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lawyers as transaction cost engineers. In 1937, Ronald Coase first focused attention on transaction costs as a central determinant of how economic activity is organized (Coase 1937). The choice between organizing productive activity within a firm or across a market and, in turn, the internal structure of the firm, itself a nexus of contracts among participants in the venture (Jensen and Meckling 1976), and the choice among types of contractual arrangements, are driven by economizing on transaction costs. Recognition that organizational and transactional structure can be understood as mechanisms that economize on information, bargaining, and agency costs has given rise to a large and important literature that explains the existence and efficiency of particular institutional arrangements by reference to the transaction-cost properties of the activity involved. For example, arrangements as diverse as vertical integration (Klein, Crawford and Alchian 1978), franchising (Rubin 1978), corporate governance (Williamson 1984), and movie contracts (Goldberg 1997), have been usefully explicated by reference to transaction cost considerations.

The question, then, is what mechanisms drive the transaction-cost economizing process itself. One might simply dismiss the inquiry by reference to the neoclassical assumption that, in the end, competition drives economic activity into the most cost-efficient forms. But it would be strange if an economic orientation that focused on market imperfections to explain observed patterns of organizing economic activity fell back on the invisible hand (and the institutionless features) of market-driven selection to explain the mechanisms of transaction cost economizing. The New Institutional Economics (Williamson 1985) should also be concerned with the institutional characteristics of the economizing process (Gilson and Kraakman 1984).

Observation of imperfect markets discloses a common institutional mechanism that facilitates transaction-cost economizing. Across different kinds of markets, we observe intermediaries – specialists operating to ameliorate contracting and organization costs by positioning themselves between potential participants in exchange, whether within a firm or across a market, to reduce the transaction cost wedge that otherwise separates them. The role of intermediaries is well recognized in the study of financial markets. For example, information intermediaries offer economies of specialization, scale and scope that are not available to individual acquirers of information (Leland and Pyle 1977). Similarly, reputational intermediaries, like investment banks in connection with initial public offerings (Gilson and Kraakman 1984; Booth and Smith 1986), minimize the barriers that a new seller, without its own reputation, faces in participating in the IPO market.

Now consider the difficulty of crafting transaction cost efficient contracts and internal organizational structures. Each market participant could try to internalize the transaction design effort. Alternatively, we might observe organizational intermediaries whose function is to design transaction cost efficient structures through which to carry out productive activities, a role I have called that of a *transaction cost engineer* (Gilson 1984). Across a wide range of transactions, business lawyers – that is, lawyers providing non-litigation services to clients engaged in business activities – serve as transaction cost engineers. Understanding that role illuminates both the economic function of lawyers and the institutional framework in which transaction cost economizing occurs.

THE CONCEPTUAL FRAMEWORK. Most transactions involve, in one guise or another, the pricing of a capital asset. This is most apparent in an explicit asset sale; however, the phenomenon is the same in the creation of a new enterprise, such as a joint venture or partnership: the object of the creation and often the parties' contribution, are capital assets which must be valued. Under the Capital Asset Pricing Model (CAPM), modern finance theory's paradigm of how assets should be valued under uncertainty, an asset's value is dependent on its expected return and systematic risk. As long as the capital market is relatively efficient in informational terms, the activity of arbitrageurs who identify an asset whose market price is different from what would be expected based on the asset's systematic risk would push prices toward the predicted level.

Although there have been important criticisms of this formulation of asset pricing theory (Gilson and Black 1995), they do not blunt its central insight for our purposes: *In a world in which assets are priced according to any version of capital asset pricing theory, there is little role for business lawyers.* Because capital assets will be priced correctly as a result of simple market arbitrage, the activities of business lawyers cannot increase the value of a transaction by reducing transaction costs. Indeed, absent a regulatory-based explanation for a business lawyer's participation, the fees charged by business lawyers would *decrease* the value of the transaction. In that circumstance, business lawyers would hardly be instruments of transaction cost economizing. And that, after all, is what Coase (1960) said.

Consistent with the centrality of market imperfections to transaction cost economics, the role for a transaction cost intermediary appears with closer attention to the simplifying assumptions necessary to derive CAPM. Four are of particular importance:

(1) All investors have common time horizons – i.e., they measure the return to be earned from an asset over the same period.
(2) All investors have the same expectations about the future risk and return associated with an asset.
(3) There are no transaction costs.
(4) All information is costlessly available.

These basic asset pricing theory assumptions can be reduced to the simple statement that there are no costs of transacting; neither transaction costs nor informational disparities separate the parties valuing a capital asset. In this Coasean world, private outcomes are always optimal (Calabresi 1968, 1991; Dahlman 1979). Of course, these assumptions do not describe the real world; all are descriptively false. It is the very failure of these perfect market assumptions that provides the opportunity for transaction cost intermediaries, and business lawyers in particular, to create value. When markets fall short of perfection, incentives exist for private innovation.

Thus, the potential for a link between legal skills and transaction value is the business lawyer's ability to create a transactional structure that constrains the extent to which conditions in the real world deviate from the theoretical assumptions of asset pricing theory. As transaction cost engineers, business lawyers devise efficient structures which bridge the gap between asset pricing theory's hypothetical perfect markets and the less than perfect reality of transacting in this world.

AN EXAMPLE OF TRANSACTION COST ENGINEERING BY BUSINESS LAWYERS: THE CORPORATE ACQUISITION AGREEMENT. A typical corporate acquisition agreement usefully demonstrates the transaction cost engineering role played by business lawyers. The agreement is composed of essentially four parts (Freund 1975). The initial (and usually most straightforward) part describes the transaction's overall framework: the parties are identified, and the overall structure of the transaction – a merger, sale of assets or triangular variation – is described.

The second part of the agreement focuses on the price to be paid and the medium and timing of payment. When the transaction contemplates the immediate payment of cash, the text is quite straightforward. Where the payment is made over time, or the amount paid depends on the occurrence of subsequent events, or when the medium of payment is the buyer's stock or debt, the document's complexity expands significantly.

The third part of the agreement consists of representations and warranties made by the seller and, typically to a lesser extent, the buyer. These provisions consist of a series of detailed statements of fact concerning the business being sold. The seller commonly warrants, among other things, the accuracy of its financial statements; the absence of any liabilities for taxes or other matters not appearing on its financial statements; the ownership and condition of assets important to the operation of the business; and the extent to which employees of the business are unionized.

The fourth part of the agreement – covenants and conditions – results from the fact that there is often a significant gap between the date the agreement is executed and the date the agreement is closed, during which time the buyer undertakes a close investigation of the business being sold and any regulatory barriers or consents are eliminated or obtained. Covenants govern the operation of the business during the period before closing, and conditions specify those requirements which, if not satisfied, relieve the buyer of its obligation to complete the transaction.

The business lawyer's role as a transaction cost engineer appears from the manner in which different elements of the acquisition agreement – the primary artifact of the

business lawyer's participation in the transaction – respond to the problem of constraining the real world's deviation from asset pricing theory's world of perfect markets. Important parts of the agreement, and hence an important part of the business lawyer's efforts, are best understood as responding to deviations from the assumptions on which asset pricing theory is built: that all investors have homogeneous expectations; that they share a common time horizon; that information is costlessly available; and that there are no other transaction costs.

THE FAILURE OF THE HOMOGENOUS-EXPECTATIONS ASSUMPTION: CONTINGENT PRICING. As long as the buyer and seller agree about the size and risk of the future income stream associated with the business, they have no cause to disagree about its price. However, buyers and sellers typically do not share common expectations about the future of the business.

Suppose the parties agree on the proper metric for valuing the business, say $1 in purchase price for $1 in sales. The problem is that the buyer and seller still may disagree about the future performance of the business. A substantial disagreement could 'kill' the deal, because of the failure of the homogenous expectations assumption. This failure creates the opportunity for the lawyer to create value by acting as a transaction cost engineer: to 'bridge the negotiating gap between a seller who thinks his business is worth more than its historical earnings justify' and a purchaser who needs to be shown rather than merely told the truth (Freund 1975: 205).

Economists call the solution that business lawyers resort to for this problem state-contingent contracting, and lawyers call it an 'earnout'. Because differences in expectations will ultimately disappear as time transforms a prediction of next year's sales into historical fact, lawyers respond by delaying the determination of the purchase price until next year's sales are known. Payment of the difference in value resulting from the parties' differing expectations is put off until after the uncertainty has been resolved, thereby allowing each party to act *as if* his expectations were shared by the other. In effect, each party bets on the accuracy of his expectation, with a settling up only after the uncertainty has been eliminated and the parties really do have homogeneous expectations.

THE FAILURE OF THE COMMON-TIME HORIZON ASSUMPTION: CONDUCT OF THE BUSINESS DURING THE EARNOUT PERIOD. The failure of a second assumption – this time that investors measure risk and return over the same period – provides an additional opportunity for business lawyers to create value. This can be seen by reference to the earnout concept just considered. Efforts to operationalize this response to the failure of the homogeneous expectations highlights the absence of a common time horizon and the resulting potential for opportunistic behaviour. Where the parties have different time horizons, each has an incentive to maximize value over the period relevant to it, even at the expense of a decrease in value in the period relevant to the other party. The potential for such strategic behaviour reduces the value of the transaction regardless whether the seller or the buyer retains management control during the earnout period. For example, if the earnout period is one year after the closing of the transaction, the seller will try to maximize performance over that period – by increasing advertising expenditures if the earnout formula is keyed to sales; or by deferring maintenance and reducing research and development if the earnout formula is keyed to profits. If the buyer is in control, its incentives are reversed but no more balanced.

Efforts to respond to the failure of the common time horizon assumption results in the earnout formula taking the form of a complicated state-contingent contract. By carefully specifying in advance the impact on the purchase price of all events that might occur during the relevant period, the formula substantially reduces the room for opportunistic behaviour. However, no formula can completely specify the production function for the business, let alone identify all possible exogenous events that might occur during the earnout period and their impact on the formula. Moreover, the cost of such detailed contracting – not just in lawyer's fees, but in the time and especially the goodwill of the parties – will be substantial, and in many cases prohibitive. But the possibility that the costs of ameliorating the failure of the homogenous expectations and common time horizon assumptions will be too great merely constrains, but does not eliminate, the potential for business lawyers to create value by designing structures that economize on transaction costs. It is value creation of the sort that reflects what clients mean by the comment that a particular layer has good 'judgment', to know when the game is not worth the candle.

THE FAILURE OF THE COSTLESS-INFORMATION ASSUMPTION: REPRESENTATIONS, WARRANTIES, INDEMNIFICATIONS AND OPINIONS. In transactional terms, the most important assumption of all is that information is costlessly available to all parties. The portion of the acquisition agreement dealing with representations and warranties is commonly the lengthiest part of an acquisition agreement and the portion that requires the most lawyer's time to negotiate (Freund 1975). Its primary purpose is to remedy the information asymmetry between the seller and the buyer that arises from the fact that information is typically not only costly, but differentially so for the buyer and seller. To see how representations and warranties serve to economize on information costs, it is helpful to distinguish between the costs of acquiring new information and the costs of verifying previously acquired information.

Costs of acquiring information. During the negotiation, the buyer and seller will face different costs of information acquisition for two reasons. First, simply because of its prior operation of the business, the seller will already have large amounts of information concerning the business that the buyer does not have, but would like to acquire. Second, there will usually be information that neither party has, but that one or both would like and which one or the other can acquire more cheaply. The question is then how the acquisition agreement reduces these informational gaps at the lowest cost. The effort to locate the least-cost producer will be in both parties' interests because the buyer's total purchase price is the sum of the amount paid to the seller and

the transaction costs, including the costs of information acquisition, incurred by the buyer in effecting the transaction.

The acquisition agreement confronts the task of minimizing information costs in three general ways: (1) by facilitating the transfer to the buyer of information the seller already has; (2) by allocating the responsibility of producing new information to the party who can acquire it most cheaply; and (3) by controlling overspending on information acquisition by identifying not only the type of information that should be acquired, but also how much should be spent in the process.

(1) The transfer of existing information from seller to buyer accounts for the quite detailed picture of the seller's business that the standard set of representations and warranties presents. Among other facts, the identity, location and condition of the assets of the business are described, the nature and extent of liabilities are specified, and the character of employment relationships – from senior management to production employees – is described (California Continuing Education of the Bar 1997). This is information that the buyer wants and the seller already has; provision by the seller minimizes acquisition costs to the benefit of both parties.

(2) A similar analysis applies when the buyer needs information that the seller has not already produced. For example, the buyer may desire information about aspects of the seller's business that bear on the opportunity for synergy between its own business and that of the seller but that, prior to the transaction, the seller had no reason to create. While the analysis here is similar to that with respect to existing information, the result of the analysis is somewhat different. Not only will the seller not always be the least-cost information producer, but there also will be a substantial role for third-party information producers.

Consider information concerning the impact of the acquisition on, for example, the seller's existing contracts. Among other things, it will be important to know whether existing contracts are assignable or assumable: The continued validity of the seller's leasehold interests will depend on whether a change in control of the seller operates – as a matter of law or because of the specific terms of a lease – as an assignment of the leasehold (Friedman 1974). Similarly, the status of the seller's existing liabilities, such as its outstanding debt, will depend on whether the transaction can be undertaken without creditor consent (American Bar Foundation 1971).

In both cases, the seller's lawyer is likely the lowest-cost information producer. An acquisition agreement's common requirement of an 'Opinion of Counsel for the Seller' is best understood from this perspective. Any significant acquisition agreement requires, as a condition to the buyer's obligation to complete the transaction, that the buyer receive an opinion of seller's counsel with respect to items such as the assignability of contracts and the impact of the transaction on existing debt (Jacobs 1980).

(3) Emphasis on selecting the lowest cost producer of information raises a related question. The demand for information, as for any good, is more or less price elastic. Information production is costly even for the most efficient producer, and the higher the cost, the less parties will choose to produce. Thus, some fine tuning of the assignment of information-production roles will be necessary. We would expect some limits on the kind of information to be produced and on how much should be spent even for information the production of which is desired.

The provisions of a standard acquisition agreement impose precisely these kinds of controls. While the buyer will want information about the seller's existing contracts, it may not want the seller to go to the expense of detailing every small contract, and to the extent that these contracts are simply a normal part of the seller's business, the information may have no impact on the pricing of the transaction.

From this perspective, the function of certain common qualifications of the seller's representations and warranties becomes apparent. First, representations concerning a seller's existing contracts are typically limited to only *material* contracts. If particular contracts are not in themselves important, then there is no reason to incur the costs of producing information about them. Variations on the theme include qualifications that limit a warranty to contracts involving more than a specified dollar amount, or on the relationship of the contracts to 'the ordinary course of business' (Freund 1975; California Continuing Education of the Bar 1997).

A second common limit on the information costs to be incurred operate as instructions concerning how hard to look for information whose subject matter cannot be excluded as unimportant ahead of time. Here the idea is to qualify not the object of the inquiry, but the diligence of the search. For example, consider the common representation concerning the absence of defaults under disclosed contracts. While it might involve little cost to determine whether the seller, as lessee, has defaulted under a lease, it may well be quite expensive to determine whether the lessor is in default. In that situation, the buyer might consider it sufficient to be told everything that the seller had thought appropriate to find out for its own purposes, without regard to the acquisition, but to require no further investigation.

This type of qualification, limiting the representation to information the seller already has and requiring no further search, is the domain of the familiar 'knowledge' qualification. In form, the seller's representation concerning the existence of breaches is qualified by the phrase 'to the seller's knowledge'. In function, the qualification serves to limit the scope of the seller's search to information already within its possession; no new information need be sought.

The same analysis also explains the variation in form that a knowledge qualification often takes. Within the same acquisition agreement one may see all of the following variations: 'to the seller's knowledge'; 'to the best of seller's knowledge'; 'to the best of seller's knowledge and after diligent investigation'.

What seems to be at work, at least implicitly (and think how much more effective explicit treatment would be (Gilson 1984)), is a hierarchy of search effort that must be undertaken with respect to information of different levels of importance.

Costs of verifying information. Problems of information cost do not end when the information is acquired. Even

after cooperation in reducing the cost of producing information, another information-cost problem remains: How can the buyer determine whether the information it has received is accurate when the buyer, who has provided it, has a clear incentive to mislead the buyer into overvaluing the business?

Just as the seller has an interest in reducing the total costs of information production, so too does it have an interest in verifying the accuracy of the information it provides the buyer to avoid a lemons market (Akerlof 1970; Grossman 1981; Klein and Leffler 1981) at the lowest possible cost. And like efforts to reduce information production costs, verification techniques can be implemented both by the parties themselves and through the efforts of third parties.

With respect to verification techniques by the parties, the most familiar approach reflects what Oliver Williamson calls a 'hostage' strategy (Williamson 1983): an artificial second period in which misrepresentations in the first period – the acquisition transaction – are penalized. If any of the seller's information turns out to be inaccurate, the seller will be required to make the buyer whole; in effect, the seller posts a bond that it has provided accurate information. Consistent with the 'hostage' metaphor, the buyer's warranty of the accuracy of the information it has provided through its representations is often secured by the buyer's or a third party's retention of a portion of the consideration as a fund to assure the seller's performance of its indemnification obligation (Freund 1975).

Verification by the parties, even through holding back a portion of the consideration, will not be completely effective. For example, the indemnification obligation may be limited to the amount of the consideration held back, and typically is limited in time: A contractual statute of limitations restricts the period in which claims for indemnification may be asserted (Freund 1975). Ultimately, all verification techniques relying on the parties are imperfect because they do not entirely eliminate the potential for opportunism inherent in the one-time character of an acquisition transaction. Party-based techniques all operate to reduce final-period problems by adding an artificial second round. For this reason, all share a common limit on their effectiveness: As long as gains from cheating in the first round can exceed the penalties if caught in the second – because the probability of being caught is less than 1.0 – the buyer still lacks complete assurance that the information provided by the seller can be entirely trusted.

A critical role is thus left for third parties to close the verification gap left by the seller's residual final period problems. This gap can be filled by reputational intermediaries – someone paid to verify another party's information. For example, it is a common occurrence for companies about to make an initial public offering to switch to a Big Six auditor who, presumably, would not risk its reputation by taking on an unreliable client (Carpenter and Strawser 1971; DeAngelo 1981). From this perspective, lawyers and accountants commonly play the role of reputational intermediaries in acquisition transactions. Acquisition agreements commonly require that an opinion of *seller's* counsel be delivered to the buyer as a condition to the buyer's obligation to close the transaction. Typically, counsel's opinion will cover some of the same information separately covered by the seller's own representations and warranties. It is also common to further condition the buyer's obligation on receipt of an opinion of seller's independent accountant – the 'cold comfort' letter (Freund 1975).

A particular opinion commonly requested from the seller's lawyer that 'we are not aware of any factual information that would lead us to believe that the agreement contains an untrue statement of a material fact or omits a fact necessary to make the statements made therein not misleading' (Bermant 1974), and the accountant's cold comfort letter to the effect that there have been no changes in specified financial statements since the last audited financial statements, share a common underpinning that is reputationally based. The central characteristic of both opinions is that neither alters the total *quantity* of information that had been produced for the buyer. Rephrased, the lawyer's statement is simply that a third party who has been intimately involved in the *seller's* production of information for the buyer does not believe the seller has misled the buyer. It is quite clearly the *lawyer's* reputation – for diligence and honesty – that is intended to be placed at risk. Similarly, the cold comfort letter adds no new facts to those that have already been produced by means of the seller's representations and warranties; the accountant's letter adds only the imprimatur of a respectable third party verifying the accuracy of the information produced by the seller.

WHY LAWYERS? The analysis of a typical acquisition agreement provides empirical verification for the proposition that business lawyers serve as transaction cost engineers, whose role is to design a transactional structure that allows the parties to act, with respect to their transaction, *as if* they were acting in a Coasean world. But the question remains: Why lawyers? There is nothing traditionally *legal* about the role of transaction cost engineer. One need not be able to recite Latin incantations to bless the union of the parties' interests through exchange. Why do lawyers dominate the structuring of transactions in which capital assets are transferred or created? Answering the question requires introducing the existence of regulation.

In the United States, the transfer of significant capital assets is surrounded by substantial regulatory structures. In a corporate acquisition, tax law, antitrust law, labour law, products liability law, ERISA, securities law, and corporate law, hardly exhaust the spectrum of regulatory oversight that may influence the format of a particular transaction (Gilson and Black 1995). Most such regulatory systems express the boundaries of their application and the detail of their requirements in formal terms: Transactions that take a particular outward form are covered. So, for example, different types of acquisitions – sales of assets, mergers and tender offers – are treated differently under many regulatory regimes. This approach to regulation serves as an invitation to targets of regulation to engineer the structure of their transaction so that its form falls outside the jurisdictional boundaries of the regulation without altering its substance. The regulatory eternal tri-

angle is completed by the courts which, in the end, must determine whether to credit the form in which the transaction is cast, or look beyond the formal terms of the regulatory structure to its 'purpose' and through the formal structure of the transaction to its financial substance.

The critical importance of transactional structure for purposes of regulation provides the core of an explanation for the success of lawyers as transaction cost engineers. Because the lawyer must play an important role in designing the structure of the transaction in order to assure the desired regulatory treatment, economies of scope should give them an advantage in performing the nonregulatory aspects of transaction structuring as well. Note, however, that this argument explains the importance of lawyers as transaction cost engineers; it does not necessarily dictate whether these lawyers will provide them from within a traditional law firm, or from within organizations composed of different kinds of professionals, such as the multi-disciplinary accounting firms in Europe, or investment banks in the United States. The efficiency considerations bearing on the internal structure of the organization through which transaction cost engineering services are provided raise interesting issues (Gilson and Mnookin 1985; Galanter and Palay 1991), but are beyond the scope of this essay.

EXTENSIONS. The discussion so far focuses on business lawyers and the example of corporate acquisitions. The concept of lawyers as transaction cost engineers can be usefully extended into other business settings and, indeed, even into litigation.

Focusing on a corporate acquisition agreement, the quintessential one-shot business transaction, ignores the fact that much transactional activity occurs between parties with longstanding business relationships. This alters significantly the character of the transaction costs confronting the parties, the role of structure as opposed to repeat dealings in offsetting opportunism, and the tools brought to bear by the transaction cost engineer. Thompson (1995), L. Bernstein (1995), Suchman (1995), E. Bernstein (1995), Okamoto (1995), Lambert (1995) and Utset (1995) consider the lawyer's transaction cost engineering function in different legal and transaction cost settings.

Understanding the transaction cost engineering skills of business lawyers leads to one of the most interesting extensions of the concept: into dispute resolution and litigation. Once one recognizes that dispute resolution involves trades between the parties – assets are transferred, liabilities extinguished, old relationships are sometimes adjusted, and new relationships created – then the potential for value creation by lawyers through engineering the structure of dispute resolution appears (Mnookin 1993; Gilson and Mnookin 1994; Arrow et al. 1995). For example, Gilson and Mnookin (1994) demonstrate how lawyers can serve as reputational intermediaries to overcome the incentives toward conflict inherent in the prisoner's dilemma characteristics of litigation between one-shot litigants.

RONALD J. GILSON

See also BARGAINING WITH REGULATORS; COASE, RONALD; HORIZONTAL MERGERS; LAW-AND-ECONOMICS IN ACTION; LAW FIRMS; LEGAL ADVICE; MARKET FOR CORPORATE CONTROL; NEOINSTITUTIONAL ECONOMICS.

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Learned Hand rule. The Learned Hand rule is a way of identifying negligence based on comparing the cost of a potential precaution with its probabilistic expected benefits. The rule is named after Judge Learned Hand, one of the great twentieth-century American appellate judges, who identified the criterion in a 1947 decision in a case about a runaway barge in New York harbour.

In *United States v. Carroll Towing Co.*, Judge Hand analysed the liability for damages resulting from the breaking away of a barge moored in New York harbour. The barge went on to hit a tanker, whose propeller tore a hole below the barge's water line, whereupon the barge and its cargo sank. The barge owner employed a bargee whose task was to be on the barge. However, at the time of the accident, a January afternoon in the full tide of wartime shipping activity in a very busy harbour, the bargee was off the barge, and had not been there for almost twenty-four hours. Furthermore, the bargee had apparently fabricated a story as to why he had not been on the barge at the time of the accident. Judge Hand held that it was a fair requirement for the owner to have a bargee on board during the working hours of daylight. Judge Hand, apparently for rhetorical reasons, chose to use algebraic terms to state his view on the duty to take precautions in the case at hand. He said that:

> the owner's duty, as in other similar situations, to provide against resulting injuries is a function of three variables: (1) The probability that she will break away; (2) the gravity of the resulting injury, if she does; (3) the burden of adequate precautions. Possibly it serves to bring this notion into relief to state it in algebraic terms: if the probability be called P; the injury, L; and the burden, B; liability depends upon whether B is less than L multiplied by P: i.e., whether B is less than PL (*Carroll Towing*, 173).

Carroll Towing, though an ordinary case on its facts, is one of the most widely cited opinions in the literature on law and economics. Its appeal arises because it has been used in the literature as a bridge between the logic of common law judges deciding tort cases and the theorizing by economists and lawyers about those decisions. For some authors, 'The Learned Hand rule' has become a shorthand for the economic analysis of torts. For others, it is a shorthand for the logic judges use to decide tort cases. It is attractive to those using it because it invokes the name of one of the great judges of the century on behalf of the view of economic analysis of law and because it states the decision to be made in algebra, suggesting the general nature of the analysis in a form congenial to traditional economic analysis. A statement in algebraic terms did indeed bring the notion into relief, and the Learned Hand rule has been widely cited in the literature in law and economics.

THE LINKAGE BETWEEN THE LEARNED HAND RULE AND THE DECISION-MAKING OF COMMON LAW JUDGES. It is worthwhile here to review the two linkages of the Learned Hand rule: the linkage to the decision-making of common law judges, and the linkage to the economic analysis of law.

Evidence from the Carroll Towing case itself. Judge Hand did not hold that the presence of a bargee on the barge was required under all circumstances:

> It becomes apparent why there can be no such general rule, when we consider the grounds for such a liability. Since there are occasions when every vessel will break from her moorings, and since, if she does, she becomes a menace to those about her; the owner's duty as in similar situations, to provide against resulting injuries is a function of three variables (*Carroll Towing*, 173).

Instead, Judge Hand wanted to characterize the circumstances under which the owner would be held liable for not posting a bargee to the barge. Those circumstances would properly vary with the likelihood of accident, the potential harm if an accident were to take place, and the cost of the precaution. To provide that characterization, he stated the inequality which was to become the Learned Hand rule.

There are some interesting aspects of the case to note. First, Judge Hand was considering the issue of contributory negligence, not negligence. He had already determined that Carroll Towing Company, the owner of the tugboat, was negligent. He then turned to whether or