
 - ▶ E.g. “*Tax Policy and Heterogeneous Investment Behavior*”, *American Economic Review* 2017
 - ▶ Bonus depreciation systematically raises investment by between 10 and 17 percent
 - ▶ Effects much larger for small firms & firms for which it immediately affects cash flow
 - ▶ Aggregate investment elasticities materially larger than earlier literature
 - ▶ Important policy implications: e.g. targeting bonus depreciation to credit-constrained firms more effective countercyclical policy
 - ▶ Today: “*Kinky Tax Policy and Abnormal Investment Behavior*”, Qiping Xu & Eric Zwick
 - ▶ Tax policy affects timing of investment



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Kinky Tax Policy and Abnormal Investment Behavior

Qiping Xu and Eric Zwick
(presented by Ruud de Mooij)

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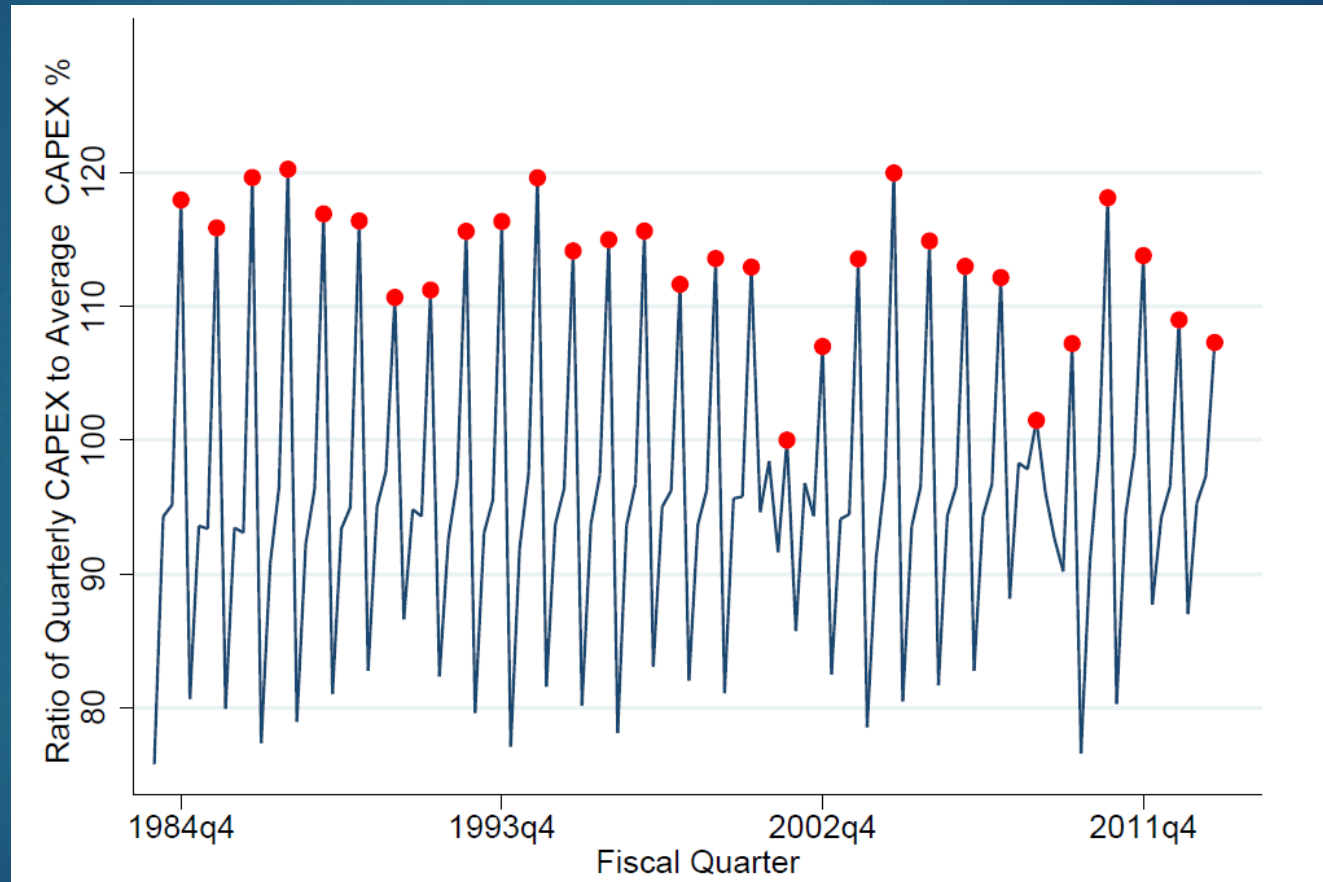


Kinky Tax Policy and Abnormal Investment Behavior by Qiping Xu and Eric Zwick

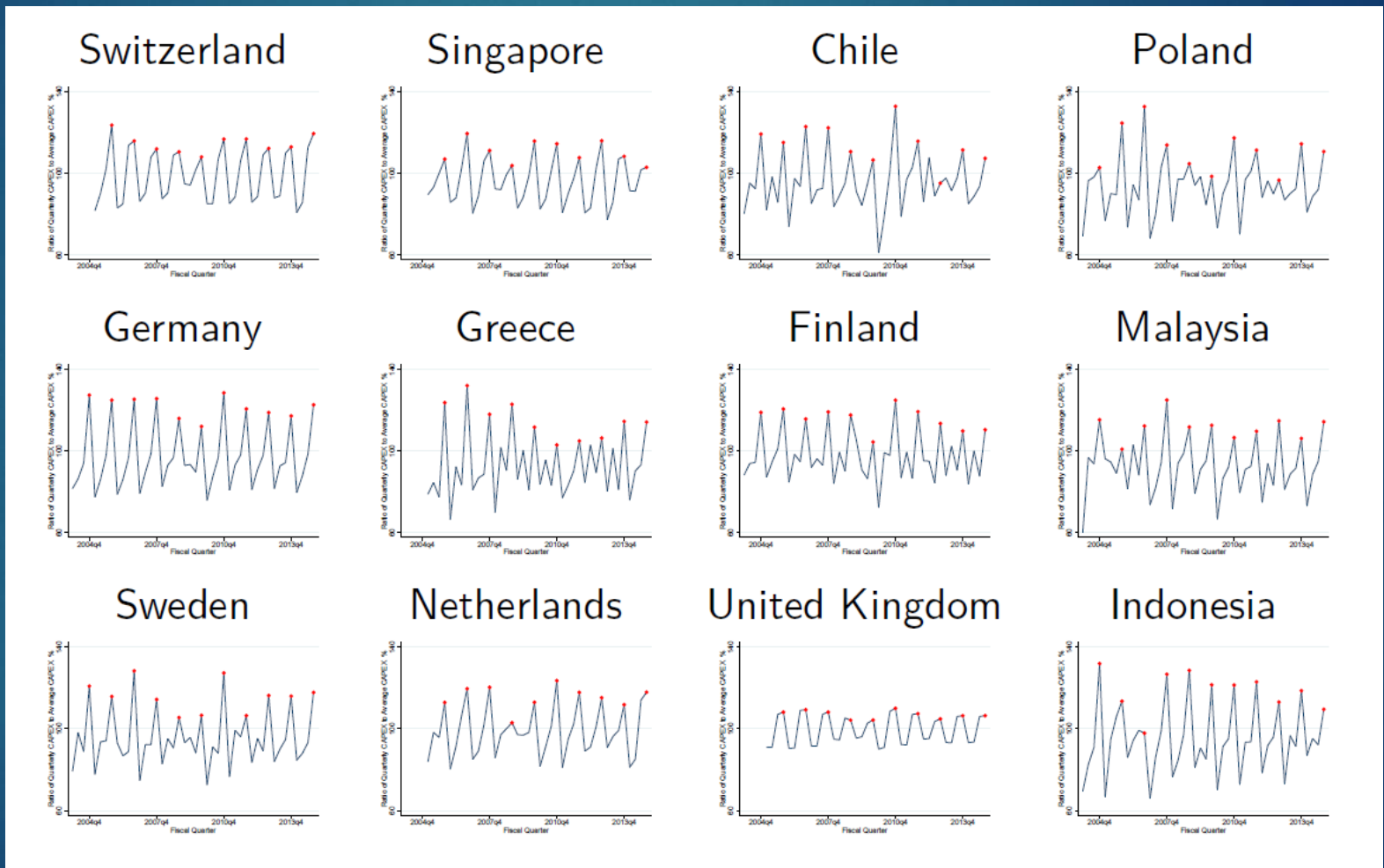
Stylized facts from three data sources

- ▶ Compustat: 1984 – 2013, 17,500 firms
 - ▶ Focus on quarterly data on CAPEX
 - ▶ Focus on timing of investment – especially a spike in Q4: indicator $Q4/av(Q1-Q3)$
- ▶ IRS Statistics of income 1993 – 2004 for 100,000 firms
 - ▶ To identify tax positions of firms
- ▶ Compustat Global: 15,000 firms in 33 countries

Fiscal Year-end Investment Spikes in US (Q4 is 37% higher than average Q1-Q3) – real and robust



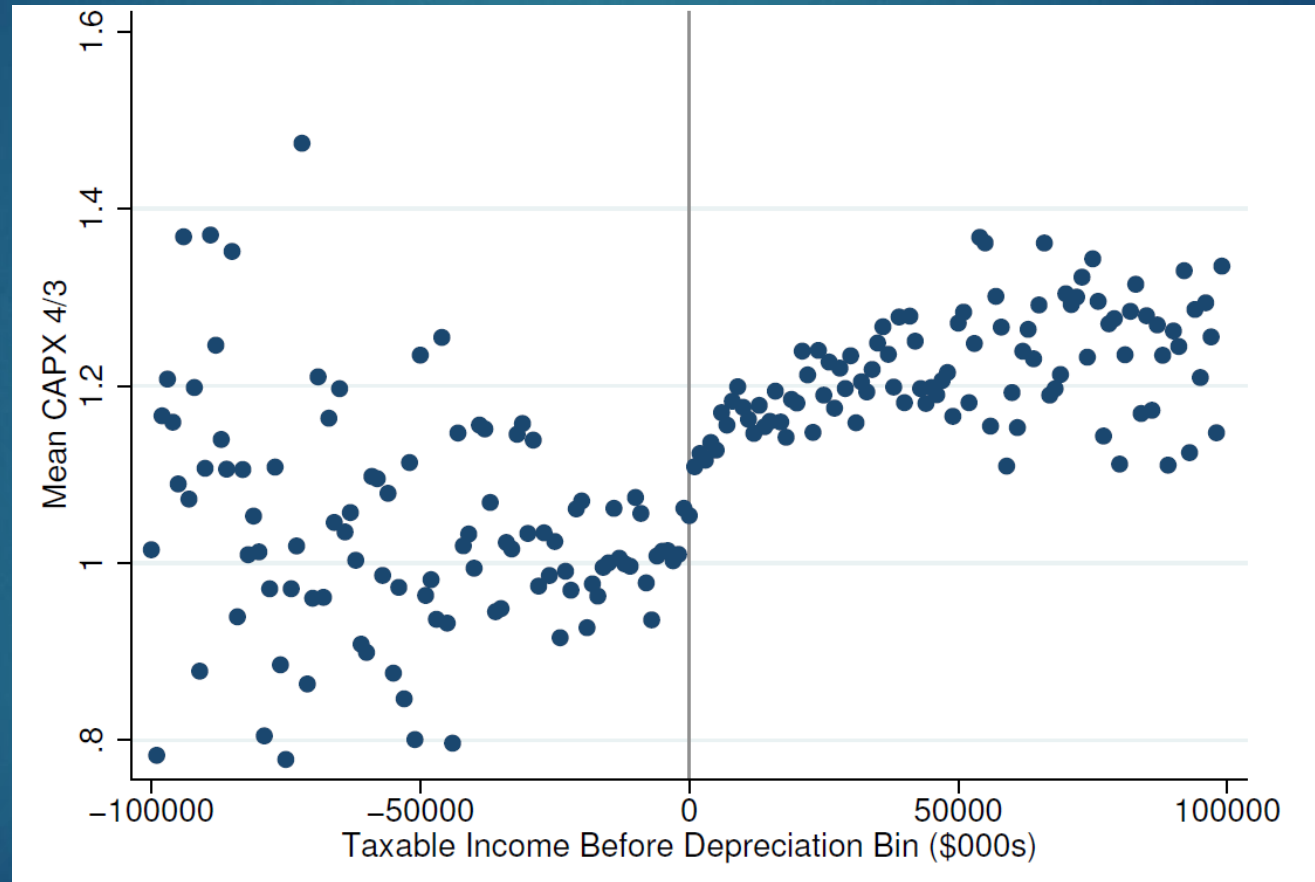
Idem, internationally



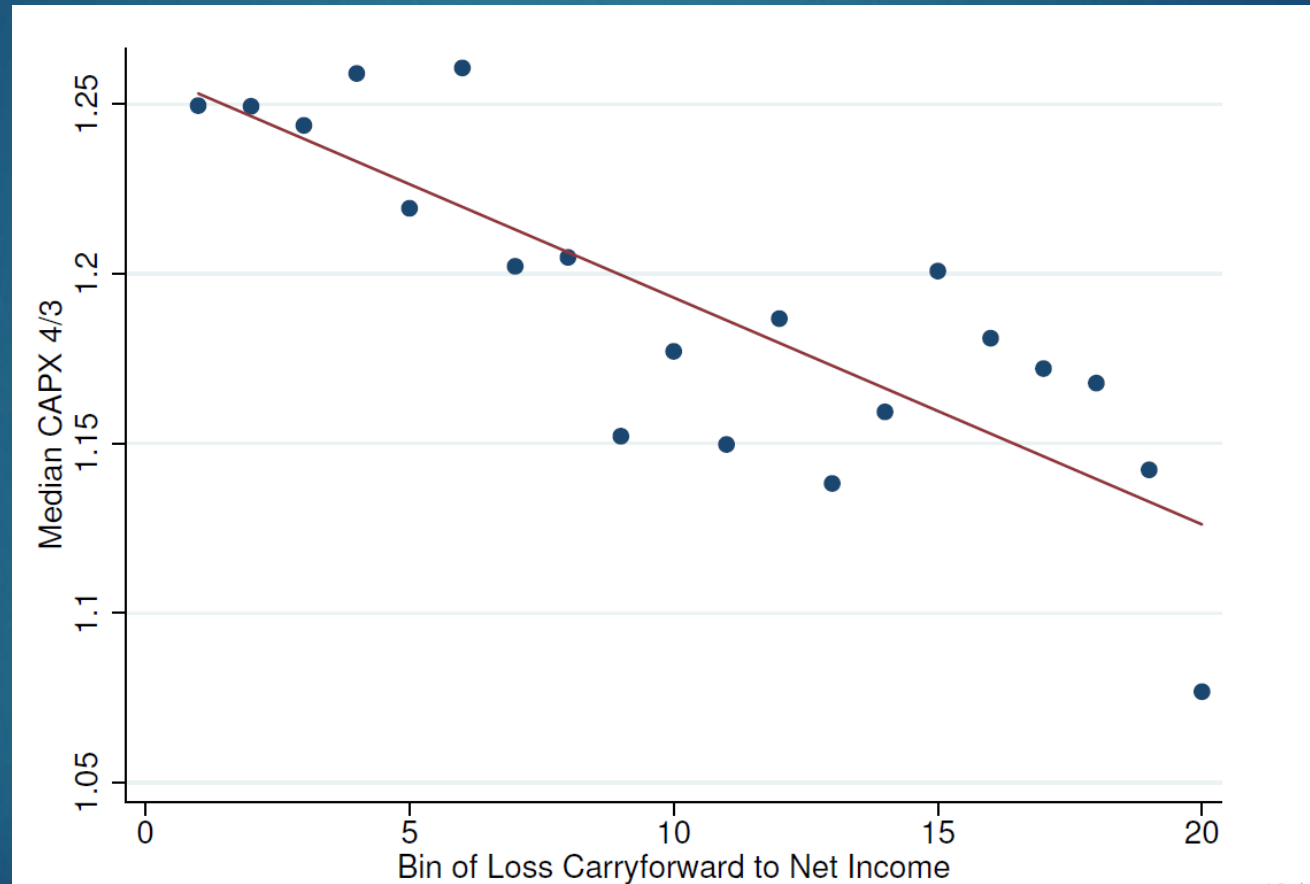
Is This Due To Tax?

- ▶ Alternative explanations (some of which are explored too)
 - ▶ Use-it-or-lose-it budgeting
 - ▶ Earnings volatility
- ▶ Tax issue – the value of depreciation allowances
 - ▶ Half-year convention: “place all CAPEX at midpoint of FY” – i.e. December purchase gives rise to half-year of depreciation allowance against FY earnings
 - ▶ Backloading investment to Q4 maximizes the tax benefit of depreciation – due to discounting
 - ▶ End of year provides information about tax position – and thus value of depreciation allowance: value higher for firms with positive taxable income; lower for firms in a loss position (identifying assumption)

Q4 Spike and Taxable Income Status (IRS)



Q4 Spike and NOL Carryforward



Paper Offers More

- ▶ Tax Reform act of 1986 – reduced benefit of Q4 spike
 - ▶ Repeal of the investment tax credit
 - ▶ Reduction in the top CIT rate
 - ▶ Longer recovery period for tax depreciationReduced spike after 1987 by between 11 and 14 percent
- ▶ International evidence
 - ▶ Reductions in CIT rates have reduced the Q4 spike significantly
- ▶ Paper also relates the spike directly to finance constraints
 - ▶ Regress CAPEX by Quarter on Tobin q and cash-flow
 - ▶ Then interact cash-flow variable with four indicators of financial constraints
 - ▶ For Q4, the coefficient for the interaction term is 2 twice that of other Q's—financial constraints amplify tax minimizing behavior

Implications

- ▶ For modeling
 - ▶ Simulating investment effects of CIT reform needs a model allowing financially constrained firms
 - ▶ Cash-flow business tax would not be fully neutral for investment
- ▶ For corporate tax policy
 - ▶ Taxation affects investment margins in unexpected ways
 - ▶ Investment incentives will amplify the Q4 spike
 - ▶ Allowing tax minimization has benefits for firms, but are only exploited by some firms
 - ▶ IRS could require 'mid-quarter' convention (already if CAPEX very skewed across the year)