The Impact of Legal Enforcement: An Analysis of Corporate Tax Aggressiveness after an Audit

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Motivation

- The corporate tax gap accounts for tens of billions of dollars in lost tax revenue
  - $67 Billion in 2006
- Yet there is little knowledge about how firms behave after an audit
  - Recent work focuses on laboratory experiments
- Existing models make ambiguous predictions

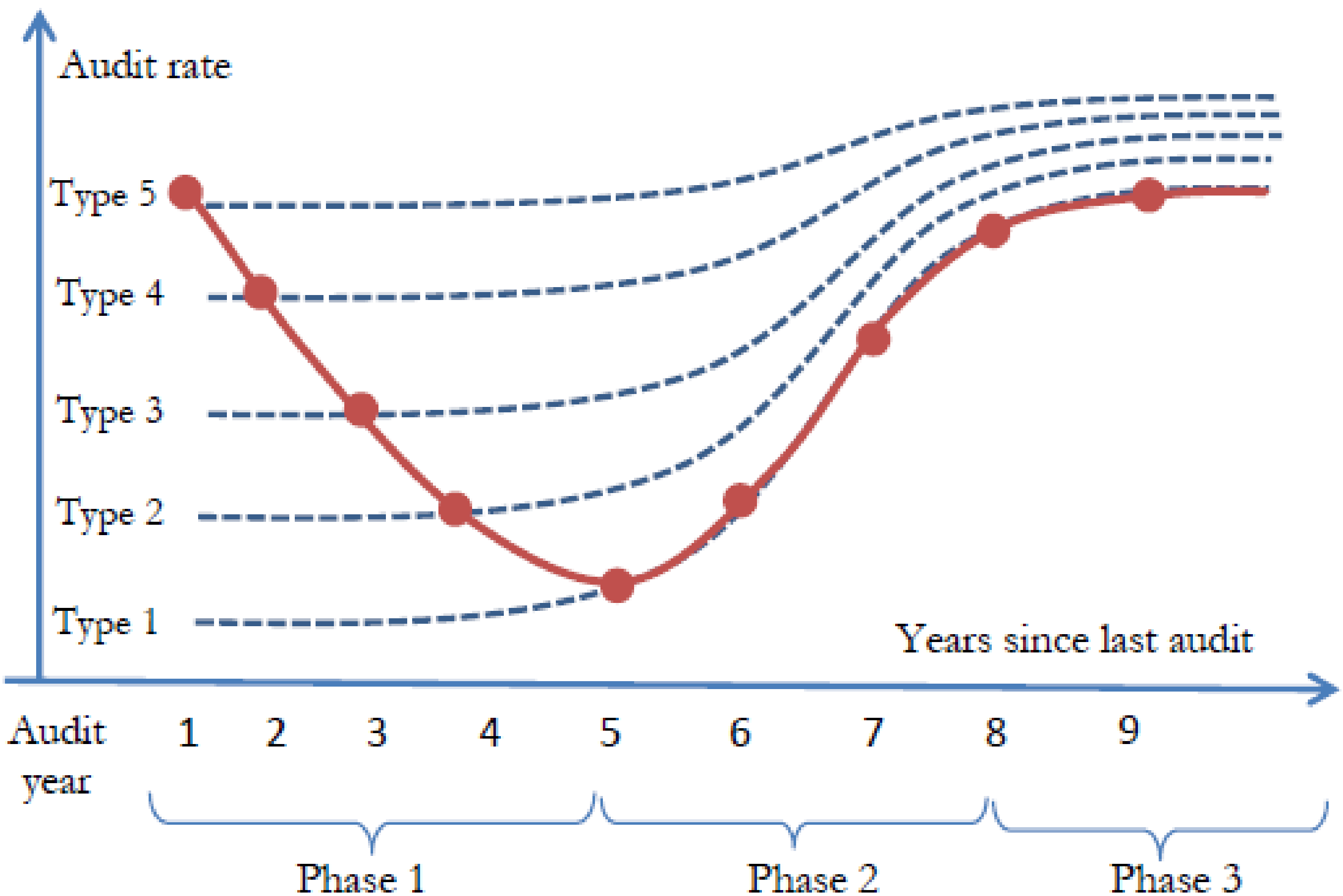
Previous Literature

- Response to intermittent enforcement depends on audit probability and penalties
  - Allingham and Sandmo, 1972
- Lab subjects tend to increase evasion right after an audit
  - Guala and Mittone, 2005; Mittone, 2006
- This behavior may be due to misperceiving the audit rate
  - Kastlunger, 2009

Firm Response to Audits

- Multiple factors in estimating own audit risk
  - Type Updating
  - Bomb-crater Effect
  - Penalty Updating
- Combined effect of updating is unclear
- Time-path depends on relative dominance of each factor
  - Flat vs Hump-shape vs U-shape

Perceived Audit Rate over Time



Empirical Strategy

- Tax aggressiveness measured using Effective Tax Rate
- Non-parametric measure of audit duration
  - Dummies for each year after audit has closed
- Each audit receives a different fixed effect
  - Results are relative to the ETR before the audit is closed
- Controls for firm size, firm type, and year

Firm Aggressiveness

- Using ETR allows us to consider a broad set of audits
- Our primary ETR measure is taxes plus value of net operating losses, over earnings before interest, taxes, and depreciation
  - Plesko, 2003
  - Including taxes, interest, and depreciation minimizes distortions in our measure of ETR
- We consider a battery of other ETR measures and obtain similar results

Data Source

- Data from IRS Compliance Data Warehouse
  - Form 1120
  - Audit Information Management System
- C Corporations, 1996 through 2009
  - Exclude RICs and REITs
  - Sample of 8 million observations
  - About 250,000 observations are connected to an audit
- Compustat used to identify public firms

Data Details

- Because the CDW is not edited, it is possible our data contain mistakes or other noise
  - 90% Winsorization of continuous variables to reduce outliers
- Descriptive Statistics:
  - Average ETR is 4.5%
  - Most firms experience no audit
  - Those which are audited go about 3.9 years between audits
  - Public firms, Foreign owned firms, and Multinationals are very rare, but more common in the top quartile

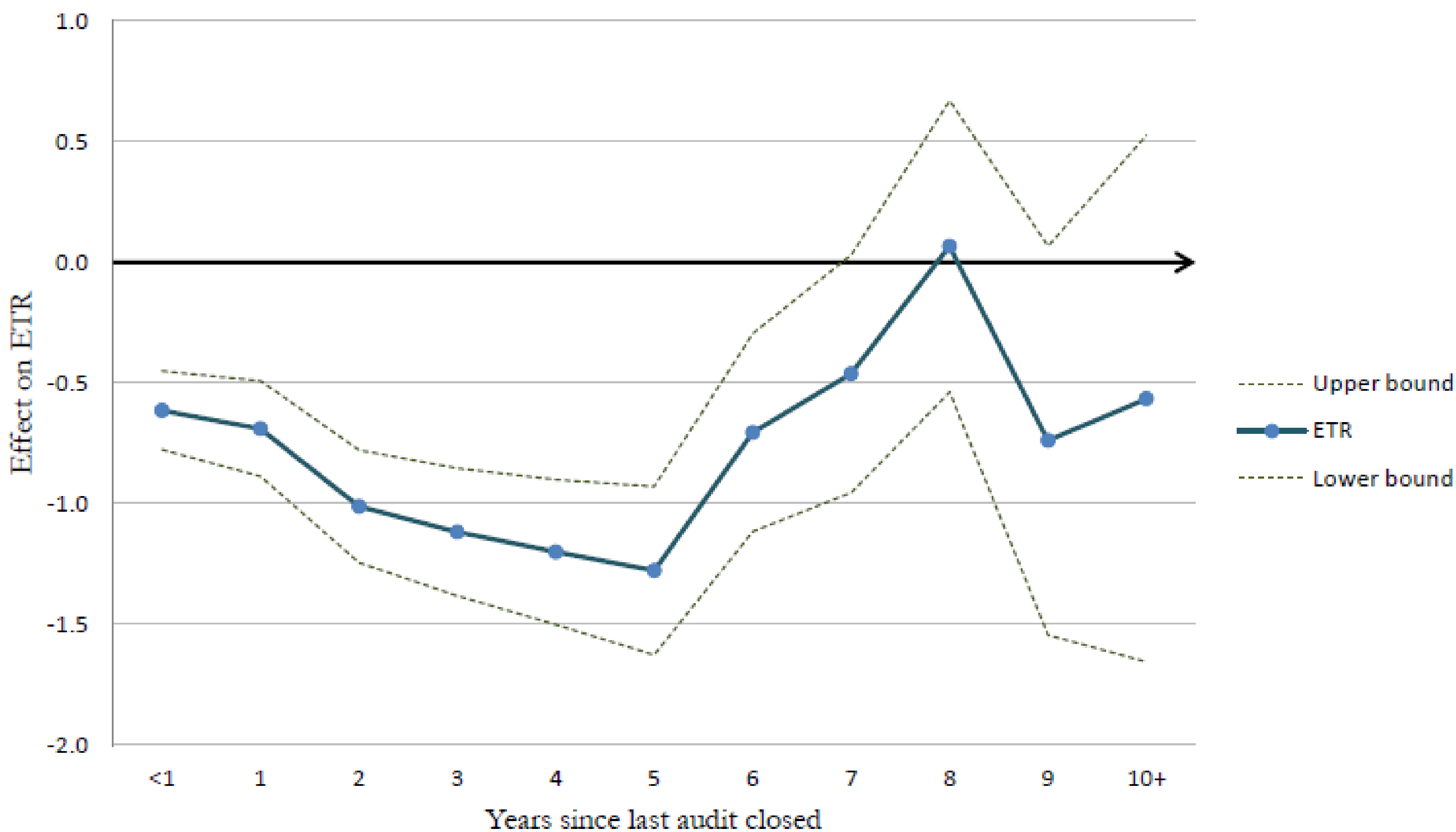
Comparison of Specifications

- Without any firm or audit fixed effects, audits correlate with higher ETR
- However, the introduction of firm fixed effects causes this relationship to reverse
  - Large firms have higher ETR and are audited more frequently
- The further introduction of audit fixed effects does not affect the general result

Main Result

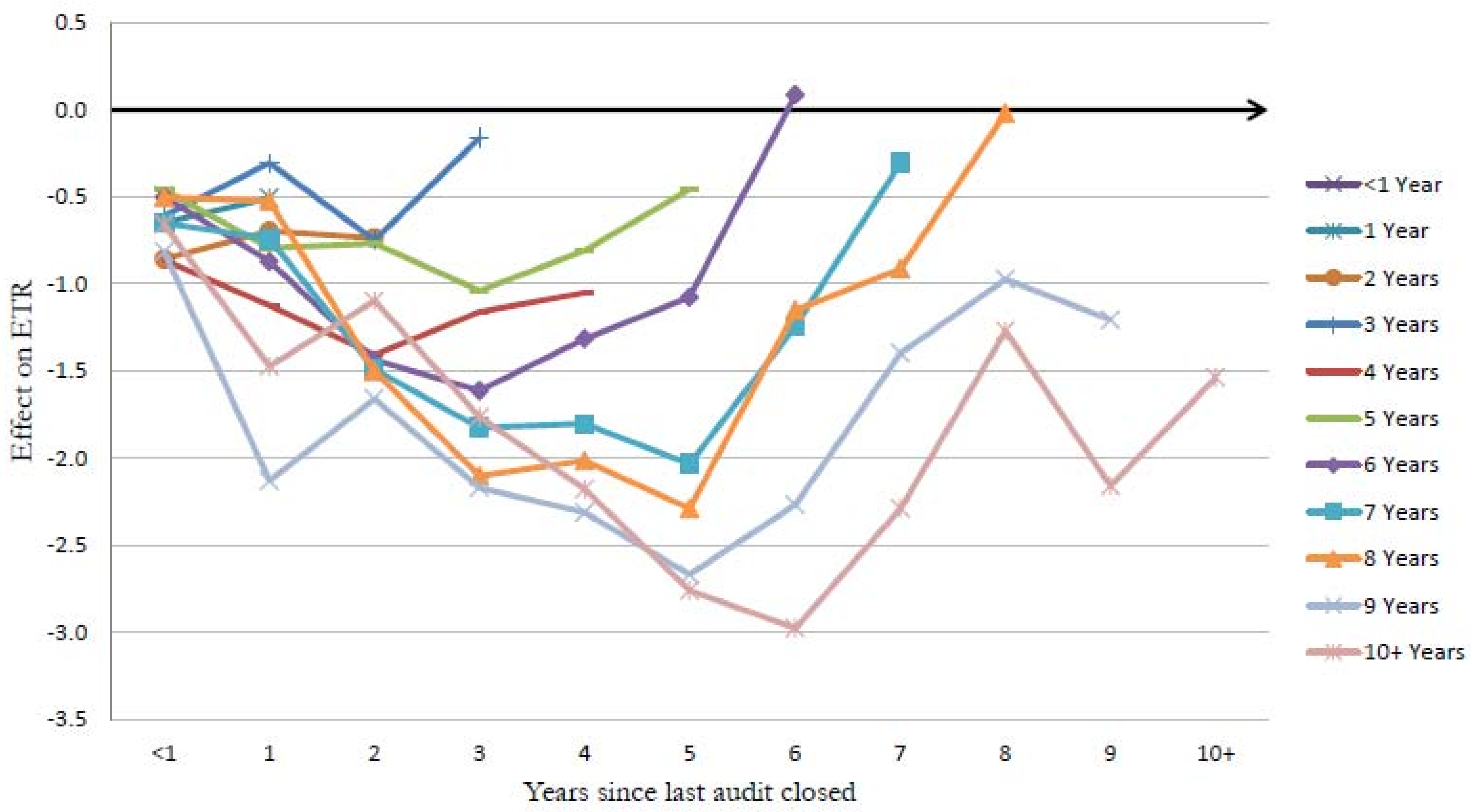
- Firms lower their ETR following an audit, and gradually increase it over time
  - U-shaped response
- Firms appear to respond to anticipated audits
  - U-shape shows up for disaggregated audit periods
- Robust to ETR specification

Main Result



1.0
0.5
0.0
-0.5
-1.0
-1.5
-2.0
Effect on ETR
<1
1
2
3
4
5
6
7
8
9
10+
Years since last audit closed
Upper bound
ETR
Lower bound

Results by Time to Next Audit



Firm Learning

- ETR is higher when similar firms are more likely to be audited
  - However, audit intensity does not appear to motivate firms
- Firms appear to be less aggressive after their first audit
- Upward adjustments make firms more aggressive
  - Suggests that firms are learning about penalty sizes

Conclusion

- Firms respond to audits by decreasing ETR, then raising it
- This behavior appears to be the result of a strategic updating process
- Firms appear able to learn from the audit experiences of themselves and others
- Responses also suggest that firms are able to anticipate upcoming audits to some degree

Future Work

- Examination of other types of businesses
- Exploration of mechanisms used by firms to adjust ETR
- Spillover effects and information-sharing among firms
- Closer focus on publicly-held firms or closely-held firms