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Michael J. Meurer

Boston University School of Law

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Law, Economics, and the Theory of the Firm

MICHAEL J. MEURER†

Economic analysis of the law assumes the “shadow of the law” influences the behavior of businesses. Thus, business people consider the costs and benefits of contract litigation when they make decisions about contract performance, they consider the costs of tort litigation when they make investments in safety, they consider the costs of violating a regulation when they make decisions about regulatory compliance, and so on. Economic models of law typically abstract from organizational detail and treat businesses as if they are represented by a single manager who controls the firm’s behavior and acts to maximize its profit. This abstraction simplifies analysis but, not surprisingly, it limits the ability of analysts to fully explore some important legal policy questions. This Essay suggests ways to improve economic analysis of business and the law by better integrating the theory of the firm into law and economics scholarship.¹

When law and economics scholars peer inside a business organization and distinguish managers from the firm, they use the principal-agent framework.² This framework assumes manager-agents make choices to maximize their own utility rather than profit, as desired by the shareholder-principals. Normally, managers care about their firm’s profit,³ but they sometimes have conflicting prefer-

† Professor of Law, Michaels Faculty Research Scholar, and Co-Director, Institute for Business, Law & Technology, Boston University School of Law, meurer@bu.edu. I thank Sean Chao and Walead Esmail for able research assistance.

1. See Alfred D. Chandler, Jr., *Organizational Capabilities and the Theory of the Firm*, 6 J. ECON. PERSP. 79 (1992). Socio-legal studies has long been attentive to the nature of the firm and the impact of law on the behavior of managers within firms. See, e.g., Barry D. Baysinger, *Organization Theory and the Criminal Liability of Organizations* 71 B.U. L. REV. 341 (1991).

2. See *infra* text accompanying notes 15-19.

3. For example, “[m]anagers . . . have no incentive to degrade the quality of the contracts that they write; after all, these contracts create the wealth that

ences explained by sloth, risk aversion, interest in personal gain, and other considerations.⁴ Principal-agent analysis accounts for this agency problem and helps scholars determine whether the law can improve the performance of managers,⁵ and whether a legal sanction will have its intended deterrent effect.⁶

There is some confusion in legal scholarship about the relationship between the principal-agent framework and the theory of the firm.⁷ Frequent linkage of agency theory and the theory of the firm in corporate law writing may give non-economists the false impression that the two are the same. Agency theory is a tool economists use to study the firm, as well as markets and politics. It addresses the problems that arise whenever a principal delegates authority to an agent.⁸ The theory of the firm (a subfield of the economics of organization) uses agency theory and other tools to understand why firms exist, what determines the boundaries of the firm, and how firms should be organized.⁹

After clearing away this confusion I try to accomplish two goals. First, I show the theory applies in many domains outside of corporate law. The key point to understand is that the economics of organization has much to teach us about middle management. Corporate law writing is mostly concerned with top management and its relationship to financial markets, and corporate law scholars have drawn

the managers later can divert." Alan Schwartz & Robert E. Scott, *Contract Theory and the Limits of Contract Law*, 113 YALE L. J. 541, 551 (2003).

4. See HENRY HANSMANN, *THE OWNERSHIP OF ENTERPRISE* 35, 40, 77 (1996) (discussing agency costs in business organizations).

5. A primary goal of corporate law is mitigation of agency costs. See WILLIAM T. ALLEN & REINIER KRAAKMAN, *COMMENTARIES AND CASES ON THE LAW OF BUSINESS ORGANIZATION* 11 (2003).

6. See *infra* text accompanying notes 29-36.

7. See *infra* text accompanying notes 8, 9.

8. Agency models have been used by law and economics scholars in relation to a variety of topics unrelated to the theory of the firm including the contract law doctrine, the client-attorney relationship, and the relationship between administrative agencies and Congress. For an introduction to agency theory and the law see *Agency Models in Law and Economics*, in *CHICAGO LECTURES IN LAW AND ECONOMICS* (Eric A. Posner ed., 2000).

9. For an excellent introduction to the economics of organization see PAUL MILGROM & JOHN ROBERTS, *ECONOMICS, ORGANIZATION & MANAGEMENT* (1992). Some review articles accessible to lawyers include Roy Radner, *Hierarchy: The Economics of Managing*, 30 J. ECON. LIT. 1382 (1992) and Bengt Holmstrom & John Roberts, *The Boundaries of the Firm Revisited*, 12 J. ECON. PERSP. 73 (1998).

on the theory of the firm to analyze the behavior of top managers. But the theory can also help scholars analyze tortious behavior, contract breach, discrimination, regulatory violations, and other activities directed by middle management that are constrained by law. Second, I relax the assumption that the firm is represented by a single manager-agent, and apply lessons the theory of the firm teaches about decentralization. Probably most of the firm's activities of interest to legal scholars are influenced by more than one manager. Understanding the deterrent effect of the law on a firm's behavior requires understanding how authority is assigned within a firm and how managers interact.

I. DISENTANGLING THE THEORY OF THE FIRM FROM AGENCY COST THEORY

In 1937, Coase launched the theory of the firm by asking why some economic activities are governed by the market and others are governed by the firm. He argued that high transaction costs associated with market governance of certain activities pushed these activities inside the firm, where the exercise of authority would avoid transaction costs.¹⁰ The theory was mostly neglected until the 1970s when Oliver Williamson and others began to flesh out the notion of transaction costs.¹¹ Theoretical work on transaction costs spawned empirical work on the boundaries of the firm. Typically, the empirical work asked why firms conduct certain activities in-house and other related activities are contracted out. The empirical results generally support the transaction cost theory, showing that activities tend to be brought inside the firm when markets are likely to exhibit high transaction costs.¹²

The original theories of Coase and Williamson were both deficient in terms of their characterization of the firm. They treated the firm like a black box in which authority

10. See generally Ronald Coase, *The Nature of the Firm*, 4 *ECONOMICA* 386 (1937).

11. See, e.g., OLIVER E. WILLIAMSON, *MARKETS AND HIERARCHIES: ANALYSIS AND ANTITRUST IMPLICATIONS* (1975).

12. See Michael D. Whinston, *Assessing the Property Rights and Transaction-Cost Theories of Firm Scope*, 91 *AM. ECON. REV.* 184 (2001); Michael D. Whinston, *On the Transaction Cost Determinants of Vertical Integration*, 19 *J. L. ECON. & ORG.* 1 (2003).

avoids transaction costs.¹³ The size of the firm was limited by vague appeal to costs of bureaucracy that increased with firm size. Modern research on the firm opens up the black box and gives a better account of how firms are organized and the costs and benefits of firm governance. In an early example, Alchian and Demsetz's influential theory of team production focused on monitoring as an important function of management in a firm.¹⁴ They claimed that firms are organized in ways such that managers can effectively monitor joint effort by teams of workers. And more importantly, they claimed that a team of workers benefits by contracting with a manager to monitor their effort and help them maintain efficient levels of effort.

Financial economists Jensen and Meckling pioneered the integration of the team production theory and the principal-agent framework in their study of the relationship between shareholders and CEOs.¹⁵ They noted that CEOs are not always faithful agents, they entertain motives other than maximizing the value of shares in the firm, and this divergence of interest creates an agency cost that must be controlled through monitoring and providing the CEO with appropriate incentives.¹⁶ Their synthesis has been widely adopted by corporate law scholars under the rubric of the firm as a nexus of contracts.¹⁷ Under this view, top man-

13. Williamson's work grew more sensitive to this problem over time. See OLIVER E. WILLIAMSON, *THE ECONOMIC INSTITUTIONS OF CAPITALISM* 131-62 (1985).

14. See Armen A. Alchian & Harold Demsetz, *Production, Information Costs, and Economic Organization*, 62 *AM. ECON. REV.* 777 (1972).

15. See Michael C. Jensen & William H. Meckling, *Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure*, 3 *J. FIN. ECON.* 305 (1976). Blair and Stout recently developed an alternative theory of corporate law that also builds on the concept of team production. See Margaret M. Blair & Lynn A. Stout, *A Team Production Theory of Corporate Law*, 85 *VA. L. REV.* 247 (1999). This approach to corporate law is more influenced by modern economics of organization and is more attentive to decentralization of authority within the firm and the behavior of middle management. See *id.* at 264-65.

16. See Reinier H. Kraakman, *Corporate Liability Strategies and the Cost of Legal Controls*, 93 *YALE L. J.* 857, 862-64 (describing agency costs and methods of controlling those costs).

17. See Margaret M. Blair & Lynn A. Stout, *Team Production in Business Organizations: An Introduction*, 24 *J. CORP. L.* 743, 743 (1999) ("For nearly two decades, legal and economic scholars who study business organizations have tended to view those organizations through the lens of a *principal-agent* model of the firm.").

agement (or the board of directors) contracts with shareholders (and other input providers) in an exchange of managerial talent for capital and risk-bearing. The shareholders, the nominal owners of the firm, delegate authority to run the firm to top management and rely on corporate law, incentive contracts, and the market to mitigate the agency costs created by separation of ownership and control.¹⁸ Allen and Kraakman comment that: “[A] principal aim of corporation law is the reduction of agency costs of all sorts.”¹⁹

The nexus of contract approach to corporate law has generated valuable insights, but this literature has created the false impression that agency theory captures the essence of the theory of the firm. Corporate law articles frequently cite Coase’s 1937 article²⁰ in conjunction with a description of the firm as a nexus of contracts and/or the Jensen and Meckling model of agency cost, and leave the impression that the nexus of contracts is (1) a theory of the firm, or (2) the theory of the firm.²¹ These messages are false. Demsetz, one of the authors of the team production article, observed that Jensen and Meckling have not developed a theory of the firm; the nexus of contracts says nothing about why firms exist or what kind of activity is

18. *Agency Models in Law and Economics*, *supra* note 8, at 230-31.

19. ALLEN & KRAAKMAN, *supra* note 5, at 12.

20. Citation analysis helps gauge the influence of the economic theory of the firm on legal scholarship. I conducted a Westlaw search of the JLR database using the input: “nature of the firm’/s *Economica*.” As anyone with even a passing interest in law and economics knows, Coase’s article is heavily cited; the search returned 492 documents. Furthermore, citation to the article remains strong and may even be growing. My search returned twenty two citations in law review articles dated 1983-1985, twenty four citations in articles dated 1994, and twenty eight citations in law review articles dated 2004 (note that I performed the search in August 2004 so the number of 2004 cites will ultimately be much higher). Most of the citations come from articles addressing corporate law, securities, or bankruptcy. I counted articles for the three time periods listed above and found about 36% of the articles belong in those fields (with no evidence of a trend). Antitrust and intellectual property are the fields with the next highest number of citations—about 30%. In the first two periods most of the citations are in antitrust articles, and in the last period most are in intellectual property articles.

21. See, e.g., Stephen M. Bainbridge, *Director Primacy: The Means and Ends of Corporate Governance*, 97 NW. U. L. REV. 547, 547 (2003) (describing the nexus of contracts model as Coase’s progeny); Robert H. Sitkoff, *An Agency Costs Theory of Trust Law*, 89 CORNELL L. REV. 621, 634-35 (2004) (presenting the agency cost model as the theory of the firm).

undertaken by a particular firm.²² Such a criticism apparently carries more weight with economists than lawyers, because corporate law scholars are really more concerned about developing a framework for analyzing governance of the corporation than explaining the existence and size of the firm. Corporate law addresses conflicts between managers and shareholders, and between controlling and minority shareholders. Corporate law scholars have not been troubled by their limited understanding of the nature of firm, because it probably does not seem especially relevant to questions about the relationships between top management, the board of directors, and shareholders.²³

The preceding comments are not intended as a criticism of corporate law scholarship, rather they serve as a foundation for my speculation about why the theory of the firm has played a minor role in law and economics. I suspect that most lawyers' perceptions of the theory of the firm are tinged by exposure to corporate law discussions of the topic. Compared to the economics of organization literature, corporate law discussion of the firm stresses hierarchy and fiat too much,²⁴ and discounts the importance of the details of how different firms are organized.²⁵ The economics of organization emphasizes the fact that authority is dispersed

22. See Harold Demsetz, *The Theory of the Firm Revisited*, in *THE NATURE OF THE FIRM: ORIGINS, EVOLUTION, AND DEVELOPMENT*, (Oliver E. Williamson & Sidney G. Winter eds., 1991). See also Oliver Hart, *An Economist's Perspective on the Theory of the Firm*, 89 COLUM. L. REV. 1757, 1764 (1989) ("[T]he nexus of contracts approach does less to resolve the questions of what a firm is than to shift the terms of the debate. In particular, it leaves open the question of why particular 'standard forms' are chosen. Perhaps more fundamentally, it begs the question of what limits the set of activities covered by a 'standard form.'"); David A. Westbrook, *Corporation Law after Enron: The Possibility of a Capitalist Reimagination*, 92 GEO. L.J. 61, 105 n.277 (2003) (noting the tenuous link between Coase's article and the nexus of the contracts view of the firm).

23. Although Margaret Blair and Lynn Stout have shown that there may be interesting connections between the nature of the firm and the optimal form of corporate governance, see Blair & Stout, *supra* note 17, it is not clear that there is a necessary connection. It is possible that socially optimal corporate law policy does not depend on why the firm exists or how firms are organized.

24. See Bainbridge, *supra* note 21, at 556-58 (noting the Coasean focus on hierarchy in the context of a discussion of the contractarian argument about the impracticality of allowing shareholders to participate in corporate decision-making).

25. See *id.* at 552-53 ("Some contractarian scholars . . . reject any notion of the firm as an entity, arguing that one must avoid reifying the firm.").

throughout firms and that middle managers make many of the decisions of interest to legal economists.

Antitrust presents a significant contrast to corporate law. Vertical mergers and vertical restraints may be anti-competitive, but before condemning an activity as anti-competitive it is important to investigate its efficiency enhancing properties. Assessing the efficiency of vertical mergers and vertical restraints calls for an understanding of how vertically integrated firms operate, and how optimal firm boundaries are chosen. Antitrust scholars use the transaction cost theory of firm boundaries to understand when vertical integration is efficient, and what sort of vertical restraints give contracting parties the benefits of firm-like efficiencies.²⁶

II. THE ROLE OF THE THEORY OF THE FIRM IN LAW AND ECONOMICS

Agency theory has diffused from corporate law (and from microeconomics) to many areas of the law, but the theory of the firm has not diffused so widely.²⁷ In this section, I will explain agency theory in more detail, comment on some applications of agency theory to the law, explain what the theory of the firm adds to agency theory, and what it might add to economic analysis of the law.

A. Agency Theory in Law and Economics

Agency theory describes the problem a principal faces when she delegates a task to an agent who does not necessarily share her preferences. The version of agency theory best known to legal scholars is called the moral hazard or hidden action model. In this model the principal cannot observe what action the agent takes.²⁸ The principal can

26. See, e.g., WILLIAMSON, *supra* note 11, at 82-131 (giving a pioneering account of antitrust and transaction cost economics). See also Herbert Hovenkamp, *Exclusive Joint Ventures and Antitrust Policy*, 1995 COLUM. BUS. L. REV. 1 (1995).

27. See, e.g., *Agency Models in Law and Economics*, *supra* note 8 (citing examples in torts and contracts).

28. Principal-agent models may also include hidden information. The agent may hold private information relevant to the task and possible outcome. For example, a manager may have better information than shareholders about the short-run and long-run profitability of a project. An agency cost may arise when

observe the outcome which depends on the agent's action and a random disturbance. Uncertainty plays an important role, without it the principal would deduce what action was taken by observing the outcome.

One solution to the agency problem calls upon the principal to offer an incentive contract to the agent, such that the agent enjoys a payoff that increases as the value of the outcome increases. For example, a manager can be rewarded with stock, stock options, or bonuses tied to his firm's performance. Another source of incentive comes from outside monitoring. A manager can be induced to make profit-maximizing decisions to enhance his reputation and career prospects or to avoid the hazard of a hostile takeover. These mechanisms of mitigating the agency problem are usually ineffective unless the outsider has different information than the shareholder-principals. Typically, agency costs arise because the combination of these incentive mechanisms usually does not perform as well as the principal could if she were able to observe and contract on the hidden action.

The economics of managerial agency cost has clear relevance to corporate, tax, and securities law. Scholars have advocated relaxed insider trading rules as a means of reducing agency cost.²⁹ Rules promoting takeovers and curtailing anti-takeover measures are similarly advocated because they encourage a market for corporate control and reduce agency cost. Likewise, corporate and tax law provisions that allow or promote incentive contracts for managers are advocated because they reduce agency costs. Although the agency model is an appropriate tool for analyzing these issues, the theory of the firm is not heavily implicated. For the most part, scholars care about the market for corporate control and the functioning of the capital markets. Whether the firm is being managed efficiently matters, but the details of why it is not efficient do not.

Corporate law scholars have shown considerable interest in an issue on the periphery of corporate law that is

the manager chooses projects that look good in the short-run but are not good long-run choices. Agency models can be further complicated by: allowing repetition of the basic problem; allowing the agent to perform multiple tasks; allowing for multiple agents or principals. *See generally, Agency Models in Law and Economics, supra* note 8, at 231-32.

29. *See, e.g.,* Dennis W. Carlton & Daniel R. Fischel, *The Regulation of Insider Trading*, 35 STAN. L. REV. 857, 869-72 (1982-83).

deep within the intersection of law, economics, and the theory of the firm—the issue is corporate compliance with the law. Scholars have used the agency model to analyze the behavior of employees when they take actions that might run afoul of tort law, antitrust law, criminal law, or some regulation.³⁰ These studies usually do not turn explicitly to the economics of organization, but the authors do move informally in that direction, sometimes with the aid of sociological research on the firm.

The tort law problem of dangerous pizza delivery drivers provides a convenient example to illustrate this sort of agency problem and some solutions. Suppose a pizza franchisor advertises a guarantee of pizza delivery within thirty minutes of an order. Franchisees make, sell, and deliver the pizza. Consider the appropriate tort regime for regulating the risk that delivery drivers will drive dangerously in order to meet their deadlines.

A socially optimal policy might take several forms. We must decide who could be held liable, the franchisor, the franchisees, the drivers, or perhaps all of these parties. After deciding the scope of liability we must decide whether strict liability or negligence applies to the various parties. Using the agency framework, each driver is an agent of a franchisee, and each franchisee is an agent of the franchisor. The efficiency goal of tort law in this setting is to encourage the optimal mix of monitoring and control.

Finding the optimal mix of monitoring and control requires consideration of the different methods that can be used for that purpose.³¹ First, notice that outside monitoring occurs when the police stop a speeding driver, or a member of the public makes an insurance or tort claim against a driver. Second, notice that internal monitoring can be done by both the franchisor and franchisee, additionally the

30. See, e.g., Baysinger, *supra* note 1; Virkamaditya S. Khanna, *Should the Behavior of Top Management Matter?*, 91 GEO. L.J. 1215 (2002); Bruce H. Kobayashi, *Antitrust, Agency, and Amnesty: An Economic Analysis of the Criminal Enforcement of the Antitrust Laws Against Corporations*, 69 GEO. WASH. L. REV. 715 (2001); Kraakman, *supra* note 16; Donald C. Langevoort, *Monitoring: The Behavioral Economics of Corporate Compliance with Law*, 2002 COLUM. BUS. L. REV. 71 (2002).

31. Kobayashi explains that tort and criminal law should strive to encourage the optimal mix of monitoring and control. See Kobayashi, *supra* note 30, at 715.

franchisor might contract-out driver training, and even monitoring of the drivers.³²

The literature suggests the following issues are relevant to evaluating the optimal tort scheme. First, who monitors the monitors? Internal monitors are also agents of the firm. There are frequent reports of compliance officers colluding with the employees they are supposed to monitor. Second, outsourcing the monitoring function does not allow a firm to escape this second level agency problem — the contractor-monitor is also subject to agency problems.³³ Third, a negligence rule imposes an informational burden on courts who probably are not very good at assessing the quality of monitoring and control.³⁴ Fourth, enterprise liability is desirable when the law cannot deter low-level employees because they are judgment proof.³⁵ Fifth, insurance can shelter agents from liability.³⁶

Scholars have made progress analyzing these issues within the agency framework, but a more complete analysis requires use of more than just one tool from the economics of organization. Agency theory does not give a complete picture of the delivery driver problem. Satisfactory analysis of the problem requires understanding why the franchise organizational form was chosen, and what sort of economic (as well as legal) control the franchisor has over the franchisees. Satisfactory analysis of the merits of out-sourcing monitoring requires a comparison of the costs of contracting for the service to the costs of performing the service internally.³⁷ In other words, effective analysis calls for a theory

32. For example, a third party might offer tracking technology of the sort used in the trucking industry.

33. See Langevoort, *supra* note 30, at 95-97.

34. See *id.* at 113-16.

35. See Khanna, *supra* note 30, at 1224.

36. For a discussion of the ways corporations shelter top managers from liability see Kraakman, *supra* note 30, at 857.

37. It might seem surprising that monitoring can be outsourced, but any surprise should vanish after considering the nature of property and casualty insurance contracts. The idealized firm in law and economics is risk neutral, because shareholders can manage risk by diversification in financial markets. Thus, firms purchase insurance either because risk averse managers suffer agency problems, or because insurance provides some benefit other than shifting risk. See Stephen D. Sugarman, *Doing Away with Tort Law* 73 CAL. L. REV. 555, 574 (1985) (noting that large firms tend to self-insure or use liability insurers to process claims); Michael J. Meurer, *The Gains from Faith in an Unfaithful Agent: Settlement Conflicts Between Defendants and Liability Insurers*, 8 J. LAW ECON. & ORG. 502, 502-03 (1992) (noting that firms purchase

of how the pizza firm is organized and how the boundaries of the firm are determined.

B. *What Does the Economics of Organization Add to Agency Theory?*

Financial economists have elaborated the role of agency costs in the governance of the firm. At the same time, industrial organization economists have studied agency costs deeper within the hierarchy of the firm. But the theory of the firm is much more than elaboration of the principal-agent framework.

The nature of the firm puzzles economists because the classic hierarchical firm displaces the price signals used to guide economic activity in the market with the same kind of fiat that guides economic activity in planned economies. The parallel between a firm and a planned economy is strong.³⁸ The control rights to its assets are held collectively, as are the returns from these assets. It is puzzling to find capitalist economies so fully embracing an apparently inefficient mode of organization.

Economists have not yet synthesized a comprehensive theory of the firm, but they have built a number of tools for studying aspects of the problem. One set of tools analyzes the costs of contracting. In the spirit of Coase, activities are more likely to be governed by a firm if contractual governance is especially costly. Contracting costs include the cost of searching for a supplier and bargaining over the price, the cost of writing and enforcing a contract, implicit costs associated with bargaining failure, and costs from inefficient investment and effort. Another set of tools analyzes organizational design choices that allocate control over

a package of legal representation, bargaining ability, and insurance). Risk aversion of managers cannot be discounted, but there is a strong argument that insurers are in the business of monitoring and controlling safety risks. For example, fire insurance contracts often require firms to make investments in sprinklers or hire security guards.

38. See Robert G. Eccles & Harrison C. White, *Price and Authority in Inter-Profit Center Transactions*, 94 AM. J. SOC. S17, S18 (1988) (comparing firms to planned economies and noting the use of markets and prices in both). The size of the largest firms is actually comparable to the economies of whole countries. See Radner, *supra* note 9, at 1385 (noting that the number of employees at General Motors is comparable to the number of people employed in manufacturing in the Netherlands).

assets and the flow of information within the firm.³⁹ I turn first to the costs of contracting.

The modern theory of the firm has paid special attention to ex ante investment incentives. Williamson argues that transactions involving specialized assets expose contracting parties to the risk of ex post opportunistic behavior that discourages ex ante investment. He suggests that transactions involving specialized assets migrate inside the firm to avoid hold-up problems and improve investment incentives. When such transactions are governed by the market the parties often fashion alliances, joint ventures, and other complex contracts to mitigate hold-up problems and encourage investment.⁴⁰

Asset specificity exists when a party invests in an asset that has particular value in the context of the present relationship. For example, a machine tool designed to fit the needs of a particular customer. Asset specificity locks a party into a relationship making it vulnerable to hold-up by the other party. A hold-up occurs when a party threatens to disrupt a relationship in order to extract more surplus from a transaction than it was entitled to under the original agreement.⁴¹

39. See Hart, *supra* note 22; Niko Matouschek, *Ex Post Inefficiencies in a Property Rights Theory of the Firm*, 20 J.L. ECON. & ORG. 125 (2004).

40. For a discussion of complex contracts see Holmstrom & Roberts, *supra* note 9, at 80-86.

41. A party may try to extract rents by seeking a price concession, refusing to adjust to a contingency, or degrading quality in a way that cannot be detected by courts. Benjamin Klein, *Why Hold-Ups Occur: The Self-Enforcing Range of Contractual Relationships*, 34 ECON. INQUIRY 444 (1996). Klein illustrates the problem of hold-up by recounting the story of the relationship between General Motors and Fisher in the early part of the twentieth century. Fisher made closed metal auto bodies at a time when most bodies were open and wooden. Fisher invested in stamping machines specific to General Motors cars. It would have been costly for Fisher to redeploy these machines for production suitable for other auto manufacturers. This transaction specific investment made Fisher vulnerable to hold-up by General Motors; General Motors could threaten to end its relationship with Fisher unless Fisher made price cuts. The formal contract called for a long-term exclusive dealing relationship between the two. Prices were set by a formula that set a seventeen point six percent mark up over variable costs. These elements of the contract must have been reassuring to Fisher and convinced Fisher managers to risk the specific investment. Unforeseen by the parties, the demand for closed body cars jumped substantially. Fisher responded by adding capacity. The new plant location was far from General Motors facilities and the plants were relatively labor-intensive. Under the pricing formula Fisher could pass the transportation and labor costs on to General Motors while locating closer to other auto

Williamson noted that classical contracts are inadequate for parties who are bound together over repeated transactions by asset specificity. Given drafting difficulties, the best choice of terms in a classical contract may fail badly in light of circumstances that eventually unfold. The contracting parties face limits on their ability to draft the optimal contract that is imagined in economic theory. One problem is language. It is often difficult to state precisely conditions and obligations relevant to efficient contract performance. A related problem is the inability to foresee relevant contingencies. Rather than optimally adjusting to current circumstances one of the parties may insist on sticking to the terms of the contract.⁴² The other party is vulnerable because the assumed asset specificity means that the parties are, to some degree, stuck with each other. The inefficiency of using classical contracts in this setting does not arise so much from the failure to adjust to contingencies—although that may be a problem—it is more attributable to the cost of orchestrating that adjustment with a quarrelsome business partner.⁴³ Bringing the trans-

manufacturers and offering them lower transportation costs. Since the pricing formula excluded fixed capital costs, it created a bias in favor of labor-intensive production. Capital costs were probably excluded from the pricing formula because the parties did not anticipate a dramatic expansion of output and because Fisher supplied to other auto companies. General Motors would reasonably be concerned that clever accounting methods by Fisher would allow common capital costs relating in part to production for others to be charged to General Motors. This is a chronic issue with defense contracts in which the contractor uses certain resources on both defense and civilian contracts.

42. Vic Goldberg provides an example. Essex was an aluminum cable manufacturer. Its plant was located next to Alcoa so that they could use molten ingot to fabricate wire. To protect themselves against hold-up, Essex got a long-term input contract from Alcoa that tied the price of aluminum to the wholesale price index. Essex held-up Alcoa after the oil price shock of 1972 caused energy prices to soar. Since aluminum refining is electricity intensive, the price of aluminum also soared. Essex refused to renegotiate the price and purchased ingot for resale. *See generally*, Victor P. Goldberg, *Price Adjustments in Long-Term Contracts*, 1985 WIS. L. REV. 527 (1985).

43. The resource loss from Fisher's hold-up strategy was limited by renegotiating the implicit contract. General Motors acquired Fisher and moved production close to General Motors assembly facilities. The main costs attributable to hold-ups are not inefficient investment decisions like the ones made by Fisher, but the transaction costs that they generate. First, resources are wasted during the hold-up period while the parties negotiate an adjustment. Second, resources are wasted ex ante as parties try to identify and negotiate around potentially unforeseen hold-ups. After the merger the same managers at Fisher could in principle manage the production of auto bodies in

action in the firm or writing a relational contract which builds in a mechanism for adjusting contractual obligations are two ways to reduce these costs.⁴⁴

It is not entirely clear how use of authority inside a firm avoids the transaction costs discussed above. If managers were all faithful agents intent on maximizing firm profit, then adjustment in response to unforeseen contingencies should be less costly inside the firm, but this begs the question of how a firm gets managers to be pure profit maximizers. Furthermore, nominal authority does not always translate to effective authority. Managers with authority may be dependent on better informed employees to formulate good policy, and sometimes they must delegate authority to employees who have greater expertise than their supervisor or who need flexibility to perform their assigned task.

Despite these problems the exercise of authority creates value in several ways. For instance, the difficulty in coordinating the activities of multiple parties through market mediated contracts is a major source of transaction costs.⁴⁵ Coordination is difficult in a decentralized setting because the various parties must reach a consensus on one plan of action selected from multiple promising choices. In formal terms, the heart of a coordination problem is the existence of multiple Nash equilibria to a coordination game. When players in a game move simultaneously,⁴⁶ they might fail to make coordinated choices. One solution is communication

the same way except their plant investment decisions would now be subject to review by General Motors. See Klein, *supra* note 41.

44. "A contract is relational to the extent that the parties are incapable of reducing important terms of the arrangement to well-defined obligations. Such definitive obligations may be impractical because of inability. . . to characterize complex adaptations adequately even when the contingencies themselves can be identified in advance." Charles Goetz & Robert Scott, *Principles of Relational Contracts*, 67 VA. L. REV. 1089, 1091 (1981). See also Ian R. Macneil, *Contracts: Adjustment of Long-Term Economic Relations Under Classical, Neoclassical, and Relational Contract Law*, 72 Nw. U. L. Rev. 854 (1978) (explaining how contract law applies to long term relationships that contemplate flexible adjustment to future contingencies).

45. See Robert G. Eccles, *The Quasi-Firm in the Construction Industry*, 2 J. ECON. BEHAV. & ORG. 335, 354-356 (1981) (stating that even though coordination can be achieved via long-term relationships with subcontractors that are supported with short-term contracts, certain integration occurs in the construction industry to improve coordination, control, and quality.)

46. Or close enough in time so that they do not observe each other's moves or information correlated with those moves.

before the moves and the choice of a plan for all parties.⁴⁷ In cases with significant uncertainty and no time for group deliberation, coordination problems create a need for leadership.⁴⁸ There are at least three kinds of coordination problems affecting the performance of multi-party transactions: compatibility, timing, and assignment. To briefly illustrate, if the issue is compatibility, the parties hope they both decide to pass on the right, or pass on the left. If the issue is timing, they hope that one passes through the door before the other, or that they show up to play tennis at the same time. If the issue is assignment, they hope that one picks up the groceries and the other picks up the dry cleaning.

In addition to managing coordination, authority is valuable for structuring information flows within the firm, allocating formal authority over the personnel and assets of the firm, allocating financial capital within the firm, and designing jobs.⁴⁹ The team theory of Marshak and Radner approaches the firm as if it is an information processing mechanism. They assume that all managers share the objective of maximizing firm profits, but they have access to different information which is costly to communicate.⁵⁰ The theory addresses questions like whether managerial hierarchy should be flat or deep. Complementing this work on information flows, other economists study why firms increasingly design jobs to entail integration of multiple tasks, with job rotation and learning.⁵¹

Firms foster acceptance of authority by blunting the profit incentives of agents. Economists speak of *high-powered* incentives in the market and *low-powered* incen-

47. Coordination can be achieved without central authority by adherence to standards or by communication and cooperation. See Radner, *supra* note 9, at 1410.

48. See Eccles, *supra* note 45, at 338-339; Herbert Simon, *Organizations and Markets*, 5 J. ECON. PERSP. 25, 38-42 (1991).

49. See generally Holmstrom & Roberts, *supra* note 9, at 86-89 (stating that firm boundaries are set in part to mitigate costs attributable to the multi-task agency problem).

50. See generally, Patrick Bolton & Mathias Dewatripont, *The Firm as a Communication Network*, 109 Q.J. Econ. 809 (1994); Roy Radner, *The Organization of Decentralized Information Processing*, 61 ECONOMETRICA 1109 (1993).

51. See generally, Assar Lindbeck & Dennis J. Snower, *Multi-task Learning and the Reorganization of Work: From Tayloristic to Holistic Organization*, 18 J. LAB. ECON. 353 (2000).

tives in the firm. A fixed price contract gives a seller a high-powered incentive to cut costs, because the seller keeps all the cost savings. A cost based contract gives the seller low-powered incentives to cut costs, because the cost savings are passed on to the buyer. Low-power incentives may be desirable in the firm for many reasons.⁵² First, opportunistic impulses are blunted, because there is less to be gained from bettering one's transaction partner. This implies that less energy is spent assigning blame when performance is disappointing; and less energy is spent arguing for a favorable cost accounting when cost-based pricing is used.⁵³ Second, parties are more willing to reveal private information.⁵⁴ Under high-powered incentives managers may withhold information to preserve a strategic advantage.⁵⁵ Third, suppliers make greater investments in quality even when the benefits are not immediately apparent to buyers. Under high-powered incentives a supplier will make quality investments that a buyer observes and desires and reimburses. Under low-powered cost-based pricing a supplier will also invest in quality that is not easily observed by the buyer. The supplier gets reimbursed for the cost and eventually benefits from a favorable reputation as a high quality producer.⁵⁶ Fourth, coordination is easier because individuals are more interested in maximizing group payoffs rather

52. JEAN-JACQUES LAFFONT & JEAN TIROLE, A THEORY OF INCENTIVES IN PROCUREMENT AND REGULATION 80 (1993). Besides the following reasons, low-power incentives are also preferred when the supplier has lots of private cost information, when parties are extremely risk averse, or when effective audits constrain self-interested behavior. *Id.*

53. See generally Bengt Holmstrom & Jean Tirole, *Transfer Pricing and Organizational Form*, 7 J.L. ECON. & ORG. 201 (1991).

54. See Bengt Holmstrom, *Agency Costs and Innovation*, 12 J. ECON. BEHAV. & ORG. 305, 308 (1989). See also Laura Poppo, *Influence Activities and Strategic Coordination: Two Distinctions of Internal and External Markets*, 41 MGMT. SCI. 1845, 1856 (1995) (finding internal suppliers disclose twenty percent more cost information than external suppliers).

55. LAFFONT & TIROLE, *supra* note 52, at 80 (stating that a supplying firm wants to keep information about its technology secret). Information sharing improves many aspects of transaction performance. Buyers can make better sourcing decisions with the help of supplier information. Groups can find better product designs if members reveal the limitations of their product line and business unit. Better adjustment to performance problems occurs when parties reveal information about problems that might reflect badly on their business unit or themselves.

56. The same principle applies to other investments that provide benefits not easily observed by the customer.

than individual payoffs. Coordination is impeded by high-powered incentives when different methods of coordination imply different patterns of individual payoffs and individuals haggle over what pattern should be chosen.⁵⁷ Finally, high-powered incentives distort a manager's allocation of effort between assigned tasks. The problem arises when high-powered incentives can only be attached to some of the assigned tasks and not others. Then the manager biases his or her attention to the highly rewarded tasks.⁵⁸

In the market, the main check on motivational problems created by low-powered incentives is the reputation of the contracting party.⁵⁹ In bilateral contracts, the prospect

57. See Holmstrom, *supra* note 54, at 317. See also Bengt Holmstrom & Paul Milgrom, *The Firm as an Incentive System*, 84 AM. ECON. REV. 972, 989 (1994) (stating that low powered incentives are good for cooperation and coordination). Coordination is a particularly difficult and interesting problem. Even assuming away incentive problems, coordination is not easy. See Nicholas S. Argyres, *Technology Strategy, Governance Structure and Interdivisional Coordination*, 28 J. ECON. BEHAV. & ORG. 337, 338 (1995) (technological interdependence requires centralized authority and low powered incentives). Radner assumes that agents share the same objective but have differing endowments of information. He studies the optimal pattern of organization required for communicating information and implementing actions to achieve some common purpose. See generally Roy Radner, *The Organization of Decentralized Information Processing*, 61 ECONOMETRICA 1109 (1993). See also Eric Maskin et al., *Incentives, Information, and Organizational Form*, 67 REV. ECON. STUD. 359, 361 (2000) (stating that managers adjust plant production in a multi-plant firm in response to shocks, the M-form and U-form are explained as potentially optimal organizational patterns for transmitting information and creating incentives).

58. See Bengt Holmstrom & Paul Milgrom, *Multitask Principal Agent Analyses: Incentive Contracts, Asset Ownership, and Job Design*, 7 J.L. ECON. & ORG. 24, 27 (1991). See also Poppo, *supra* note 54, at 1846-47 (stating that there is a correlation between divisional responsibilities for transfer pricing and product policies - like eliminating or adding product lines, or redesigning products - and local dispute resolution).

59. Baker, Gibbons, and Murphy show that the ownership of assets implies a claim to residual returns from the asset. The potential to enjoy those returns when a relationship breaks up affects the prospect for cooperation. George Baker et al., *Subjective Performance Measures in Optimal Incentive Contracts*, 109 Q.J. ECON. 1125 (1994). Firms that value their reputation can combine explicit and implicit incentive features in employment contracts. Verifiable and non-verifiable signals are substitutes in the sense that if verifiable signals are good enough they crowd out non-verifiable signals because the stakes are too low to support a reputation. Sometimes these signals can be complements. The power of both incentives rises as the accuracy of an objective measure rises. Reason: If the objective measure is too noisy the value of the relationship may be too low to generate stakes sufficient to support reputational enforcement of the implicit contract. If an implicit contract is good enough, then the explicit

of future beneficial relations with a trading partner often dissuades a party from shirking or under-investing in a transaction.⁶⁰ Additionally, social contacts with the trading partner and general norms of fair dealing act to constrain opportunism. In more complex social settings there are additional possibilities to promote desirable behavior.⁶¹ Reputation works in a larger commercial community to promote efficient performance. If a business develops a bad reputation within its industry or trade association, then it may suffer in the long run because it is shunned by potential trading partners.⁶²

The firm provides an effective social network for the cultivation of reputations regarding transaction performance.⁶³ The organizational decision to group certain activities within the same business unit or cost center raises the

contract is unnecessary. Better outside opportunities for the worker hurt the enforcement of the implicit contract.

60. See Eccles, *supra* note 45, at 340 (stating that the relationship between a general contractor and subcontractor over construction projects assures high quality and maintains a cooperative attitude).

61. See Glenn Ellison, *Cooperation in the Prisoner's Dilemma with Anonymous Random Matching*, 61 REV. ECON. STUD. 567 (1994); Avner Greif, *Contract Enforceability and Economic Institutions in Early Trade: The Maghribi Traders' Coalition*, 83 AM. ECON. REV. 525 (1993); Avner Greif, *Cultural Beliefs and the Organization of Society: A Historical and Theoretical Reflection on Collectivist and Individualist Societies*, 102 J. POL. ECON. 912 (1994); Michihiro Kandori, *Social Norms and Community Enforcement*, 59 REV. ECON. STUD. 63 (1992); Paul Milgrom et al., *The Role of Institutions in the Revival of Trade: The Law Merchant, Private Judges, and the Champagne Fairs*, 2 ECON. & POL. 1 (1991); Werner Raub & Jeroen Weesie, *Reputation and Efficiency in Social Interactions: An Example of Network Effects*, 96 Am. J. Soc. 626 (1990).

62. See Marcel Fafchamps, *Spontaneous Market Emergence*, at <http://www.economics.ox.ac.uk/members/marcel.fafchamps/homepage/nemerg.pdf> (last visited Oct. 1, 2004). A norm calling for "exclusion of cheaters [from future trade can] be self-enforcing . . . breach of contract must be interpreted as a sign of impending bankruptcy. . . ." *Id.* at 32.

63. Mark Granovetter, *Economic Action and Social Structure: The Problem of Embeddedness*, 91 AM. J. SOC. 481, 495 (1985) (stating that a dense network of social relations within the firm affects intra-firm transacting). *Id.* at 503 ("Other things being equal, for example, we should expect pressures toward vertical integration in a market where transacting firms lack a network of personal relations that connects them or where such a network eventuates in conflict, disorder, opportunism, or malfeasance.") See also Macneil, *supra* note 44, at 899-01 (stating that firms take on the characteristics of societies in which norms such as distributive and procedural justice affect contractual relations); WILLIAMSON, *supra* note 11, at 106 (stating that reputational effects reduce governance costs in hybrid or firm transactions).

social contact between managers responsible for those activities. Greater social contact should speed the dissemination of information relevant to reputations and possibly increase the sting of social sanctions from debasing one's reputation. Reputations are irrelevant if good and bad deeds go unrecognized or uncommunicated. The firm might strengthen reputational effects by creating a corporate culture that makes communication easier, and developing long-term subjective performance assessments that shape managerial reputations.

Legal scholars are starting to apply the tools from the economics of organization to the problem of corporate compliance with the law, and other legal problems, but much work remains to be done. The agency framework makes it clear that "vicarious liability can motivate top-echelon managers to try to change the unlawful behavior of their subordinates. But for the large, diversified corporation, it will be difficult to translate that motivation into actual changes in the behavior of subordinates."⁶⁴ The economics of organization and organization theory (sociology as practiced in business schools) point to many of the same problems with corporate compliance programs. Studies show tort deterrence suffers because firms are ignorant of the law or keep relevant information from managers who make design decisions.⁶⁵ Further, although top management may feel the deterrent effect of some law, real authority may lie with a compliance officer who holds important private information.⁶⁶

Firms make various organizational choices that serve the primary goal of efficient production and sale of their products. But these organizational choices have secondary, sometimes unintended consequences for employee compliance with the law. Specifically, organizational design shapes incentives, determines allocation of authority, affects information flow, and determines the range of tasks performed by various employees. Baysinger notes that "[i]ndividuals typically commit economic crimes with the expectation that they will be made better off in terms of income. . . organizational crimes are simply a means by which individuals accomplish legitimate organizational objec-

64. Baysinger, *supra* note 1, at 363.

65. See Sugarman, *supra* note 37, at 566.

66. See Khanna, *supra* note 30, at 1238-39.

tives. . . . Substantial rewards often flow from unlawful acts, thus providing a powerful incentive which is immediate and certain. The costs of taking these opportunities, on the other hand, are uncertain.⁶⁷ Low-level employees may be unaware of legal standards for *malum prohibitum* crimes, and may believe that penalties for organizational crime are light.⁶⁸ Organizational and legal factors can in fact provide positive incentives to commit economic crimes.⁶⁹ Top management' can rely on the business judgment rule and intent requirements in tort and criminal law to insulate itself from liability by delegating compliance decisions to subordinates.⁷⁰ DeMott suggests that organizational choices that limit information flow or provide incentives to violate the law should result in liability to the firm.⁷¹ She also suggests that narrowly defining employee tasks might be an appropriate way for firms to limit potential wrong-doing.⁷² These suggestions have merit but we must be mindful of organizational costs imposed on firms induced to change their organization to avoid vicarious liability.

Intellectual property law is another field where the theory of the firm is beginning to make inroads.⁷³ One important observation is that intellectual property is sometimes a

67. Baysinger, *supra* note 1, at 353.

68. See Baysinger, *supra* note 1, at 353-54.

69. See Baysinger, *supra* note 1, at 353-54. See also Deborah A. DeMott, *Organizational Incentives to Care About the Law*, 60 LAW & CONTEMP. PROBS., Autumn 1997, at 39, 45 (noting the "principal's power to control the agent's conduct by defining rewards and sanctions and thus creating incentives for agent's to act in ways promising rewards.").

70. See Reinier H. Kraakman, *Corporate Liability Strategies and the Costs of Legal Controls*, 93 YALE L.J. 857, 860 (1984).

71. See DeMott, *supra* note 69, at 45-47.

72. *Id.* at 49-51.

73. The link between intellectual property law and the decision to outsource research and development is discussed in David J. Teece, *Profiting from Technological Innovation*, 15 RES. POL'Y 285 (1986). For recent discussions of intellectual property and the theory of the firm see Josh Lerner & Robert P. Merges, *The Control of Technology Alliances: An Empirical Analysis of the Biotechnology Industry*, 46 J. INDUSTR. ECON. 125 (1998); Robert P. Merges, *The Law and Economics of Employee Inventions*, 13 Harv. J.L. & Tech. 1; Dan L. Burk, *Intellectual Property Law and the Firm*, 71 U. CHI. L. REV. 3 (2004); Oren Bar-Gill & Gideon Parchomovsky, *Intellectual Property Law and the Boundaries of the Firm*, (The Harvard John M. Olin Discussion Paper Series, Discussion Paper No. 480, 2004).

substitute for vertical integration.⁷⁴ In other words, a stronger intellectual property regime makes it profitable to move transactions to the market rather than keep them within the firm. Outsourcing research has been made easier by stronger patent rights. Research and invention make difficult subject matter for contract because unforeseen research developments are common, and the output of a research project is difficult to describe. Patents give rights to the patent owner that act as a substitute for usage terms that otherwise would have to be specified in a contract.

III. DECENTRALIZATION, DISPERSED AUTHORITY, AND DETERRENCE

The modern theory of the firm has moved away from a stark description of the firm as a hierarchy.⁷⁵ When Coase wrote the theory of the firm he was influenced by the comprehensive vertical integration and central control he observed at Ford and other manufacturing firms.⁷⁶ In recent years, many firms have consciously decentralized their organizational structure in quest of greater flexibility and higher-powered incentives.⁷⁷ Sensibly, economists have recognized that the factors creating transaction costs in

74. See Kirk Monteverde and David J. Teece, *Supplier Switching and Vertical Integration in the Automobile Industry*, 13 BELL J. ECON. 206 (1982) (stating that human capital and specialized non-patentable know-how plays a critical role in decisions to bring production inside the firm). Studies indicate that specific human capital is more likely than physical capital to require internal procurement. See Scott E. Masten et al., *Vertical Integration in the U.S. Auto Industry*, 12 J. ECON. BEHAVIOR & ORG. 265 (1989). Physical asset specificity can be handled through quasi-integration, but human asset specificity tends to be handled by integration. However, Poppo considered a firm that emphasized internal markets and she found that "[a]lthough coordination varies in internal and external markets, this study shows that inputs traded in internal and external markets are not that different." Poppo, *supra* note 54, at 1857 (arguing that asset specificity and the existence of proprietary technology do not seem to explain whether a component is made internally or outsourced).

75. Granovetter argues the formal authority defined by organizational charts in hierarchical firms is largely illusory. Informal aspects of an organization may be as important as formal aspects. See Granovetter, *supra* note 63, at 502.

76. Both Coase and Soviet economic planners were impressed with the Ford auto plant at River Rouge. The Soviets thought it was a good model for manufacturing organization in their economy.

77. ABB, the largest electrical equipment maker, comprises 1,300 business units. BP comprises 100 business units. See Holmstrom & Roberts, *supra* note 9, at 91.

markets can also create governance costs within the firm. Ultimately, the governance cost of markets and firms depends on how the institutions govern transactions. Many commentators have argued that market participants can mimic the firm by responding to unforeseen contingencies with flexible, surplus maximizing policies. There is ample empirical and theoretical commentary on hybrid governance in the market. There is much less discussion of the symmetric argument that firms can mimic the market and achieve the advantages of decentralization.⁷⁸ A provocative exception comes from Williamson who asks why there are any limits to firm size. He explores the notion that all economic activity could be swallowed up in a single firm. That firm could retain the benefits of the market by establishing divisions within the firm charged with maximizing divisional profits. The single colossal firm could emulate markets when that was appropriate and use fiat when that was appropriate. In answer to his question Williamson claims the managers of the colossus could not commit to a policy of benign selective intervention.⁷⁹

78. One example is Jeffrey L. Bradach & Robert G. Eccles, *Price Authority, and Trust: From Ideal Types to Plural Forms*, 15 ANN. REV. SOC. 97 (insisting that price, authority, and trust are important factors in market and firm governance).

79. See WILLIAMSON, *supra* note 13, at 135-144. Once a supplier is acquired by a customer and integrated into a single firm, the supplier's behavior changes. The supplier has less of an incentive to invest in the maintenance of the assets it brought into the new firm, because the supplier is no longer the residual claimant to the value generated by the asset. Commitments by the corporate headquarters of the new firm are suspect because discretion related to accounting practices allow headquarters to expropriate returns promised to the supplier. An opposite tack is taken by Nicholas S. Argyres and Julia Porter Liebeskind, *Contractual Commitments, Bargaining Power, and Governance Inseparability: Incorporating History into the Transaction Cost Theory of the Firm*, 24 ACAD. MGMT. REV. 49 (1999), who argue that internal commitments to particular governance arrangements cannot be violated so that headquarters has a limited domain for intervention. See also Paul Milgrom & John Roberts, *Bargaining Costs, Influence Costs, and the Organization of Economic Activity*, in PERSPECTIVES ON POSITIVE POLITICAL ECONOMY 57 (James E. Alt & Kenneth A. Shepsle eds., 1990). Although top management might have trouble making commitments, the commitment ability of middle managers might be greater for intra-firm transactions than commitment ability in market transactions. In the market, private information or contractual incompleteness can result in ex ante inefficiency that is exacerbated by the possibility of renegotiation. Examples are easy to generate in which expected surplus is higher if the parties can commit not to renegotiate a contract. By integrating the parties into a firm the possibility of renegotiation can be reduced by corporate policies that block

Williamson's hypothetical is especially relevant given the recent tendency of large firms to embrace market oriented policies for internal transactions. Managers are exhorted to act as if internal transactions feature a customer and supplier comparable to external transactions. They are motivated by performance evaluations that are tied to some profit or cost measure related to their division, or to a project they manage.⁸⁰ The effect of these trends is the establishment of informal markets that govern intra-firm transactions in many large firms.⁸¹ Decentralization and the creation of internal markets have also created the need for internal contracts and property. Of course, particular managers do not gain formal property rights to particular assets of the firm, but just like the informal internal contract law, there is an informal system of internal property rights. A sensibly organized firm bundles property rights so that managers have easy access to resources required to accomplish their assigned tasks. These control rights are often tied to incentives that depend on the "profits" associated with an internal transaction.

Retention of activities within a decentralized firm, rather than moving the activities into the market, is motivated by the belief that the firm might provide better investment incentives in the presence of the hold-up problem.⁸² "[A]sset ownership provides levers that influence bargaining outcomes and hence [investment] incentives."⁸³ The guiding principle for allocation of informal property

renegotiation. The corporate center can detect and block cash transfers that facilitate renegotiation. Perhaps renegotiation may proceed internally based on reciprocal favors, but without cash it is often difficult to renegotiate a deal.

80. Eccles & White, *supra* note 38, at S20.

81. See Herbert A. Simon, *Organizations and Markets*, 5 J. ECON. PERSP. 25, 31-32 (1991) (discussing limited use of commands in firms); Poppo, *supra* note 54, at 1845 ("[B]oth internal and external markets are common institutional arrangements for coordinating exchanges. Many large companies create internal markets by decentralizing pricing and trading decisions to product divisions and by evaluating divisions on profitability. In addition, companies often use external markets to coordinate uncertain, complex, and recurring exchanges. Thus, quasi-hierarchies and quasi-markets, which are both hybrid governance structures, coordinate much economic activity.").

82. Holmstrom & Roberts, *supra* note 9, at 74. The "residual" right to control the use of a physical asset is a critical feature of asset ownership that shapes ex ante investment incentives. Ownership affects bargaining power, which affects division of surplus from ex post adjustment, which affects ex ante investment incentives. Hart, *supra* note 22, at 1766.

83. Holmstrom & Roberts, *supra* note 9, at 79

rights within the firm, or between a firm and its contracting partner is that "asset ownership should be determined in a way that minimizes the "distance" between the owner and the party who makes the investment. "[H]ighly complementary assets should be owned in common. . . ." ⁸⁴ Nevertheless, a variety of factors limit firm size such as the "costs of bureaucracy, the weakening of individual incentives, the hazards of internal politicking, and so on. . . ." ⁸⁵

IV. APPLICATIONS TO CONTRACT AND TORT LAW

To close this Essay I will sketch two examples of how attention to the multi-divisional nature of the firm affects economic analysis of the law. We should expect a conscious policy of decentralization causes top management to lose control over operational activities within firms. ⁸⁶ An unintended consequence may be the deterrent effect of the law is lessened or qualitatively changed. ⁸⁷ The first example considers contract damages and the theory of optimal breach. Economists observe that contract law should maximize total surplus by discouraging inefficient breach and encouraging efficient breach. Breach is efficient when the breaching party has a chance to move to another transaction with greater social value. The standard result shows that expectations damages encourage optimal breach by forcing the breaching party to internalize the cost of the breach. In contrast, reliance and restitution damages are too small and encourage too much breach. Let me revisit this result in a simple model.

84. Hart, *supra* note 22, at 1770.

85. Holmstrom & Roberts, *supra* note 9, at 77.

86. Baysinger, *supra* note 1, at 358 ("stating that as firms diversify strategic control degenerates into financial control, effecting the ability of top management to evaluate and control the performance of low-level employees in diverse divisions, and focusing on financial data creates a gulf between hierarchic levels and limits division managers' ability to mitigate performance outcomes.").

87. See, e.g., Sugarman, *supra* note 36, at 568-69 ("One reason safety receives inadequate attention is that individuals and units within the firm have their own agendas and priorities. Managers tend to worry most about their short-run profits, upcoming budgets, and compensation rather than the firm's long-term financial health. Furthermore, since there is often considerable delay between when key decisions are made and when tort liability arises, they may be gone from the firm before the tort problem they ignore comes home to roost.").

Suppose that firm S makes and sells widgets, and firms B1 and B2 are potential buyers. The seller can only make one widget per period at a cost of 4. Assume S contracts to sell the widget to B1 at the price of 7. If B1 decides to breach before S incurs the cost of 4, then B1 should pay expectation damages of 3 to S. The buyer would breach only if the gain from breach is greater than the loss imposed on the seller.

Now, suppose instead that the seller is a multi-division firm and that divisions R and S cooperate to make and sell a widget. Division R makes a component of the widget at cost of 3 which it transfers to division S at a transfer price of 4. Division S "pays" the transfer price and makes the widget from the component and incurs an additional cost of 1. From division S's perspective the cost of a widget is 5. The payment from S to R might be simply an accounting entry. Regardless of whether cash is actually transferred, S is evaluated based on the profit it gets, treating the transfer price as an actual cost of making a widget.

Assume as before the contract contains a price of 7 and B1 breaches the contract before the seller incurs any cost. What is the proper measure of expectation damages? The answer depends on whether we measure the seller's costs as 4 or 5; in other words, should the mark-up in the transfer price count as a cost? The expectation damage measure is 3, like it was in the first example if the mark-up does not count as a cost. The damage measure is 2 if it does count. The smaller damage measure can be justified by arguing that 5 is the minimum price S would accept in a contract to sell a widget. But the better answer is to choose 3 as the damage measure. The larger damage measure can be justified by arguing the mark-up is just an accounting entry and the actual cost is 4.⁸⁸ Furthermore, a rule that counted the mark-up would be subject to manipulation by the seller. It could be difficult for the buyer or the court to get genuine information from the seller about what the transfer price was or would have been.

88. Alternatively, the seller can argue by analogy. Suppose R was really a separate firm and S had a contract to purchase the component at a price of 5. If S breached that contract then, S would be liable to R for 1. Thus, by analogy, the mark-up of 1 should count as a cost actually incurred by S because of B1's breach.

When the contract is honored, division R gets a profit of 1 and division S gets a profit of 2. The selling firm would have to decide how to allocate the damage payment of 3 that the firm would receive in the event of breach. If the firm allocated the entire payment of 3 to division S, then S would be in the odd position of favoring breach by B1 (ignoring litigation cost). This could lead to inefficient breach by B1. If breach resulted in a gain of 2.6 to B1 it would be unprofitable to breach and pay damages of 3. But S might be willing to accept something smaller, in the range from 2 to 2.6. S still does better than it would if the contract had been performed, but the selling firm as a whole does worse. The selling firm would try to correct this incentive problem by choosing another party, namely a member of the corporate counsel's office, to negotiate settlement. This strategy is not always feasible or cost-effective, though. Business people often negotiate contract settlements without the assistance of lawyers. If the settlement involves B1 making some other purchase from S, then existence of a dispute and the settlement might be hidden from the rest of the firm. A different strategy calls for the selling firm to allocate the proceeds from a damage award or settlement so that R gets its lost mark-up of 1. This is a sound strategy because it forces S to internalize the cost of settlement on R. But the strategy may be difficult to implement in cases in which R and S have not yet negotiated a transfer price. Also, there is still the problem of hidden settlements. The moral of this story is that excessive breach is still possible under expectations damages because division S may not properly account for costs imposed on R.

Now consider the case in which S breaches its contract with B1 so that it can sell the widget to B2 instead. Expectations damages induce efficient breach in this case. S compares the gain it gets from selling to B2 at a higher price to the damages it has to pay to B1. This case differs from the preceding one because S fully internalizes the costs and benefits of the breach. In the preceding case, S might not fully internalize the cost to R of a breach by B1.⁸⁹

89. Finally, consider this problem from the perspective of a multi-division buyer. I will use the label B for the division in the buying firm that negotiates the contract and makes payment for the widget. If B breaches a contract specifying a price P1 in favor of a second contract with a lower price P2, then

The second example comes from tort law. I study the relationship between negligence and strict liability rules and the activity levels selected by potential injurers. The standard result states strict liability offers an advantage over negligence because strict liability causes the potential injurer to internalize the expected injury cost and therefore reduce its activity level to the socially optimal level. A potential injurer who complies with a negligence standard does not bear any expected injury cost and therefore chooses a socially excessive activity level. Introducing a multi-division firm and transfer pricing to this problem can reverse the standard result and make negligence a better choice in terms of activity level.

Suppose a firm has two divisions, R and S, that cooperate to make and sell widgets. The firm is a monopolist in the widget market and sells to a market in which consumers are equally likely to value a widget at either 52 or 48. Suppose that R makes a component that it transfers to S. S uses this component to make a finished widget. The marginal cost of S's activity is 10. The marginal cost of R's activity is also 10 if R is not careful to make a safe component. If R is careful, then the marginal cost of making its component rises to 30. The expected accident cost per widget is 10 when R takes care, and 40 when R is not careful. The cost of accidents is not borne by the seller's employees or by the buyers, it is borne entirely by strangers. Given this data it is socially desirable for R to take care because the increase in marginal cost from care is twenty, and the reduction in expected accident cost per widget is 30.

Suppose that R transfers the component to S at its marginal cost. If no liability is imposed on the seller when accidents occur, then a self-interested profit-maximizer would not take care. The optimal price is 48; at that price all consumers purchase. The profit per widget is 28, equal to 48 minus 20. The total surplus per widget is the expected buyer value, 50, minus the marginal cost of manufacture,

B's firm will have to pay damages D to the breached seller. If division B is responsible for those damages, then it will fully internalize the costs and benefits of the breach, and expectation damages will induce efficient breach. When a seller breaches against the buying firm, then division B might not fully account for the harm caused to other divisions within the buying firm, and might be willing to settle the case. The same details raised in the discussion about the relationship between R and S apply here.

20, minus the expected accident cost per widget, 30. In other words, the expected total surplus per widget is -10.

Next suppose that the seller is liable if it is negligent, i.e., if R fails to take care when it makes the component. A profit-maximizing seller takes care, and therefore has a marginal cost of 40. The profit maximizing price is still 48, thus all consumers still buy. The profit per widget is 8, equal to 48 minus 40. The total surplus per widget is the expected buyer value, 50, minus the marginal cost, 40, minus the expected accident cost per widget, 10, which equals 0.

Shifting to the strict liability regime, the profit-maximizing seller takes care, and therefore has a marginal cost of 40 from manufacturing plus 10 from expected accident cost for a total marginal cost of 50. This marginal cost is so high that the firm sells widgets only to consumers with the higher value and sets a price of 52. The expected profit per widget is 2, equal to 52 minus 50, but keep in mind that output is only half of what it was in the negligence case because consumers are equally likely to have values of 48 or 52. Total surplus per widget equals profit because the seller captures all consumer surplus.

Reviewing the results for the three cases, we see that output (or the activity level) is doubled under the negligence and no liability regimes compared to the strict liability regime. Strict liability reduces output to the socially optimal level because the seller internalizes the cost of an accident. The strict liability regime yields positive total surplus, the negligence regime yields zero total surplus, and no liability yields negative total surplus. Thus, strict liability is socially preferred. This is the standard result concerning the activity level.

Next we revisit the preceding examples assuming the transfer price is 15 instead of 10, thus, there is a fifty percent mark-up. Skipping the gory details, let me state the new results. Strict liability now results in zero output because marginal cost exceeds the highest potential consumer value. Under the negligence rule, marginal cost is now 45. The seller could still set of price of 48 and not lose money by selling to low value consumers, but the more profitable policy is to raise the price to 52. Thus, only the high value consumers purchase and negligence achieves the optimal level of output. If there is no liability, then the price

remains forty-eight, and output is still higher than the socially optimal output.

CONCLUSION

The economic theory of the firm has much to offer law and economics scholars. Although much of law is intended to affect firm behavior, scholars tend to treat the firm as a monolith. Notable exceptions are the many corporate law scholars who rely on economic models of the firm when they formulate corporate law policy. The theory of the firm is relevant in many other areas of law. For example, the deterrent effect of tort law on a corporation could be better understood if we had a model explaining how managers of a division that make a potentially dangerous product interact with other managers and with corporate headquarters and corporate counsel. Contract, antitrust, intellectual property, and other legal regimes that regulate transactions affect the incentives to bring a transaction inside the firm. This principle is well known in the antitrust analysis of vertical restraints. When antitrust law regulates or proscribes certain transactions between manufacturers and wholesalers, manufacturers *might* respond by integrating the wholesale operations into their firm. Whether a manufacturer will integrate the wholesale operations depends on the costs and benefits of integration. To determine those costs and benefits we need a theory of the firm.

