In Defense of Theory in the Study of Corporate Governance

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In Defense of Theory

- Corporate governance is about how different actors associated with a firm interact.
- As such, we need to model it using the tools of game theory and contract theory.
- Such analyses often have subtle, at times counter-intuitive, results.
- As valuable & crucial as empirical analyses are, they don’t always do well *explaining* what’s going on.
- In addition, “off-the-shelf” basic Economics 101 reasoning doesn’t always do the job either.
Common Ideas about Governance

- Better governance causes better firm performance.
- Limiting executives’ contingent compensation will lead to worse firm performance.
- But I want to suggest that both ideas, if not wrong, are at least incomplete.
Corollaries
These ideas are critical to policy

- Better governance causes better firm performance $\Rightarrow$ government reforms to improve governance will benefit shareholders.

- Limiting executives’ contingent compensation will lead to worse firm performance $\Rightarrow$ government reforms to limit compensation will harm shareholders.

- But if, as I wish to suggest, the antecedents are wrong or incomplete, then those policy conclusions are *not* justified.
Arguments I Wish to Put Forward

- Firms with more **profitable** uses for resources enjoy a greater return from protecting against managerial mismanagement, misallocation, or misappropriation: it is *potential* profits that drive the level of corporate governance.

- Furthermore, the quality/amount/strength of governance is the solution to an optimization program that varies across firms (and which may reflect bargaining between owners and managers).

- Hence, externally imposed “improvements” to governance could reduce firm value.
Assessing the Effect of Governance
The “Standard” Regression

- Regress a measure of firm performance
  - profits
  - firm value
  - Tobin’s Q
- on measure of governance
  - %-age of outside directors on board
  - strength of managerial incentives
  - score on an index of governance measures
The Standard Regression: The Data

Performance

Strength of Governance

Firm A

Firm B

L

H
The Standard Regression

Performance

Strength of Governance

Firm A

Firm B

Regression line

L

H
If causal, then regression would imply Firm A is behaving suboptimally:

- A would do better if it emulated B.
- Firm A appears to be leaving money on the table.
An Equilibrium Interpretation: I

Performance

Firm B

tradeoff

Governance

L

H
An Equilibrium Interpretation: II

![Graph showing performance versus governance with two firms, A and B, at different levels of governance (L and H).]
An Equilibrium Interpretation: III

Performance vs. Governance

- Firm A
- Firm B
- Regression line

Points:
- L
- H
What’s Being Tested?
Heterogeneity Not the End of the Story: Doesn’t Explain Slope!
What’s Required of Theory?

- It must explain why governance matters;
- It must explain why there is variation in governance across firms; and
- It must also explain why we observe the slopes that we do.
But Why Do Firms Face Different Situations?

- One answer: Firm B’s potential profitability exceeds A’s, so B’s returns to governance are different than A’s.
- Nice feature of this explanation: it also explains the slope of the regression line!
A First Model

Assumptions

- Let $R$ denote the firm’s gross resources.
- Let $D$ denote the amount of resources the manager diverts to uses he desires, but which are unproductive from the firm’s perspective. (So net productive resources are $N = R - D$.)
- Let $g$ be a measure of the strength or effectiveness of governance.
- Governance matters: higher level of governance ($g$), less manager diverts.
- Equivalently, higher $g$ means higher $N$: $N'(g) > 0$. 

The Preferences of the Owners
The Nature of Returns

- Corporation’s returns, \( r \), are distributed 
  \[ F(\cdot|N, \tau) : [r, \infty) \to [0, 1], \ r > -\infty. \]
- \( \tau \in \mathbb{R} \) is the corporation’s type.
- Via integration by parts, expected returns can be written 
  \[ \mathbb{E}\{r|N, \tau\} = r + \int_r^\infty S(r|N, \tau) \, dr , \]
  where \( S(r|N, \tau) \equiv 1 - F(r|N, \tau) \) is the survival function.
More on Returns

- Assume more net resources utilized, the better the distribution of returns in the sense of strict first-order stochastic dominance:

\[
\frac{\partial S(r|N, \tau)}{\partial N} > 0
\]

for all \( N, \ r \in (\underline{r}, \infty) \), and \( \tau \).

- Definition of type, \( \tau \): marginal expected return from an increase in net resources utilized is greater for higher-type corporations than lower-type corporations.
Firm Types
Assume $\tau > \tau'$ (i.e., the former is a higher-type firm than the latter)
The Owners’ Problem

- Profit of corporation is return less governance cost, $C(g)$.
- Owners’/investors’ choice of governance solves

$$\max_g \int r + \int_0^\infty S(r|N(g), \tau) \, dr - C(g). \quad \text{(Investor Obj)}$$

- Cross-partial derivative of (Investor Obj) with respect to $g$ and $\tau$ is

$$\int_0^\infty \frac{\partial^2 S(r|N(g), \tau)}{\partial N \partial \tau} N'(g) \, dr > 0,$$

where the inequality follows from the definition of type and because $N(\cdot)$ is increasing.

- Last expression and usual comparative statics imply . . .
The level of governance a corporation has is non-decreasing in its type (i.e., in its marginal expected return from net resources).
The Main Proposition Graphically

\( \tau > \tau' \) (i.e., former is higher type than latter); \( MER = \) marginal expected return

\[
\begin{align*}
C'(g) & \equiv MC(g) \\
MER(N(g), \tau') & \times N'(g) \\
MER(N(g), \tau) & \times N'(g)
\end{align*}
\]
Reasonable to assume a corporation that employs no net resources will enjoy a zero return (one rarely gets something for nothing). This implies
\[ \frac{\partial S(r|0, \tau)}{\partial \tau} = 0. \]

Combined with the definition of type that implies
\[ \frac{\partial S(r|N, \tau)}{\partial \tau} = \frac{\partial S(r|N, \tau)}{\partial \tau} - \frac{\partial S(r|0, \tau)}{\partial \tau} \]
\[ = \left[ \int_0^n \frac{\partial^2 S(r|x, \tau)}{\partial \tau \partial N} \right] dx > 0. \]

In words: an increase in type, holding resources constant, means better returns in the sense of first-order stochastic dominance.
Let $g^*(\tau)$ be solution to program (Investor Obj). Envelope theorem implies

$$\frac{d}{d\tau} \left( r + \int_r^\infty S \left( r \mid N(g^*(\tau)), \tau \right) dr - C(g^*(\tau)) \right)$$

$$= \int_r^\infty \frac{\partial S \left( r \mid N(g^*(\tau)), \tau \right)}{\partial \tau} dr > 0,$$

where the inequality follows from previous slide.

In words: higher-type firms have greater expected profits in equilibrium. This explains “data” for firm A and B.
Implication for Empirical Work

Proposition

*In this model, in which all corporations are making optimal decisions, there will be a positive correlation between level of governance and corporate profits.*

- Note path of causation: a corporation with a high marginal return to net resources—which will therefore be, *ceteris paribus*, a corporation with greater profits on average—is a corporation with a higher marginal cost of agency. It therefore puts in place a higher level of governance than a corporation with a low marginal return to net resources (low marginal cost of agency).
In the popular press and among many politicians, high levels of executive compensation are viewed with mistrust.

There have been numerous calls to limit pay.

The Economics 101 response: “bad idea—state regulation of prices causes welfare-reducing distortions.”

Slightly more sophisticated response: “bad idea—shareholders could limit pay if they wanted; by revealed preference they don’t want limits.”

Yet shareholders and their advocates often leading proponents of limits (e.g., recent “say-on-pay” legislation and referenda).
Basic Idea

- Basic insight from agency theory: principal (e.g., shareholders/board) would rather reward agent (e.g., CEO) on basis of what he does rather than on a performance measure that is a noisy signal of what he did.
- Suppose board of directors, acting on behalf of shareholders, can observe, but not verify, what CEO does.
- In a one-shot game, can’t contract on CEO’s action—stuck contracting on performance.
- But in repeated game, it might be possible to use a relational contract that effectively permits contracting on what the CEO does.
A relational contract is dependent on parties not reneging on their promises.

The board is tempted not to pay the CEO the amount promised for taking the desired action (recall can’t be legally obliged to do so).

Part of how tempted it is depends on the consequence if it gives into temptation: what happens next?

If next is a formal contract contingent on (noisy) performance and if that contract isn’t too bad, then the temptation to renege is high.

Because board cannot commit not to resort to such formal contracts in the future, it might require help from the state to “lash it to the mast.”
A Bit of Formalism

- Let $\pi^*$ denote expected *per-period* profits under a relational contract (*i.e.*, an implicit promise by board to reward the CEO appropriately if he acts appropriately).
- Let $\pi_{FC}$ denote expected *per-period* profits under a formal contract (*i.e.*, one in which CEO compensation tied to realized performance).
- Because of usual inefficiencies in latter type of contracting $\pi^* > \pi_{FC}$.
- Let $\delta \in (0, 1)$ be the relevant discount factor.
- Board can be trusted to honor promise (relational contract) if

$$\frac{\delta}{1 - \delta} \pi^* \geq \text{COMP} + \frac{\delta}{1 - \delta} \pi_{FC}$$

PDV of rel. contracts what board saves if reneges PDV if no credibility
Is Relational Contracting Credible?

- Rearranging last expression and letting $w = \text{COMP}$, credible if
  $$\delta \geq \frac{w}{\pi^* - \pi_{FC} + w}.$$  

- Righthand side is increasing in $\pi_{FC}$, which means harder to sustain relational contracting the more profitable is formal contracting.

- If inequality reversed, then firm stuck with formal contracting even though always true that $\pi_{FC} < \pi^*$.

- Board may wish, in that case, to be lashed to the mast: desires restrictions on contingent compensation that reduce $\pi_{FC}$. 
Making Formal Contracting Worse—Lashing to Mast

- Suppose, under formal contracting, CEO gets bonus $b$ if firm does well.
- Bigger is $b$, the more effort CEO puts in.
- Optimal tradeoff between increased odds of firm doing well and cost of compensation: there is a $b^*$ that maximizes $\pi_{FC}$.
- If restrict $b < b^*$, then $\pi_{FC}$ will be lower and sustaining relational contracting easier.
Conclusions: Part 1

- Firms have better governance when there is a reason for them to have better governance; that reason is arguably profit potential, which explains much of the empirical correlation.

- A naïve causal explanation for empirical results must be wrong by the “leaving-money-on-the-table” critique.

- More importantly, such regressions cannot tell us governance matters.

- A good theory must explain (i) why governance matters; (ii) why it varies across firms; and (iii) why we see the slopes in the data that we do.
Governance is necessarily second best: parties are optimizing given the constraints they face.

Hence, dangerous to look at outcomes and argue for regulation (e.g., a regression that shows a positive correlation between outsiders on board and firm performance doesn’t necessarily justify restrictions on board composition).

On other hand, can’t conclude that a “hands-off” approach always best: the literature recognizes that there are situations in which externally imposed restrictions are beneficial (e.g., when one party wants to be lashed to the mast).

More generally, understanding governance requires subtle game-theoretic analysis; that is, theory is essential.

Chapter 18 of said volume goes into the first model presented here in greater depth.

For a general survey that deals with when state interference in private contracting is or isn’t likely warranted, see B. Hermalin, A. Katz, and R. Craswell, “Contract Law” in *The Handbook of Law and Economics*, edited by A. Mitchell Polinksky & Steven Shavell, North Holland, 2007.

I hope to be able to circulate a version of the paper with P. Cebon (the 2nd model) sometime later this fall. Send me an email in a month or so’s time if you want a copy.