15.963 Management Accounting and Control
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Organizational Architecture

- Agency problems arise in all organizations.
  - For-profits, not-for-profits, government agencies….
- They are due to asymmetries in payoffs, information, liability and horizon.
- They can occur between owners (e.g., shareholders) and managers,
  - because of the separation of the decision making and risk bearing functions.
  - i.e., managers make decisions, but don't fully bear the consequences. The residual risk is borne by the residual claimants – the shareholders.

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- Examples of agency problems between shareholders and managers include:
  - Managers will attempt to consume expensive perks, such as corporate jets, club memberships, parties, etc.
    - E.g., suppose the manager's compensation is 0.1% of net income. Further suppose that the perks reduce net income by $1000. The reduction in the managers compensation is $1, but she consumes $1000 of perks.
  - Managers are myopic – they are averse to taking on positive NPV projects with large negative cash flows early in the life of the project.
  - On the other hand, they may take on negative NPV projects with large positive cash flows early in the life of the project, if they are retiring or otherwise leaving soon – this is the *horizon problem*.
  - The horizon problem is exacerbated by *ex-post settling-up costs*.

Organizational Architecture

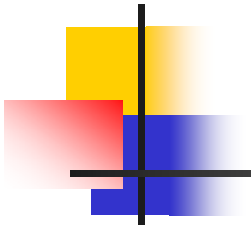
- Agency problems can occur between employees and supervisors, e.g.,
  - Employees have a *moral hazard problem*, or an incentive to shirk work.
  - This is especially problematic when outcomes are very uncertain, i.e., when the mapping between effort and outcome is weak over short time intervals.
  - Is a good outcome due to effort or chance (a rising tide)? What about a poor outcome?
  - The employee likely has more information than the supervisor, and is able to game the circumstances.
- Another type of agency problem is the *adverse selection problem*.
  - This can occur between employers and *potential* employees, or between current and *potential* shareholders.

Organizational Architecture

- Problems also occur within teams in the organization.
  - A free rider problem occurs when one member of the group shirks.
- All of these problems are more likely in large decentralized organizations, where decision rights are dispersed.
- Allocating decision rights is one aspect of the organization's architecture. Who should have what decision rights?
- Ideally, decision rights should rest where the knowledge resides, for
  - informed decision making,
  - timeliness, and
  - employee motivation.

Organizational Architecture

- However, agency problems may make it optimal to detach decision rights from knowledge, and to have some knowledge flow to where decision rights reside.
  - E.g., a department may have better knowledge of its costs for next year, than the home office. However, the home office, not the individual department, will set the budget for that department.
  - Or a salesperson may have better knowledge of a customer's demand curve for a differentiated product, but allowing the salesperson to negotiate prices may induce the salesperson to divert some resources.



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- If the costs of coupling decision rights with knowledge are high, then decoupling may be optimal if:
  - the knowledge is not specialized, or is easily transmitted from where it resides to where decision rights reside;
  - if the environment is stable and decision timeliness is not critical;
  - E.g., fighter pilots in wartime vs. peacetime, paramedics.
- How decision rights are allocated will depend on the relative importance of decision making vs. control.
  - This will depend on the particular firm, its circumstances, and its internal and external environments.

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- One way to control agency problems is by *separating* decision management *from* decision control.
- Decision management consists of *initiation* and *implementation*.
- Decision control consist of *ratification* and *monitoring*.
  - E.g., hiring a new employee, or launching a new marketing effort.
- When this separation fails, the costs to the firm can be dramatic. E.g.,
  - Nick Leeson at Barings Bank,
  - Yasuo Hamanaka at Sumitomo
- This is an indication of the magnitude of agency costs.

Organizational Architecture

- How does accounting help control agency problems?
- Accounting numbers are used to align incentives.
- They are used to specify benchmarks used in performance evaluation and compensation.
- E.g., managers are paid a base salary, plus bonus from a bonus pool. The size of the pool depends on accounting earnings.
  - The pool has a lower bound, below which no funds are available for distribution as bonus,
  - and also an upper bound beyond which the pool does not grow.
- The upper bound
  - reduces costs associated with severe horizon problems, and
  - prevents managers from being rewarded for extreme good fortune rather than effort.

Organizational Architecture

- While paying managers based on firm performance achieves greater incentive alignment, it also imposes some risk on the manager.
- The manager, being risk averse, will receive a higher compensation to take on this risk. This higher compensation is an agency cost
- Also, notice that managers and shareholders incentives are still not fully aligned.
  - E.g., managers now have incentives to be myopic (forego positive NPV projects with large early cash outflows);
  - They have incentives to take a "big bath" if earnings are below the bogey,
  - And to undertake income-reducing activities if earnings are above the cap.
- To increase alignment, managers are also given stock options, which reduces myopia.
- The managerial labor market, and the market for corporate control, further serve to reduce agency problems.
  - However, labor markets are also subject to the adverse selection problem.

Organizational Architecture

- The implication is that agency problems can only be attenuated, not eliminated.
- Agency problems also arise in a variety of other settings.
- For example, in contracts of oil and gas limited partnerships.
- General partner provides technical expertise in drilling, while limited partners provide most of the capital. There is uncertainty regarding the size of oil and gas reserves.
- Once a well is drilled, the general partner acquires private information about the size of the reserves, say R.
- The well needs to be completed to realize R. For tax reasons, the general partner has the pay the completion costs, C.
- The contract specifies that the general partner receives a certain percentage of R, say 20%. The remainder goes to the limited partners.

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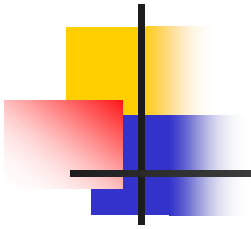
- From the general partner's perspective, it pays to incur completion costs only if $0.2R > C$. Otherwise, she does not complete the well, and the limited partners payoff is 0.
- This is an agency problem between general and limited partners. If the problem is severe, general partners will not be able to raise any money.
- This problem can be mitigated through reputation-building by the general partner, and also through pre-commitment (placing completion costs in escrow).

Organizational Architecture

- A number of agency problems also arise in debt contracts, for example:
  - excessive dividend distributions. Accounting numbers are used in this case to delimit the pool of funds available for distribution;
  - asset substitution, or playing the lottery with borrowed money.
    - E.g., Fred Smith of Fedex went to Vegas when prospects were poor at one point in the 70's.
    - In this case, lenders may secure their loan, and may impose tight covenants in order to transfer decision rights in a timely manner.
  - underinvestment, which is similar to the non-completion problem in the oil and gas example. In this case, it may not be possible to raise much debt, as with growth firms.
  - claim dilution, or borrowing more money from subsequent lenders. In this case, lenders may provide shorter maturity loans.

Organizational Architecture

- Accounting numbers are extensively used in debt covenants to control a variety of agency problems.
- Another way to control agency problems in organizations is through accounting control systems, such as
  - responsibility centers,
  - standard costing,
  - budgeting,
  - transfer pricing, etc.
- We will look at some of these systems over the next few weeks.



Organizational Architecture

- Responsibility accounting assigns decision rights to sub-units within the organization, based on the knowledge residing in the sub-unit.
- A cost center is responsible for managing costs only, not for revenues, profits or investments. The cost center manager is evaluated based on, for example, minimizing costs for a fixed level of output.
- A profit center may consist of several cost centers. In addition to costs, profit center managers are responsible for deciding the product mix, and selling prices and quantities.

Organizational Architecture

- An investment center may consist of several profit centers. Its manager has decision rights for capital investment decisions, in addition to the decision rights of profit center managers.
- Investment center managers may be evaluated based on:
  - Net Income (NI).
    - However, this creates an incentive to over-invest. Taking on low or negative NPV projects with large future cash outflows will increase NI today.
  - Return on Investment (ROI). This control the overinvestment problem, but creates other problems.
    - The manager may forego positive NPV projects (return > cost of capital) that dilute high ROI.

Organizational Architecture

- Residual income or Economic value Added (EVA) could be used. We will study these next week.

- The controllability principle suggests that managers should be evaluated only for decisions within their control (i.e., over which they have decision rights).
- This seems sensible,
- but also leads to some problems.
- For example, a particular adverse outcome may be a chance occurrence, and the manager should not be penalized for its consequences (or costs).
  - E.g., if there is a storm that causes a large loss this year, the managers bonus should not be penalized for this particular loss.
  - However, managers may then avoid costs ex ante (insurance?) that may minimize losses ex post.
  - Another example is evaluating managers on after-tax / before-tax profits. If the latter, then there is no incentive to minimize taxes.

Organizational Architecture

- Another problem in applying the controllability principle is that it seems to go against the notion of Relative Performance Evaluation (RPE).
- Benchmarking against the performance of peers may penalize managers for the (uncontrollable) good performance of peers.
- So is RPE justified?
- Yes, from an information perspective. Adjusting for peer group performance extracts the common effects (rising tide?) and "cleans up" the performance measure such as earnings (increases the signal-to-noise ratio).
- The purpose of including uncontrollable factors is to remove their effects.

Organizational Architecture

- However, RPE is not commonly observed in executive compensation contracts, possibly because of:
  - difficulty in specifying the peer group;
  - political costs in rewarding managers for good relative performance in bad times;
  - manager's incentive to choose avoid risk and choose safer rather than more profitable projects.

Organizational Architecture

- Takeaways:
  - Agency problems are pervasive in all organizations.
  - These problems can not be eliminated.
  - Accounting numbers and accounting systems can be used to control these problems, thereby raising firm value.