Corporate Governance and Firm Value

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Generic Law & Finance Question

- How does [treatment] affect firm value?

Generic Law & Finance Question

- How does board staggering affect firm value?

Generic Law & Finance Question

- How do dual class structures affect firm value?

Generic Law & Finance Question

- How does the filing of 14a8 proposals by gadflies affect firm value?

Generic Law & Finance Question

- How does some doctrinal/regulatory development affect firm value?

Standard approaches to answer the question

- Historically: short-run event studies
- More recently: focus on long-run implications
  - Long-run event studies
  - Calendar time portfolio regressions
  - "*Q* regressions"

Our paper in a nutshell

- All approaches have shortcomings.
- But *Q* regressions—which we document have become increasingly prevalent over the past 10 years—are broken beyond repair:
  - In within-firm designs, they have all the problems of the other approaches—which are available—, and many more of their own.
  - Although there is no immediate substitute for cross-sectional *Q* regressions, the shortcomings we identify imply that those regressions shed very little evidence about the effect of legal treatment on firm value.

Changes in Q: a decomposition

$$Q_t = \frac{E_t + D_t}{A_t}$$

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$$A_{t+1} = A_t + \boxed{P_t} + \boxed{CM_t}$$

P_t → Profits during period t

CM_t → Net capital market transactions during period t:
Stock issuances + debt issuances – dividends – repurchases – debt repayment

Changes in *Q*: a decomposition

$$\Delta Q_{t+1,t} = \boxed{r_t} \frac{E_t}{A_{t+1}} + \boxed{CM_t} \frac{(1-Q_t)}{A_{t+1}} - \boxed{P_t} \frac{Q_t}{A_{t+1}}$$

Q changes because of

- Changes in firm (equity) value
- Capital market transactions
- Realization of profits

Changes in *Q*: a decomposition

$$\Delta Q_{t+1,t} = \boxed{r_t} \frac{E_t}{A_{t+1}} + \boxed{CM_t} \frac{(1-Q_t)}{A_{t+1}} - \boxed{P_t} \frac{Q_t}{A_{t+1}}$$

- This suggests one should be really cautious about *systematic differences* between treatment and control firms.
- More importantly, *treatment itself may change* P_t *and* CM_t—indeed, any treatment that has an effect on value *must*, in the long run, impact those. This is problematic:
  - Some treatments may change firm value in one direction and *Q* in the opposite direction.

Example

Year	0	1	2	3
Project payoff		50	50	50
Cash	100			
Rep. Val.				
Equity Value				
Asset Value				
Q				

- No debt

Example

Year	0	1	2	3
Project payoff		50	50	50
Cash	100	50	100	150
Rep. Val.				
Equity Value				
Asset Value				
Q				

- No debt
- Replacement value drops linearly

Example

Year	0	1	2	3
Project payoff		50	50	50
Cash	100	50	100	150
Rep. Val.		66.67	33.33	0
Equity Value				
Asset Value				
Q				

- No debt
- Replacement value drops linearly
- No discounting

Example

Year	0	1	2	3
Project payoff		50	50	50
Cash	100	50	100	150
Rep. Val.		66.67	33.33	0
Equity Value	150	150	150	150
Asset Value				
Q				

- No debt
- Replacement value drops linearly
- No discounting
- Asset Value = Cash + Replacement Value

Example

Year	0	1	2	3
Project payoff		50	50	50
Cash	100	50	100	150
Rep. Val.		66.67	33.33	0
Equity Value	150	150	150	150
Asset Value	100	116.67	133.33	150
Q				

- No debt
- Replacement value drops linearly
- No discounting
- Asset Value = Cash + Replacement Value
- Q = Equity Value / Asset Value

Example

Year	0	1	2	3
Project payoff		50	50	50
Cash	100	50	100	150
Rep. Val.		66.67	33.33	0
Equity Value	150	150	150	150
Asset Value	100	116.67	133.33	150
Q	1.5	1.29	1.13	1.00

- No debt
- Replacement value drops linearly
- No discounting
- Asset Value = Cash + Replacement Value
- Q = Equity Value / Asset Value

Example

Year	0	1	2	3
Project payoff		60	50	50
Cash	100	50	100	150
Rep. Val.		66.67	33.33	0
Equity Value	150	150	150	150
Asset Value	100	116.67	133.33	150
Q	1.5	1.29	1.13	1.00

Example

Year	0	1	2	3
Project payoff		60	50	50
Cash	100	60	110	160
Rep. Val.		66.67	33.33	0
Equity Value	160	160	160	160
Asset Value	100	126.67	143.33	160
Q	1.6	1.26	1.12	1.00

Example

Year	0	1	2	3
Project payoff		60	50	50
Cash	100	60	110	160
Rep. Val.		66.67	33.33	0
Equity Value	160	160	160	160
Asset Value	100	126.67	143.33	160
Q	1.6	1.26	1.12	1.00
Change in E	+6.67%	+6.67%	+6.67%	+6.67%

Example

Year	0	1	2	3
Project payoff		60	50	50
Cash	100	60	110	160
Rep. Val.		66.67	33.33	0
Equity Value	160	160	160	160
Asset Value	100	126.67	143.33	160
Q	1.6	1.26	1.12	1.00
Change in E	+6.67%	+6.67%	+6.67%	+6.67%
Change in Q	+0.1	-0.023	-0.009	0

Changes in Q: A decomposition

$$\Delta Q_{t+1,t} = \boxed{r_t} \frac{E_t}{A_{t+1}} + \boxed{CM_t} \frac{(1-Q_t)}{A_{t+1}} - \boxed{P_t} \frac{Q_t}{A_{t+1}}$$

- This suggests one should be really cautious about *systematic differences* between treatment and control firms
- Moreover, *treatment itself may change* P_t *and* CM_t—indeed, any treatment that has an effect on value *must*, in the long run, impact those. This is problematic:
  - Some treatments may change firm value in one direction and *Q* in the opposite direction.
  - Changes that do not change firm value may change *Q*.

Example

Year	0	1	2	3
Project payoff		50	50	50
Cash	100	50	100	150
Rep. Val.		66.67	33.33	0
Equity Value	150	150	150	150
Asset Value	100	116.67	133.33	150
Q	1.5	1.29	1.13	1.00

Example

Year	0	1	2	3
Project payoff		90	30	30
Cash	100	50	100	150
Rep. Val.		66.67	33.33	0
Equity Value	150	150	150	150
Asset Value	100	116.67	133.33	150
Q	1.5	1.29	1.13	1.00

Example

Year	0	1	2	3
Project payoff		90	30	30
Cash	100	90	120	150
Rep. Val.		66.67	33.33	0
Equity Value	150	150	150	150
Asset Value	100	156.67	153.33	150
Q	1.5	0.96	0.98	1.00

Example

Year	0	1	2	3
Project payoff		90	30	30
Cash	100	90	120	150
Rep. Val.		66.67	33.33	0
Equity Value	150	150	150	150
Asset Value	100	156.67	153.33	150
Q	1.5	0.96	0.98	1.00
Change in Q	0	-0.328	-0.147	0

Isn't there a fix?

- No! And in a within-firm study you don't need it.
- By construction, identification comes from the fact that some firms' exposure to treatment changed over time.
- That means you can use the other approaches.
- Sure, those approaches have their own problems—but those problems are also present, often more seriously, in *Q* regressions (through r_t):
  - Risk adjustment/joint hypothesis problem
  - Getting statistical inference right
  - Attrition
  - State contingency
- **Note**: the problems go way beyond the fact that the version of *Q* that people use in practice is different from some Platonic ideal of Tobin's Q.

What about the cross-sectional setting?

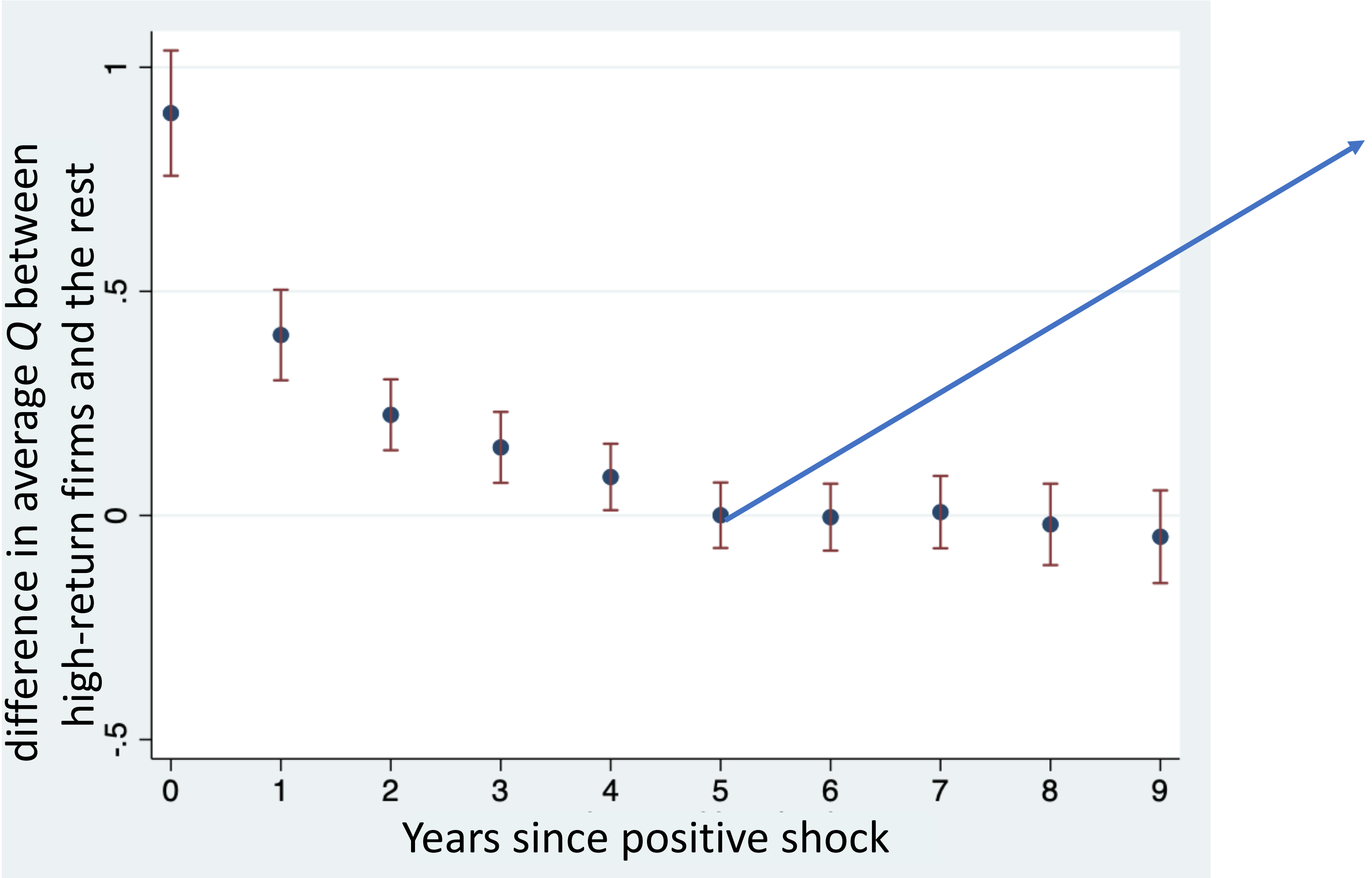
- In that case, you don't have the luxury of time-varying treatment.
- But think about the nature of the exercise:

What about the cross-sectional setting?

1. Were the two firms *really* comparable when the road bifurcated?
2. Is the difference in *Q* due to the fact that one firm is *more valuable*, or due to the fact that the sequence of $\{ P_t , CM_t \}$ looks different (perhaps *as a result* of the treatment introduced *N* years earlier)?
3. How plausible is it that a treatment that brought about differential changes in value N years earlier could still be detectable?

How plausible is it…?

- <u>Exercise</u>: for each year *y* between 2001 and 2010, we identified the U.S. publicly traded firms in the CRSP dataset in the top decile of stock returns for the relevant year.
- These "high-return firms of year *y*" had average returns of 173% in year *y* (compared to 4.5% returns for non-high-return firms of year *y*)—an excess return way higher than the one most governance changes would generate.
- For each year *t=y, y+1, y+2,…, y+9* we then compared the average *Q* of the high-return firms of year *y* with that of all other U.S. publicly traded firms as of year *t*.



Despite the dramatic shock to firm value that high-return firms experienced in the baseline year, 5 years later their *Q* is indistinguishable from that of the other firms.

Why do people use *Q* regressions?

- A brief history:
  - *Q* regressions were born in cross-sectional settings, where no other approach was available to tease out the effect of treatment on value.
  - Eventually, some people started running “robustness checks” through specifications that controlled for firm FEs.
  - With the ascent of the “credibility revolution”, people embraced within-firm *Q* regressions as better-identified approaches—without realizing that in those cases *Q* regressions were no longer necessary.

Why do people use *Q* regressions?

- Snarky answer from senior finance colleague: "*because they work!*"
- Indeed, they do work: not only are *Q* regressions extremely easy to run. In running *Q* regressions people get away with doing things they'd never get away with if they instead ran a long-run event study:
    - Not thinking about control group / asset pricing model to compute "normal" returns
    - Not thinking about length of the event window
    - Not probing statistical inference
- In a world that rewards significant estimates, an approach that generates such estimates—even if they are spurious, and shed no evidence on the real question of interest—is just too tempting—why argue with success?

Takeaways

1. If someone offers you ~~drugs~~ *Q, just say no.*

Stop running *Q* regressions of any type and interpreting them as if they taught us anything about the effect of [treatment] on firm value.

2. To the extent that their conclusions are based only on *Q* regressions, many of the things law and finance papers have purported to teach us may not be true.
3. Even in the best-designed studies, the shortcomings we discuss suggest one should adopt a skeptical, Bayesian stance.
4. Treatment should ideally be introduced in ways that help to tease out their effect: embrace randomization, federalism, staggered treatment, sunsetting.

Risk adjustment/joint hypothesis

- Changes in *Q* are driven by changes in raw returns.
- Stocks exposed to more systematic risk are expected to fetch more raw returns.
- The interesting question is whether they fetch more *risk-adjusted* returns.
- Return studies' first order of business is to isolate *abnormal* returns.
- That is challenging!
- *Q* regressions don't even try. That happens as an afterthought as a result of year fixed effects.

Statistical inference

- When event dates are bunched, cross-sectional correlation in abnormal returns can lead event studies to overreject the null.
- The coarseness of the data in *Q* regressions exacerbates the bunching problem.
- It took a long while for the issue of error correlation to even show up in the radar of corporate governance scholars—and the focus is mostly on the clustering of errors at the *firm* level.

Attrition

- Treatment can lead firms to leave the sample at systematically different rates—and for systematically different reasons—than control firms.
- That makes it very challenging to compare returns.
- The coarseness of the data in *Q* regressions only exacerbates the challenge.

State contingency

- Corporate governance changes affect firm value by changing agents' behavior.
- The impact on behavior on firm value depends on the states of the world that are realized after treatment—recession or boom? High or low Interest rates? Loose or tight competition?
- Long-term studies examine whether governance changes had effects *in the actual states of the world that prevailed after treatment* — which may be different from the states that were *expected* to prevail.
- If legal treatments were randomly distributed across future states, that would not be an issue.
- But very often they are not.