I. Relational Contracts

- *Equilibria* of repeated games (with transfers)
- *Shared understandings* of the parties’ roles in and rewards from collaboration (so rooted in the details of the parties’ relationship that they cannot be shared with a court, and hence are enforced by the shadow of the future)

- Part of the *culture* of a relationship?
  How we do things around here.

- Part of the *norms* of a relationship??
  How we *should* do things around here.

“*No contract in the world will compel an unwilling partner to perform.*”

M. Levine, NBER conference, 2002

CEO, New York Air (1982-84)
Dean, Yale School of Management (1988-92)
EVP, Northwest Airlines (1992-99)
II. Discretion

- Boss—subordinate
- Peer—peer
- HQ—department
- Department—department
- Organization—organization

- Vertical or horizontal
- People, groups, firms, …

Bosses have discretion. So do peers.

Example 1: Bonus @ Lincoln Electric
(Fast & Berg ‘75)

- Arc welders and supplies in Cleveland (Fortune 200)
- Pay = piece rate + bonus
  - supervisor assesses ideas, cooperation, dependability
  - bonus about half of typical worker’s pay
  - bonus pool about half of pre-tax, pre-bonus earnings
- Complementary relational contracts
  - Change piece rate; employment security
- (Re)defining relational contract, even after decades

Example 2: Decentralization @ J&J
(Aguilar & Bhambri ’83)

- “Decentralization = Creativity = Productivity”
  - J&J: 140 (220) local operating companies
  - Exec. Com. = 11 (but Tylenol w/ codeine)
  - π-center, autonomy, retained earnings

- Hospital Services Group “3 years late”
  - Revising promises w/ LOCs?
  - New promises @ HSG?
    • Service group? Cost center? Staffing?

Example 3: Kenyan Flowers

The Value of Relationships: Evidence from a Supply Shock to Kenyan Flower Exports

Rocco Macchiavello Ameet Morjaria
Warwick, BREAD and CEPR Harvard University
January 2012

“A survey we conducted among exporters in Kenya reveals that relationships with foreign buyers are not governed by written contracts enforceable by courts. The perishable nature of roses makes it impractical to write and enforce contracts on a supplier’s reliability. Upon receiving the flowers, the buyer could refuse payment and claim that the flowers did not arrive in the appropriate condition while the seller could always claim otherwise.”
### III.A Formal & Relational Incentive Contracts

(\text{\cite{Baker, Gibbons, & Murphy QJE 94}})

**Model**

- \( \Pr(y=1) = a_1 \) \text{ non-contractible}
- \( \Pr(p=H) = a_1 \cos(\theta) + a_2 \sin(\theta) \) \text{ contractible}

**Cost of effort**

\[ \text{Cost of effort} = \frac{k(a_1^2 + a_2^2)}{2} \]

**Agent’s outside option**

\[ u \]

**Principal’s outside option**

\( = 0 \)

**First-Best**

- \( a_1 = \frac{1}{k} \)
- \( a_2 = 0 \)
- Total Surplus: \( V_{FB} = \frac{1}{2k} \)

### Spot Contract: \( W = s + b \cdot 1_{\{p=H\}} \)

- \( U = s + b[a_1 \cos(\theta) + a_2 \sin(\theta)] - k(a_1^2 + a_2^2)/2 \)
- \( a_1 = \frac{b}{k} \cos(\theta), \ a_2 = \frac{b}{k} \sin(\theta) \)
- \( b^* = \cos(\theta) \)
- Total Surplus: \( V_{spot} = \frac{1}{2k} \cos^2(\theta) \)

### Relational Contract: \( W = s + B \cdot 1_{\{y=1\}} \)

- First-Best: \( B = 1 \)
- \( V_{FB} - u \geq r \)
- Second-Best: largest \( B \) such that \( V_{rel}(B) - u \geq rB \)
- \( B_{SB} \) solves \( \frac{1}{2k}(2B - B^2) - u = rB \)

### Optimal Spot or Relational Contracts

- \( r = 0.28, u = 0.03, k = 2 \)

### Formal and relational contracts

\[ W = s + b \cdot 1_{\{p=H\}} + B \cdot 1_{\{y=1\}} \]

- \( U = s + b[a_1 \cos(\theta) + a_2 \sin(\theta)] + B a_1 - k(a_1^2 + a_2^2)/2 \)
- \( a_1 = \frac{b \cdot \cos(\theta) + B}{k}, \ a_2 = \frac{b \cdot \sin(\theta)}{k} \)
- \( b^* = (1-B) \cos(\theta) \)
- Total Surplus: \( V_{both}(B) = V_{FB} - \frac{1}{2k}(2B - B^2) \sin^2(\theta) \)

**First-Best** (\( B = 1, b = 0 \)) feasible if:

\( V_{FB} - \max\{0, V_{spot}\} \geq r \)

**Second-Best**: largest \( B \) such that \( V_{both}(B) - \max\{0, V_{spot}\} \geq rB \)
**Optimal Spot and Relational Contracts**

\[ (r=0.28, u=0.03, k=2) \]

\[ W = s + B y + b p \]

\[ \text{TS}_{\text{spot}} < 0 \]

- No relational contract possible

**Inefficient Spot Crowds Out Relational**

- BGM *QJE* 94
  - Distortionary contract vs. subjective bonus
- Prendergast - Stole *EER* 99
  - Money vs. favor exchange
- Di Tella - McCullough *EJ* 02
  - State welfare vs. family eqbm
- BGM *QJE* 02
  - Spot non-integration vs. relational integration

**IV. Within Firms Versus Between**

**Formal Structures Affect Relational Contracts**

(BGM *QJE* 02)

- \( g_1 \) = Integration
- \( g_2 \) = Non-integration
Choosing Formal Structures to Facilitate Relational Contracts

What Do Contracts Do?
(Klein Rev. Ind. Econ. 00)

Although Macaulay and others are correct in noting that many business relationships are self-enforced, transactors are not indifferent regarding the contract terms they choose to govern their self-enforcing relationship.

The fundamental economic motivation for the use of court-enforced terms is to supplement self-enforcement.

Court-enforced explicit contract terms are a necessary evil that are used by transactors solely because the transactors possess limited reputational capital.

III.B Contracting for Control

Evidence on Contracting for Control: Lerner-Merges 98, Arrunada-Garicano-Vazquez 01, Elfenbein-Lerner 03, Kaplan-Stromberg 03, Robinson-Stuart 07, Ryall-Sampson 09, Lerner-Malmendier 10, …

“Our best deals were those where we put the contract in a drawer and built the relationship on top.”

J. Lewent, personal communication, 2002

CFO 1990-2007
EVP 2001-2007
Organizing Some Literature

### Method
- **Ownership** *(Changing firm boundaries)*
  - Grossman-Hart ’86 … (words)
  - Woodruff ’02 …
  - Aghion-Tirole *JFE* ’94 … (words)
  - Lerner-Merges ’98 …
- **Contract** *(Fixed firm boundaries)*
  - Hart-Holmstrom ’10 …
  - Forbes-Lederman ’09? …
  - Aghion-Bolton ’92 …

### Effect
- **Ex ante incentives**
  - Ex ante incentives
- **Ex post adaptation**
  - Ex post adaptation

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<th>Ex ante incentives</th>
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Elemental Adaptation Model

- 2 parties: i ∈ {1, 2}
- state: s ∈ S
- alienable DR: d ∈ D
- private benefit: π_i(d, s)
- d_i*(s) solves: \( \max_{d \in D} \pi_i(d, s) \)
- d_{FB}(s) solves: \( \max_{d \in D} \pi_1(d, s) + \pi_2(d, s) \)

Timing of Adaptation Model

1. Gov. structure: allocate control to i or j
2. ---
3. State: s ∈ S realized
4. Ex post decisions: d ∈ D non-contractible
5. Payoffs: π_i(d, s), π_j(d, s)

- *Decision right* contractible ex ante (not ex post?)
- *Decision* not contractible ex post (→ no renegotiation)

Effectively Binary Decision

- d_i*(s) solves: \( \max_{d \in D} \pi_i(d, s) \)
- given s, only d_i*(s) and d_j*(s) are of interest:
  - \( \pi_i(d_i^*(s), s) = \pi_i(s) > 0 \)
  - \( \pi_i(d_j^*(s), s) = 0 \)
  - \( \pi_i(d, s) << 0 \) otherwise
- d_{FB}(s) = d_i*(s) or d_j*(s)
First-best decision rule:

Payoff to pharma of doing marketing its way:

Payoff to biotech of doing marketing its way:

First-best decision rule:

Optimal allocation of control in first-best relational contract: give control to pharma

Second-Best Governance Structure & Relational Contract:

Value

Lost surplus in second-best from allowing Party A to choose $s_0$ rather than the first-best $s_0(s)$ in this region

A control; reducing temptation vs. reducing surplus

V. Implications for Productivity

What Do Managers Do?

Exploring Persistent Performance Differences among Seemingly Similar Enterprises

Robert Gibbons and Rebecca Henderson
Arguments in GH *HOE* 2013

1. There exist *persistent performance difference* (PPDs) among seemingly similar enterprises.  
   [Syverson JEL 11 + Sec. 2]
2. Understanding PPDs matters for business strategy, government policy, and economic research.
3. Proxies for *management practices* are correlated with these performance differences.  
   [BVR QJE 07 + Sec. 3]
4. Many of these management practices rely on *relational contracts*.  
   [Gibbons-Henderson Org Sci 12 + Sec. 4]
5. Economic models of *building and changing* relational contracts have arrived.  
   [Sec. 5]
6. Building and changing relational contracts remains *more difficult* than most theory has described.  
   [Sec. 6]

Example 4: “ProPub” @ Merck  
(Henderson & Cockburn *SMJ* 94)

-bio-tech revolution ⇒ science-based discovery
  - hire PhDs, build labs, attend confs, do research, *publish papers!*
  - “ProPub” ⇒ patents (e.g., @ Merck)

- Imagine recruiting first rookie @ Merck:
  - better lab, less teaching, better pay
  - *almost* like asst. prof.
  - but clearly not identical
    - e.g., Nobel in 3rd year with no drugs

References

Aguilar, Francis and Arvind Bhambri. 1983. “Johnson & Johnson (A), (B).”  
HBS Cases #384-053 and -054.


HBS Case #376-028.


Gibbons, Robert and Rebecca Henderson. 2012. “Relational Contracts and Organizational Capabilities.” *Organization Science*

