5620
LIMITED LIABILITY

William J. Carney
James Howard Candler, Professor, Emory University, School of Law
© Copyright 1999 William J. Carney

Abstract

Limited liability has been known in Europe since at least the twelfth century, and developed later in England and throughout the developed world. Limited liability can be achieved by private contractual arrangements, by the use of limited liability forms of enterprise, by other statutory limits on liability, and by bankruptcy. The principal advantage of limited liability is in encouraging investment by passive investors in risky enterprises, particularly where these investors are poor monitors of managers. Joint and several liability is a particular deterrent to investment by wealthy investors, who are likely to bear all of the costs of judgment. Pro rata liability shifts collection costs from wealth investors who must seek contribution from other investors to judgment creditors, who must collect from all investors if they are to recover the entire judgment. It is generally agreed that in the context of contractual liability, the costs of limited liability on contract creditors will be fully internalized, as the cost of credit rises to reflect increased risk of firm bankruptcy shifted to these creditors. Determining the efficient rule in the context of tort liability is much more complex. While it is generally true that limited liability allows firms to become judgment proof and frustrate tort creditor recovery, this is only the beginning of the inquiry. First, tort creditors may benefit from efforts of contract creditors to minimize firm risk. Second, it is not clear that unlimited liability would deter risky firm activities if widely dispersed shareholders are poor monitors of risky firm activities, or if many tort liabilities are uncertain in their incidence and extent of harm. Third, it is not clear that shareholders are necessarily the superior risk-bearers where mass torts involve class actions where each claim is relatively small, if some shareholders would bear a large amount of liability.
JEL classification: K22
Keywords: Limited Liability, Piercing the Veil, Bankruptcy, Shareholder Liability

1. Introduction

This chapter reviews the literature on limited liability. This literature began in the eighteenth and nineteenth centuries with a concern for agency costs rather than for the liability system. After a long hiatus, when it reemerged in the

1960s and 1970s it was concerned primarily with contract liability and with the role of limited liability in facilitating capital markets. It was only after the theoretical literature on limited liability on these topics was relatively well developed that attention turned to tort liability. This literature developed in tandem with the growth of tort actions in the United States for catastrophic liability - generally involving class actions on behalf of large classes of plaintiffs. It became clear with the development of such actions that actors had developed liability-limiting strategies that had the ultimate effect of frustrating the liability system (Dent, 1991; LoPucki, 1996; Roe, 1986; Ringleb and Wiggins, 1990). Because liability systems within societies tend to be unitary, empirical work has generally been difficult to undertake. There are a few examples of parallel systems of limited and unlimited liability, but the evidence on the effects of limited liability remains extremely limited.

2. The History of the Law of Limited Liability

2.1 Ancient Rome

In ancient Rome many corporate entities were *de facto* rather than *de jure*, and liability remained unlimited (Gillman and Eade, 1995). This is attributed at least in part to the fact that most firms were not highly specialized, because pressure toward limited liability occurs with a separation of ownership and control (Gillman and Eade, 1995). While vicarious liability existed in Rome, it was strictly interpreted by limiting the agents' authority, thus creating some *de facto* limited liability (Johnston, 1995). Further, the *pater familias*, the head of the principal economic unit in Rome, was liable for the debts of a slave or son only to the extent of the extent of the *peculium*, or sum entrusted to him (Johnston, 1995; Perrott, 1982). While Rome had well-developed notions of both corporate personality and limited liability, they were not related to each other (Perrott, 1982).

2.2 Medieval Italian and Continental Versions of Limited Liability

Joint and several unlimited liability became the rule in Italian city-states as early as the twelfth and thirteenth centuries (Medici, 1982). As commerce expanded outside capital was required and outside investors who participated, either for interest or a share of profits, were liable only to the extent of their investment (Medici, 1982; Holdsworth, 1925). This form was widely adopted throughout the Mediterranean as the *commenda* for the maritime trade, and soon crossed over to inland undertakings (Medici, 1982; Perrott, 1982). The *en commandite* partnership was legalized in France in 1671, in Ireland in 1782, elsewhere on the Continent and in a few states in the USA in the early nineteenth century (Shannon, 1931), and in England in 1907 (Holdsworth, 1925). Limited liability also developed for limited liability companies, which in most instances lack transferable shares but have other corporate characteristics (Carney, 1995). Limited liability did not make its appearance in chartered companies until the 1780s when clauses were inserted in charters limiting the liability of shareholders to the amount represented by their shares. Previously shareholders' liability had been unlimited, though the directors of the French East India Company appear to have had limited liability (Minchinton, 1982). In 1807 France provided limited liability for joint stock companies known as sociétés anonymes. Napoleonic conquests spread this form to a number of German provinces, Prussia, Italy, the Low Countries and Switzerland. Limited liability survived the fall of Napoleon with the adoption by various German states of local statutes modeled after the *Code de Commerce*; the French Code also constituted the basis of the provincial Italian legislation during the first half of the nineteenth century and of the Spanish Code of 1829 (Blumberg, 1986; Macharzina, 1982).

2.3 English Limited Liability: Seventeenth and Eighteenth Centuries

Those forms of corporation that required no royal grant from the English Crown were treated as having limited liability for their members without an express grant (Anderson and Tollison, 1983). The limited partnership or *commenda* form never took hold in England (Perrott, 1982; Gillman and Eade, 1995). While Coke made claims for the crown that corporate status could only come from a royal grant, the facts were otherwise, and Chancellor Coke was forced to argue that corporations created without royal permission must have had a 'lost grant'. Charters could be obtained by common law or Parliamentary Act as well as from the Crown (Minchinton, 1982). At one point, the default rule for chartered companies seemed to be limited liability (Holdsworth, 1925). Indeed, if members of these corporations were to be held personally liable, it required an act of Parliament (Anderson and Tollison, 1983; Blumberg, 1986; Holdsworth, 1925). On the other hand, shareholders were liable to pay any assessments levied against them by the corporation, and some creditors were able to obtain court orders requiring the corporation to make such assessments (Holdsworth, 1925). Some corporations solved this problem by contracts that prohibited such assessments (Holdsworth, 1925). Some of the initial companies grew from guilds where members began to do business as joint stock companies, with charters in the sixteenth century that recognized this, sometimes with limited liability (Perrott, 1982; Shannon, 1931; Holdsworth, 1925).

There is a statist tradition that treats limited liability as a privilege granted by government to encourage certain forms of economic activity (Bainbridge, 1993). In one version, government wished to encourage private undertaking of projects that were too large for individuals (Sundow, 1982). Much of the focus of English legal history on this subject takes this view, and assumes that the basic rule is (should be?) unlimited shareholder liability. Much of this attitude probably stems from the Bubble Act's 1720 prohibition of trading in shares of unincorporated joint stock companies. But this did not end the use of unincorporated joint-stock associations; half of the companies formed in the eighteenth century after 1720 were unincorporated, and achieved *de facto* limited liability through the use of trusts and contract terms limiting creditors to corporate assets (Anderson and Tollison, 1983). Their charters also prohibited assessments in excess of the nominal value of the stock (Blumberg, 1986). Not only is the 'privilege' argument rejected by the historical evidence, but also by the economic evidence. The value that shareholders attach to limited liability will be a function of the probability of firm insolvency, which in the case of torts, will be a partial function of firm size. Thus, all other things being equal, limited liability with respect to torts will be of less value to shareholders of large firms than small firms (Horvath and Woywode, 1996). Since the likelihood that a firm will elect corporate status is positively related to its size, it appears that limited liability with respect to tort liability is an incomplete explanation for the use of the limited liability corporation (Forbes, 1986).

2.4 Nineteenth Century English Reforms

The origins of a law and economics discussion of limited liability lie in England, but they center not on discussions of the efficiency of externalizing the costs of firm activities, but rather on the increasing agency costs of firms with passive investors and management separated from ownership. Adam Smith believed that the separation of ownership and control found in limited liability companies would only lead to managerial shirking, and that in general limited liability companies could only survive where they were granted monopolies, while noting their potential usefulness in businesses with large-scale economies requiring large capital (an issue related less to limited liability than to transaction costs) (Smith, 1776). This debate continued among British economists throughout the late eighteenth and nineteenth centuries. Some writers were concerned that limited liability would reduce shareholder monitoring and lead to riskier choices by managers (Amsler, Bartlett and Bolton, 1981). John Stuart Mill expressed concern for the protection of small investors from fraud, while encouraging their investment of their savings in enterprise (Amsler, Bartlett and Bolton, 1981). Others report that the debate included discussions of the effects of externalizing the cost of failure on creditors, which would reduce capital available to business (Halpern, Trebilcock and Turnbull, 1980).

Repeal of the Bubble Act in 1825 and adoption of a general incorporation law in 1844 were not responses to the need to limit liability, but to the growth in the number of unincorporated joint stock companies, suggesting that general incorporation laws occurred in England not primarily because of a felt need to limit liability, but to respond to the development of large companies that operated under the disabilities of not being recognized as entities in the courts

(Anderson and Tollison, 1983). The 1844 Act emphasized unlimited liability by requiring registered companies to publicize their members (Shannon, 1931). In the years following 1844, the debate about limited liability was carried on almost entirely in terms of partnership, rather than company law (Saville, 1956); those who opposed limited liability did so on the grounds that it would create excessive speculation, create difficulties in securing credit, and promote fraudulent investment schemes (Shannon, 1931). In the early 1850s pressure for limited liability came in part from philanthropists seeking a safe investment for the savings of working people (Saville, 1956). The main argument for adopting limited liability was that the 1844 Act had not succeeded in attracting investors to new businesses (Diamond, 1982). In particular, wealthy investors were discouraged from participation (Perrott, 1982). Yet some joint stock companies had thousands of investors (Blumberg, 1986; Hansmann and Kraakman, 1991). It was not until 1855 and 1856 that Parliament granted limited liability to members of registered joint stock companies. This led to an increase in the number of companies seeking registration (Shannon, 1931; Blumberg, 1986; Gillman and Eade, 1995). The 1855 legislation attempted to protect creditors with both publicity (filings and inclusion of 'Ltd.' in the company name) and minimum capital (Diamond, 1982). This pattern was followed throughout Europe. After the 1855 Act it was common for industrial companies to create shares with large amounts of uncalled capital in the event of liquidation until the 1890s, and this trend continued in some cases in British banking until the 1960s (Evans and Quigley, 1995). While England was more highly industrialized than the United States in the early nineteenth century, it lagged behind the United States in the development of limited liability. In 1885, 30 years after introducing limited liability, only 10 percent of the number of 'important' firms were incorporated in England. Forbes suggests English entrepreneurs found limited liability less useful than Americans, although he offers no explanation for why this should be so (Forbes, 1986). Another explanation for the late arrival of limited liability in England compared to the United States is the lack of jurisdictional competition of the kind that existed in the United States (Forbes, 1986). But by 1855 English firms were registering under both French and American laws, giving credence to the competition among jurisdictions explanation (Saville, 1956).

2.5 American Limited Liability

The American colonies inherited the Bubble Act early in their history, but the Colonial legislatures were more willing to issue charters than Parliament, so the corporation, rather than the joint stock company, became the dominant American form of business entity (Blumberg, 1986). The earliest treatise stated that the fundamental rule of corporate law was limited liability (Hovenkamp, 1991). The New England states provided for unlimited liability until increased demand for corporate charters for manufacturing, coupled with competitive pressure from other states, caused them to adopt limited liability between 1816 (New Hampshire) and 1847 (Rhode Island). While Massachusetts, the dominant industrial state, had granted eighteenth century charters providing for both limited and unlimited liability, in 1808 its first general statute provided for unlimited liability, which was not repealed until 1830 (Blumberg, 1986; Dodd, 1948; Forbes, 1986; Hovenkamp, 1991; Livermore, 1935). Massachusetts courts were hostile to this law, construing it narrowly as in derogation of the common law (Livermore, 1935). Massachusetts continued to grant limited liability only by special charter until 1839, when competitive pressures from other states forced the adoption of a general corporation law with limited liability (Livermore, 1935). While limited liability was the general rule in the United States after 1830, and in most cases before that date, there were a few exceptions. California's constitutions of 1849 and 1879 imposed pro rata shareholder liability until 1931, and at one time six states imposed shareholder liability for unpaid wages, a law that survives in New York (Blumberg, 1986; Manne, 1967) and in Wisconsin (Wis. Stat. §180.0622(2)(b)). Both federal and state law imposed double liability for shareholders of banks from 1865 to 1932 (Blumberg, 1986; Macey and Miller, 1992). The rapid adoption of limited liability in the US for law and accounting firms when catastrophic liabilities appeared after the collapse of thrift institutions suggests that limited liability may be more directly caused by the prospect of catastrophic tort or regulatory liability than contract liability. On the other hand, limited liability for banking shareholders was introduced after the collapse of the U.S. banking industry in the early 1930s, although it was replaced with Federal deposit insurance and comprehensive monitoring of bank solvency by regulators.

2.6 Other Nations

Virtually all nations seem to have developed the notion of limited liability for shareholders in stock corporations. This doctrine has extended to Asian nations that have adopted western legal forms. For example, Korea is a civil code country that provides for limited liability of shareholders (Kim, 1995).

2.7 Managers and Creditors

Generally the subject of limited liability is addressed only in the context of shareholders, but it is important to recall that both managers and creditors of companies also benefit from limited liability. Generally managers will not be personally liable for the acts of their subordinates unless they actively participate in them, or sign corporate obligations in their personal capacity (Kraakman, 1984; Thompson, 1994). More recently, however, various regulatory statutes in the US have provided liability for managers for failure to supervise (Thompson, 1994). Creditors are generally not held liable for the obligations of their debtors (Easterbrook and Fischel, 1985). Some exceptions have developed where creditors hold pledged shares as collateral (Evans and Quigley, 1995), foreclose on pledged property that is the source of liability (Dent, 1991), exercise such control over the debtor that the relationship can be more properly characterized as one of principal and agent, or of co-partners, or where it can be said that third parties have been deceived into believing one of these relationships existed (Lawrence, 1989).

3. The Role of Liability Rules

Liability is generally viewed as a device for minimizing the social cost of private activities, and for forcing actors to internalize the full cost of their actions. An efficient liability system causes actors to consider the full cost of their actions. Limiting liability can thus be seen as subsidizing risky behavior and allowing some actors to externalize part of the costs of their actions. While corporations generate positive as well as negative externalities (Leebron, 1991) there is no way to measure the balance of these externalities under a regime of limited liability. Posner argues that the social losses of employees from injuries are too small to warrant inclusion in a calculation, and makes only a passing reference to other tort liabilities (Posner, 1992). While others have discussed the issue of other tort liabilities (see Section 15, below), only one author has discussed the efficiency issues connected to mass tort liabilities, which have raised the question of the efficacy of limited liability in the tort context. That article suggests that in many cases mass tort liability, which commonly occurs in the context of unforeseeable harms, is inefficient, because such actions cannot be deterred by liability rules (except perhaps at the expense of over deterrence) (Schwartz, 1985). If this is correct, then discussions of unlimited shareholder liability in the context of large, well-capitalized publicly-held corporations are moot, and the discussion should focus on closely-held firms, where the justifications for limited liability, in terms of capital markets, are much less persuasive.

4. Means of Achieving Limited Liability

While most discussion of limited liability centers around use of the corporate form to produce limited liability for shareholders, other means are available. Lending rather than investing in equity in a firm also provides limited liability (Easterbrook and Fischel, 1985). Indeed, part of the English debate over limited liability centered on whether creditors could accept variable interest under usury laws and retain limited liability (Gillman and Eade, 1995). Creditors can, however, be held liable for firm debts under circumstances discussed in Section 2, above.

4.1 Express Contracts

The oldest liability-limiting device is an express contract by which a creditor agrees to look only to the assets of a business firm. This was well known at common law in the joint stock association (Anderson and Tollison, 1983; Hessen, 1979).

4.2 Becoming Judgment Proof

Securing assets with a friendly creditor can immunize them from seizure by other creditors. Debtors can sell assets to unrelated entities, which finance the purchase with issuance of their own securities, thus financing the debtor's enterprise. Individuals can hold property in tenancies by the entirety that immunize them from seizure by creditors of individual owners, and some jurisdictions offer large exemptions from seizure by creditors (LoPucki, 1996). Owners can remove either themselves or their assets to foreign jurisdictions where enforcement is costly or impossible (Alexander, 1992; LoPucki, 1996; Grundfest, 1992). If shareholders were subject to unlimited liability, shares might only be owned by risk-preferrers (high rollers - Hansmann and Kraakman, 1992) or by foreign investors not readily subject to enforcement by local creditors (Grundfest, 1992).

Recent developments in capital markets have permitted the securitizing of assets - that is, the separation of productive assets from an integrated firm into a separate entity that cannot be attacked as part of the bankruptcy of the risk-taking firm. This has the effect of making firms engaged in high-risk activities virtually judgment-proof (LoPucki, 1996). It is, of course, just a new variation on the use of corporate subsidiaries to achieve insulation of some assets from the risky activities of an integrated firm (Blumberg, 1986; Dent, 1991; Hansmann and Kraakman, 1991; Landers, 1975; Leebron, 1991; LoPucki, 1996; Presser, 1992; Ringleb and Wiggins, 1990; Roe, 1986).

4.3 Incorporation and the Use of Other Limited Liability Entities

While limited liability for passive investors in partnerships (societas), recognized in Europe at an early date (Medici, 1982; Perrott, 1982; Shannon, 1931), was not generally recognized in common-law jurisdictions, New York adopted a limited partnership act in 1822 (Livermore, 1935). Most other US states did not follow this pattern until the promulgation of the Uniform Limited Partnership Act in the twentieth century. More recently, all American states have adopted limited liability company legislation (as European nations had done much earlier, Carney, 1995), and most have provided for limited liability for electing general partnerships ('limited liability partnerships'). Some of these states have conditioned such limited liability on maintenance of liability insurance in specified minimum amounts. With these developments the partnership default rule of unlimited liability will occupy a very small niche in the United States (Ribstein, 1992). The mixed form - the limited partnership, with investors having both unlimited personal and limited liability, may be explained by the ability of management to entrench itself from control changes, coupled with the greater flexibility and reduced bankruptcy costs that result from making fixed payment promises to limited partners rather than to outside creditors (Ribstein, 1988).

4.4 Subsidiaries and Enterprise Liability

Incorporation has long been the predominant means of limiting liability. While this was not controversial for a long time, use of corporate subsidiaries has generated considerable commentary. While incorporation to protect the personal estates of passive individual investors has been accepted by many commentators as efficient, when a corporation subdivides its own activities into separate subsidiaries for the purpose of insulating corporate assets from the risk of particular activities, some commentators have argued that this is inefficient, because it allows corporations (not just individual investors) to externalize the costs of some risks (Blumberg, 1986; Dent, 1991; Leebron, 1991; LoPucki, 1997; Roe, 1986). As catastrophic liabilities for environmental disasters, product liabilities and other mass torts have increased, large corporations have resorted increasingly to the strategy of disaggregation through subsidiaries, which may not be an efficient arrangement of the firm, since integration through a firm rather than by contract previously appeared to be more efficient (Dent, 1991; Hansmann and Kraakman, 1991; Roe, 1986).

On the other hand, if all corporate shareholders were to be subject to unlimited liability, corporations might spin off thinly capitalized high-risk subsidiaries to their individual shareholders as an evasion (Hansmann and Kraakman, 1991). Leebron, (1991) argues that this spin-off process would depend in part on the operational costs of separating integrated operations among entities, and the relative cost of insurance. One author has argued that limited liability was not designed to protect corporate shareholders; in the United States, at least, corporate power to own shares in other corporations followed limited liability (Landers, 1975). Following Modigliani and Miller, Leebron (1991) argues that there is no economic justification for letting pure conglomerates separate risky activities to further diversification, because individual shareholders can make their own diversification. Thompson (1994) argues that while credit markets will discipline many corporations that choose excessively risky activities, this is less obvious for subsidiaries, where parents are the suppliers of credit. Regardless of the arguments against honoring the corporate veil with parent-subsidiary corporations, changing basic liability rules in any society would require such radical changes as to make them highly unlikely (LoPucki, 1997). One article argues for a higher tax on profits that would be used to finance a subsidy to creditors to reduce managers' preference for risky activities under limited liability (Banerjee and Besley, 1990).

5. Exceptions to Limited Liability: Lifting or Piercing the Veil

Numerous countries have provided exceptions from limited liability where actions inconsistent with the separate personality of entity and owners have been taken (Presser, 1991). Germany has developed the doctrine of ‘lifting’ or ‘piercing’ the corporate veil to hold shareholders liable where there is misrepresentation to third parties or commingling of assets (Alting, 1995; Schiessl, 1986; Thümmel, 1978; Weber-Ray, 1995). Veil-piercing is far more likely in the closely-held corporation (including subsidiaries), where the justifications for limited liability are weaker, because of shareholder ability to monitor and participate in management (Easterbrook and Fischel, 1985; Klein and Zolt, 1995; Leebron, 1991). Indeed, veil-piercing is virtually non-existent in the large publicly-held corporation (Easterbrook and Fischel, 1985). On the other hand, the relative ability of close corporation shareholders to bear risk is much weaker (Leebron, 1991). Further, where a corporation dominates the management of another without a formal contract, the dominant shareholder may be liable for liabilities of the servient firm (Alting, 1995). Veil-piercing in the United States is often triggered by activities that can generally be characterized as fraudulent conveyances under English traditions (Clark, 1977, 1986; Presser, 1991) or by actions of a shareholder that create confusion in third parties about whether they are dealing with the shareholder or a corporation (Presser, 1991). In some jurisdictions undercapitalization alone may be sufficient to trigger unlimited shareholder liability.

France provides for liability of managers to the corporation, its shareholders and creditors if managers act in violation of the company’s constitution or law (Perrott, 1982). Similar rules exist in the US (Krendl and Krendl, 1978; Presser, 1991) and in Korea (Kim, 1995). Many countries have provided for shareholder liability where a legally required minimum number of shareholders is not maintained, although this rule is disappearing in Europe pursuant to European Community directives. Where some defects in the incorporation process are accompanied by an active role on the part of shareholders and plaintiffs’ belief that they were dealing with a corporation, American courts will also hold shareholders personally liable (McChesney, 1993). In European jurisdictions inadequate capitalization alone may be sufficient to trigger shareholder liability (Presser, 1991; Alting, 1995), while in others some evidence of fraud, such as commingling of assets may be required (Alting, 1995; Dobson, 1986; Presser, 1991), while in others mere close relationships between parent and subsidiary corporations may lead to parent liability (Pardinas, 1991). Anglo-American jurisdictions also use the doctrine to impose liability on shareholders where third parties are confused about whether they are dealing with shareholders or an entity (Halpern, Trebilcock and Turnbull, 1980; Presser, 1991). Doctrines of piercing the corporate veil are less-developed outside of common law countries, where notions of equity and agency are either non-existent or less well developed, and courts frequently have relied on notions of fraud or abuse of the purpose of the corporate form (Presser, 1991).

6. Statutory Limits on Liability

Certain industries might not exist without special provision for limited liability. The US nuclear power industry, for example, needed the Price-Anderson Act, which limited liability in case of a nuclear accident, in order to raise capital. Other statutory compensation schemes, such as workers' compensation statutes, and certain treaties, such as the Warsaw convention, which limits damages for airline passengers, also permit damage limitations (Coffey, 1994). In the case of new industries where potential liabilities, while huge, are uncertain, such limits may prove to be efficient, although it is difficult to know how such judgments could be made *ex ante* where individual losses are likely to be catastrophic, if they occur.

7. Bankruptcy

Bankruptcy provides a means for limitation of liability (Easterbrook and Fischel, 1985; LoPucki, 1997). Limited liability for a firm, which limits investor risk to assets dedicated to the firm, is similar to a discharge in bankruptcy, which limits a debtor's liability to current assets, thus protecting future assets (Posner, 1976). In bankruptcies involving corporations with subsidiaries, American courts may use the device of consolidating the assets and creditors' claims of all the related corporations as a means of disregarding the separateness of corporate entities, and thus piercing corporate veils (Frost, 1993).

8. Limited Liability and the Supply of Capital

The principal argument in favor of limited liability stems from the common law rule of liability for partners - joint and several liability - in which any one partner may be held liable for the entire amount of the firm's debt (Livermore, 1935). This appears to be the general European rule as well (Medici, 1982). Under these conditions there are three economic arguments in favor of limited liability: (1) it fosters economic growth by encouraging investors to take risks; (2) it facilitates the efficient spreading of risks among corporations and their voluntary creditors; and (3) it avoids the enormous litigation costs that would be required for creditors to seek recovery from shareholders (Menell, 1990).

The first justification is treated in Sections 9 and 10; the second in Section 14 (limited liability in contract); and the third in Section 12.

9. Encouraging Risky Investments

It has long been argued that joint and several unlimited liability would discourage wealthy investors from investing in risky enterprises, particularly when they intended to play a passive role where they could not monitor and supervise the firm's risky activities (Blumberg, 1986; Diamond, 1982; Easterbrook and Fischel, 1985; Grossman, 1995; Halpern, Trebilcock and Turnbull, 1980; Hansmann and Kraakman, 1991; Leebron, 1991; Manne, 1967; Woodward, 1985). This is supported by one study that suggests that the choice of limited liability is positively correlated with the wealth of owners (Horvath and Woywode, 1996).

9.1 Encouraging Diversification by Wealthy Investors

Limited liability permits the diversification which is necessary to risk minimization in a specialized firm, where passive investors specialize in risk-bearing, and not monitoring of management (Easterbrook and Fischel, 1985; Hovenkamp, 1991; Mitchell, 1989). Under joint and several liability, wealthy investors would be the first targets of firm creditors upon failure, and thus would be forced to forego the benefits of diversification in order to concentrate their investments to allow them to monitor effectively (Grossman, 1995; Hansmann and Kraakman, 1991; Hicks, 1982; Kraakman, 1984; Leebron, 1991; Manne, 1967). Indeed, diversification would increase the expected risk of wealthy shareholders; the maximum possible loss is invariant with diversification, but its probability increases with diversification (Leebron, 1991 Ribstein, 1991).

One result of unlimited liability might be larger firms engaged in more diversified activities, to protect shareholders from personal losses (Presser, 1992; Roe, 1986). This diversification would, of course, be limited by the increasing agency costs associated with management of conglomerates, and the costs of using internal capital markets, with their limited monitoring ability, rather than external markets. Because such diversification and increase in size would convey more benefits on wealthy investors under a joint and several liability regime, the benefits of this strategy would not be symmetrically distributed across investors, which could lead to constituency effects, in which wealthy investors would specialize in owning large diversified firms. Such diversification at the firm level is generally inefficient because investors can home-make their own diversification, absent unlimited liability rules.

9.2 Reducing Shareholder Monitoring of Co-Owners

A joint and several liability rule would force shareholders to monitor not only firm activities, but also the wealth of their fellow shareholders, which leads to excessive monitoring costs (Carr and Mathewson, 1988; Easterbrook and Fischel, 1985; Halpern, Trebilcock and Turnbull, 1980; Hansmann and Kraakman, 1991; Leebron, 1991; Woodward, 1985). The result would be higher costs and lower returns to equity, which would limit the supply of equity for industry (Carr and Mathewson, 1988). One article rejects this, arguing that shareholders would not need to increase monitoring of either firms or fellow shareholders, since share prices in efficient markets provide them with all required information (Meiners, Mofsky and Tollison, 1979). But other authors respond that joint and several liability of shareholders would destroy efficient capital markets, because the value of shares would be a function of the expected cash flows of the business and the wealth of each individual buyer, and of expected fellow shareholders (Easterbrook and Fischel, 1985, 1991; Halpern, Trebilcock and Turnbull, 1980).

10. Evidence on the Effects of Unlimited Shareholder Liability on Investment

There is some evidence that unlimited liability, at least on a joint and several basis, would reduce the number of shareholders and thus the amount of capital contributed to firms. Both limited liability and unlimited liability banks co-existed in eighteenth and early nineteenth century Scotland. From the beginning of the nineteenth century the average size of the limited liability banks was ten times that of the unlimited liability banks, and when the unlimited liability banks were later given the choice of forms, all chose limited liability (Carr and Mathewson, 1988). Unlimited liability banks had lower levels of capital than limited liability banks in relation to total assets, and shareholders in unlimited liability banks earned higher returns (risk premiums) on their investments (Evans and Quigley, 1995). Depositors in eighteenth- and nineteenth-century Scottish unlimited liability banks were provided no information about the bank's assets, but rather received a list of shareholders (Evans and Quigley, 1995). A study of German enterprises showed that limited liability firms tend to be larger than unlimited liability firms among start-ups (Horvath and Woywode, 1996).

There is some evidence to the contrary. Evans and Quigley's study showed that the majority of banking assets in Scotland were held by unlimited liability banks, which they explain as a function of depositor preference for unlimited liability banking and the higher shareholder returns available (Evans and Quigley, 1995). Outside banking, some English joint stock companies had thousands of stockholders; whether they would have had more as limited liability corporations is not testable (Blumberg, 1986; Hansmann and Kraakman, 1991). Gilson (1991) reports that law firm size in the United States is invariant with the choice of liability rule, once tax considerations are eliminated. This result may have changed with the introduction of new limited liability forms more readily available to US law firms in the 1990s, which resulted from the catastrophic liability of some US lawyers in the wake of the failures of client financial institutions in the late 1980s (Hamilton, 1995). One modern anomaly occurred in the era of efficient capital markets: the American Express Company remained a joint stock company with unlimited shareholder liability until 1965. From its creation in 1850 until conversion to a limited liability corporation it had as many as 25,000 shareholders, with only one 10 percent shareholder. There was neither illiquidity nor perverse stock pricing (Grossman, 1995). This limited evidence, based on a company with pro rata shareholder liability, rejects the theories that an efficient capital market with diversified shareholders could not exist without limited liability, although it does not reject the theory that joint and several liability would preclude such markets (Grossman, 1995). The unanswered question is whether American Express faced serious expected risk of large contract liability (much less catastrophic tort liability) prior to its conversion. It seems unlikely that American Express had a high risk of tort liability; it provided financial services of a limited sort - at the time, primarily travelers' checks and credit cards - so it produced no products capable of producing either strict product liability or mass tort liability. There was some risk of massive forgery of travelers' checks that could have deterred investors. While it was sued for more than twice its net assets in 1963 in connection with its certification of soybean oil inventories, it is not clear that creditors or stockholders would have understood this risk in advance, nor is it clear how much had to do with its 1965 conversion to the limited liability form of corporation (Grossman, 1995).

11. The Effects of Pro Rata Liability on Investment

Subsequent to the development of theories about the impact of joint and several liability the literature began to examine the effects of pro rata shareholder liability. While this rule does not appear to play a significant role today, there are companies limited by guarantee, which is a form of pro rata multiple liability. Subsequent to reform of English company law in the mid nineteenth century, many registered limited liability companies voluntarily provided multiple liability through assessable shares, and Scottish banks shifted to this form after 1879 (Evans and Quigley, 1995). Further, to the extent shareholders were personally liable in the early nineteenth century in the US, and in California until 1931 by statute (Blumberg, 1986), it was pro rata (Presser, 1992; Blumberg, 1986; Livermore, 1935; Macey and Miller, 1992). Similarly, US bank stockholders were subject to pro rata double liability from 1865 to 1932 (Blumberg, 1986; Macey and Miller, 1992).

11.1 Effects of Pro Rata Liability on Wealthy Investors and Securities Markets

Pro rata liability solves the problem of imposing disproportionate liability on wealthy investors. This reduces the need of wealthy investors to concentrate their investments so they can monitor them more closely (Grossman, 1995; Halpern, Trebilcock and Turnbull, 1980; Leebron, 1991). Pro rata liability also eliminates the cost of monitoring other shareholders' wealth (Leebron, 1991). It also solves the problem of differential pricing of securities based on the expected losses of buyers with different wealth levels (Grossman, 1995; Hansmann and Kraakman, 1991; Leebron, 1991; Presser, 1992). By doing so, it solves the diversification problem for investors, because the probability of a wealth-erasing assessment would not increase with each single stock purchased. The differences between joint and several liability rules and pro rata rules may be exaggerated if a joint and several rule is coupled with a rule of contribution. Under these circumstances, a joint and several rule shifts the transaction costs of collection from corporate creditors to shareholders (Leebron, 1991).

11.2 Effects of Pro Rata Liability on the Market for Corporate Control

A pro rata rule would discourage wealthy investors from investing in large blocks of risky companies and thus would reduce shareholder monitoring of management activities (Hansmann and Kraakman, 1991; Leebron, 1991; Ribstein, 1992). Under limited liability concentrated block ownership occurs where the payoffs from monitoring are greatest (Demsetz and Lehn, 1985).

Modern arguments for pro rata liability in tort argue that diversification would remain at efficient levels with such a rule (Halpern, Trebilcock and Turnbull, 1980; Leebron, 1991). Hansmann and Kraakman argue that most liability would be borne either by wealthy investors or institutions. What they ignore is that such a rule could have the effect of discouraging the formation of investment pools from which judgments are easily collectible; the cost to investors of holding through mutual funds and collective pension plans could rise to the point where individual diversification through mutual funds becomes uneconomic (Leebron, 1991; Coffey, 1994; Thompson, 1994). Grundfest (1992) believes mutual funds would be able to avoid this problem by establishing themselves off-shore and using various hedging strategies involving derivatives.

12. Costs of Collection

The costs of collecting judgments under a joint and several liability rule would be high, as firm creditors collected from wealthy shareholders who in turn would need to seek (probably incomplete) contribution from less wealthy shareholders (Woodward, 1985). While a pro rata liability rule would be less disruptive of capital markets, it would also be less effective in collecting damage awards for judgment creditors because of the presence of large numbers of small investors, where collection costs would be high. It would have the effect of transferring collection costs from shareholders to creditors (Leebron, 1991). This would weaken both the deterrent effect and compensation value of unlimited liability. Anglo-American courts of equity developed a relatively effective collection device, the creditors' bill, which allowed all creditors to seek a determination of both corporate and shareholder pro rata liability, which was res judicata, even for nonresidents, as to all issues other than defenses personal to each shareholder, such as the number of shares held or one's actual identity as a shareholder (Blumberg, 1986).

Posey (1993) argues that the effects of limited liability on the ability of tort victims to recover is less obvious. With unlimited liability, a firm's expenditures on prevention increase, thus reducing net assets (and increasing collection costs from shareholders). In the alternative, unlimited liability might reduce firm activity levels, and with it the stock of capital (and the ease of collection).

Hansmann and Kraakman assert that for publicly held firms the increased transaction costs of unlimited liability under a pro rata rule are less than the increased costs of externalized liability under limited liability, but they offer no evidence to support this statement (Hansmann and Kraakman, 1991). Further, this conclusion assumes that companies should be strictly liable for unforeseeable accident costs - that such a rule is efficient - even where the costs to individual plaintiffs are small but the damages to a firm are catastrophic (although these authors do not discuss this issue). Leebron notes that the difference between joint and several liability with a right of contribution and pro rata liability is a question of who will bear the transaction costs of collection - individual wealthy shareholders or plaintiffs. Leebron also argues that because of this, which rule is better depends not on collection costs, but on which rule creates more shareholder monitoring, and believes that joint and several liability is superior in this respect. This analysis assumes that transaction costs of collection are ultimately not significant. At the same time, he concedes that for public corporations with many small shareholders, unlimited pro rata liability to tort victims may be pointless because of high collection costs, and that because of transaction costs, it is unclear what is the best rule (Leebron, 1991). Other authors argue that none of the policy arguments in favor of limited liability have any real application to closely held firms where owners are also managers and thus can control their risks (Klein and Zolt, 1995).

13. Evidence about Joint and Several versus Pro Rata Liability

American law provided experience with both pro rata and joint and several liability: both New York and California law provided for pro rata liability (Blumberg, 1986; Livermore, 1935). American banks from 1865-1932 provided for double pro rata shareholder liability. While American courts were innovative in enforcing this liability, the collection rate on shareholder assessments was only 50.8 percent. Macey and Miller regard this as a success, because it is probable that many shareholders were insolvent (Macey and Miller, 1992). Grundfest has argued that capital markets would respond to pro rata liability by generating a large number of investors who are attachment-proof to specialize in holding equity of risky companies. These will include foreign investors and individuals of modest means holding small amounts of equity, where collection costs will exceed the amount collected (Grundfest, 1992). They will also include separation of substantial assets from risky enterprises through leasing and thin capitalization (Lopucki, 1997; Note, 1994). Recent evidence from Germany, however, supports the hypothesis that for investors in large firms risk aversion (and the liability rule) does not influence the choice of firm (Horvath and Woywode, 1996).

14. Limited Liability in Contract

Early literature concentrated on limited liability for contract obligations. It may be that these writers thought tort liability was trivial. It was only later that writers, recognizing that liabilities for mass torts that could bankrupt even large firms, turned to analysis of the impact of limited liability on tort risks.

14.1 The Theory of Limited Liability in Contract

In a perfect capital market with zero transaction costs the value of the firm and its optimal investment policy would not be affected by the liability rule chosen. Unlimited liability would reduce creditors' risks and the interest rates and other contractual protections demanded, and increase returns to shareholders to compensate for this risk (Halpern, Trebilcock and Turnbull, 1980). Firms that choose a limited liability regime will face higher borrowing costs (Anderson and Tollison, 1983; Posner, 1976), although it is argued that trade creditors typically fail to incur the transaction costs to investigate credit risk (Landers, 1967). In the case of one-shareholder corporations with little capital, creditors will either charge higher interest rates for risky loans or insist on personal guarantees, so that credit terms are invariant to the liability rule (Ekelund and Tollison, 1980; Meiners, Mofsky and Tollison, 1979). If we introduce transaction costs, where lenders are uncertain about the extent of shirking and risky behavior by owners with limited liability they may increase interest costs to the point where owners prefer to finance without borrowings at the firm level (Eswaran and Kotwal, 1989). This analysis has been extended to stock insurance companies: if shareholder liability is limited, policyholders will presumably recognize the risk they bear and pay less for policies. Insurers can bond against risky investments by writing participation rights into insurance policies (Garven and Pottier, 1995). They can also submit to regulation that assures minimum capital and constrains risky investments.

Under an unlimited liability regime, Leebron argues that shareholders would probably prefer to borrow using their interest in the firm as collateral, because they would each only be liable for their own borrowing (pro rata), while if the firm borrows, each would be liable for everyone's borrowings (joint and several) (Leebron, 1991). Corporate borrowing with limited liability is equivalent to nonrecourse borrowing by shareholders who pledge their shares as collateral, but the transaction costs of such borrowing would be higher, because so many lenders would have to investigate the firm in markets with large numbers of potential lenders (Leebron, 1991). Limited liability creates a state of the world where the worst possible state of the world is known to all investors, both creditors and shareholders, while unlimited liability does not allow shareholders the same certainty (Leebron, 1991).

The evidence from eighteenth- and nineteenth-century Scottish banking is consistent with this model. Shareholders in unlimited liability banks earned higher returns than shareholders in limited liability banks (Evans and Quigley, 1995). But despite such differences in returns, in small firms risk aversion leads to a preference for limited liability, especially as firm projects grow riskier, according to a study of German firms (Horvath and Woywode, 1996).

14.2 The Cost of Limited Liability in Contract

There are at least three costs borne by firm owners for achieving limited liability, at least two of which apply to both contract and tort liability. First, under limited liability, voluntary creditors will impose higher costs on firms (see above). Second, in many legal regimes, tax costs will be higher for limited liability, because the entity may be treated as separate, although this is not a necessary condition for limited liability. In the United States the development of the Limited Liability Company and Limited Liability Partnership have eliminated the tax cost for closely held enterprises in recent years. Third, in most legal systems except the United States, forming a limited liability entity will subject the firm to extensive public disclosures (Horvath and Woywode, 1996). This apparently is designed to provide potential creditors with information about the firm's capital where unlimited liability is not available.

While Posner argues that creditors are the most efficient risk-bearers (Posner, 1992), Easterbrook and Fischel (1991) reject this, arguing that the evidence is otherwise: creditors accept lower returns because they prefer less risk, presumably because they are not the least-cost monitors of firms. Johnsen argues that creditors accept lower returns because they monitor only the value of debtors' assets in alternative and less specialized uses, rather than in the present use, which is left to shareholders (Johnsen, 1995). Recent literature on domination of large corporations by big banks in Germany and Japan has raised the question of whether at least some creditors are superior monitors of firms, but fails to bring any evidence to bear on the subject (Roe, 1994).

Some authors treat small trade creditors as if they were involuntary creditors, because they face high transaction costs in assessing the riskiness of their credit extensions (Landers, 1967; Easterbrook and Fischel, 1985, 1991). These arguments ignore both the ability of trade creditors to monitor current payments on a monthly or more frequent basis and their ability to free ride on the negative covenants imposed by larger creditors with scale economies in negotiating credit contracts. Further, they ignore the ability of many trade creditors to bear risk by diversifying their customer base (Carney, 1990).

The costs of limited liability imposed on creditors depend on capital structure; thus, secured creditors monitor assets, not firms, so their monitoring costs are not increased by limited liability (Ribstein, 1991; Johnsen, 1995). To the extent that limited liability imposes unmonitored risk on creditors, it has been suggested that increasing the tax on firm profits and paying subsidies to creditors can solve the risky behavior problem. The creditor subsidy will reduce interest costs to the firm, while raising managerial efforts, thus leaving managers better off, because managers exert less effort when liability is limited (Banerjee and Besley, 1990). A similar suggestion has been made with respect to the level of taxation of profits on US financial institutions, to reduce incentives to take risks (John, John and Senbet, 1991). The difficulty with these proposals is that profits taxes do not distinguish returns to risk from returns to superior management.

14.3 The Benefits of Limited Liability in Contract

Many of the benefits of limited liability in contract are related to capital markets. With limited liability, investors have the ability to diversify their investments in shares of corporations. This is true in part because without limited liability, for a wealthy investor, each investment would increase the risk of being held personally liable for the debts of a failed firm (Blumberg, 1981; Carr and Mathewson, 1988; Diamond, 1982; Easterbrook and Fischel, 1985, 1991; Grossman, 1995; Halpern, Trebilcock and Turnbull, 1980; Leebron, 1991; Woodward, 1985). It is also true because it reduces the need for any shareholder to monitor management for risky choices (Blumberg, 1986; Easterbrook and Fischel, 1985, 1991). It also seems likely that given modern techniques for reporting financial results of firms, that monitoring shareholder wealth is more costly than monitoring firm wealth. Evans and Quigley (1995) argued that unlimited liability was observed in Scottish banking at a time when it was cheaper to monitor shareholder wealth than bank solvency. Finally, limited liability reduces the transaction costs of collection.

15. Limited Liability in Tort

Limited liability's externalization creates three problems: (1) firms make excessively risky decisions because they do not consider externalized costs; (2) corporations fail to insure fully; and (3) product costs do not reflect full social costs (Dent, 1991; Leebron, 1991). Many authors apparently believed that the problem of tort liability under a limited liability system was not a serious one, either because they felt that other parts of the legal system had dealt with the principal forms of business accidents, through workers' compensation, unemployment insurance and mandatory automobile insurance (Manne, 1967), or because they focused on the large publicly held corporation, where the risk that individual tort liability would bankrupt a firm seemed trivial. For this reason, much of the early literature focused on contract liability (Easterbrook and Fischel, 1985; Halpern, Trebilcock and Turnbull, 1980; Meiners, Mofsky and Tollison, 1979; Posner, 1976). The development of the mass tort, stemming either from industrial accidents or strict products liability, has changed the analysis (Hansmann and Kraakman, 1992; Leebron, 1991; Roe, 1986; Schwartz, 1985).

15.1 Externalizing the Costs of Torts

The general wisdom states that with limited liability managers loyal to shareholders will select unduly risky projects, because the owners of the firm can externalize some of the social costs of their choices (Blumberg, 1986; Brander and Lewis, 1986; Hansmann and Kraakman, 1991; Leebron, 1991). This may be borne out by a study showing that limited liability firms have a higher incidence of bankruptcy than unlimited liability firms. At the same time, they appear to have higher growth rates - the reward for undertaking riskier projects (Horvath and Woywode, 1996). In oligopoly, the effect of limited liability may provide a signaling effect for firms that take on more debt - that they intend to pursue output strategies that raise returns in good states and lower returns in bad states (Brander and Lewis, 1986). The extent of any reductions in precautions may be a function of the profitability and wealth of the firm, however; the more profitable the firm, the more the owners have at risk, and the greater their precautionary expenses. But where firms are marginally profitable, owner-managers may choose a lower level of precautions under limited liability (Craig and Theil, 1990). Generally the risk of bankruptcy is treated as a last-period problem; but if it is seen as an expected cost of a firm with positive cash flows, the incentive to take excessive risk may be less than static models would suggest (Suen, 1995).

15.2 The Impact of Agency Costs on Firm Risk-Taking Decisions

Agency costs will also influence the amount of firm risk assumed. While firms may increase their risk where there is a unity of ownership and control, as in closely held owner-managed corporations, it is less obvious that this holds with public corporations. Managers of public corporations often hold large undiversified investments in firm-specific human capital, and often in the stock of the firm as well. They are also holders of large fixed claims on the firm in the form of salaries (Jensen and Meckling, 1976). As a result, they may be unduly careful in making choices for the firm, and may retain excess equity in the firm (LoPucki, 1997). Further, their primary concern will be with failure of the firm, because that will cost them their jobs. Easterbrook and Fischel (1985, 1991) argue that with unlimited liability managers will reject some positive net present value projects as too risky, but will accept all such projects under limited liability. Presser argues that such managers would seek to diversify (and perhaps expand) firm activities to reduce the risk of total loss (Presser, 1992). To alleviate the managerial risk-aversion problem, many compensation plans give managers some claim on the upper tail of expected outcomes. To the extent that managers assume unlimited liability as shareholders, the value of incentive compensation tied to stock is reduced, and managers may be excessively cautious (Hansmann and Kraakman, 1991). One benefit of limited liability thus is to neutralize some part of a manager’s risk aversion. Easterbrook and Fischel (1985) further argue that the moral hazard of engaging in overly risky activities under limited liability can also be dealt with through (1) minimum capital requirements; (2) mandatory insurance; (3) managerial liability; and (4) regulation of inputs. Minimum capital requirements are widely employed throughout Europe (Carney, 1997). They represent a relatively crude form of protection, since they are not related to either the riskiness of firm activities nor its capital structure. All states in the United States have moved away from such requirements, providing evidence that in a competitive market for corporate law, these requirements do not survive as efficient (Carney, 1995). Mandatory insurance and managerial liability are discussed in Sections 17 and 18, below. Direct regulation of inputs, such as regulation of nuclear plants, presents problems, in that regulators have weak incentives to balance costs and benefits (Easterbrook and Fischel, 1985).

15.3 The Effectiveness of Shareholders as Monitors of Risky Activities

There is little discussion of the relative efficiency of shareholders, managers and creditors as monitors. While Posner (1992) argues that creditors are the most efficient risk-bearers, Easterbrook and Fischel (1991) reject this, arguing that the evidence is otherwise: creditors accept lower returns because they prefer less risk, presumably because they are not the least cost monitors of firms. Manager liability suggests the function of tort law is deterrence, while shareholder liability suggests the function is loss-spreading (Thompson, 1994). In public corporations, at least, passive shareholders are entirely dependent on management for a flow of information about risk management, as well as all other details of operations (Arlen and Carney, 1992). Most writers believe that limited liability will reduce shareholder monitoring of managers. Easterbrook and Fischel (1985) believe that such monitoring will be replaced by creditor monitoring. Even with limited liability, firms subject to high agency costs (which presumably includes excessively risky behavior) generate large block owners better able to monitor (Demsetz and Lehn, 1985). With constant returns to monitoring managers, the incentive of shareholders is not affected directly by the liability regime, but if managerial effort were to vary with the liability regime, then different levels of shareholder monitoring would be efficient (Carr and Mathewson, 1988). While Hansmann and Kraakman concede that passive shareholders in large corporations are unlikely monitors of risk, they believe markets will perform this function, and that share prices will reflect managerial risk-taking. Ironically, they also argue that managers will not be excessively cautious under an unlimited liability regime because many large uninsured tortious activities create a risk of catastrophic loss only many years later and thus will be heavily discounted by today's management (Hansmann and Kraakman, 1991). If this is true, it is not clear how markets will be able to provide effective monitoring.

15.4 Catastrophic Tort Liability

Only one author has addressed the effect of unlimited liability on deterrence of catastrophic torts. Schwartz (1985) argues that to the extent many mass torts are not foreseeable, strict liability coupled with unlimited liability has no deterrent value. If this is so, the arguments in favor of unlimited liability in tort are thrown back on risk-spreading ability, where the evidence is thus far inconclusive. Where class action claims involve relatively small amounts per claimant and joint and several liability runs the risk of imposing most of the liability on a few wealthy shareholders, it may well be that leaving liability with the injured class places it with the group best able to bear it.

16. Limiting the Cost of Limited Liability in Tort

The social costs of externalizing the costs of accidents through limited liability have been discussed in Section 15. This section examines the factors that may limit the size of the externalized costs. Managers of large firms facing catastrophic mass tort liability typically do not seek liquidation, which might be in the shareholders' interest, because it ends the firm and with it their employment. Indeed, managers engaging in activities likely to result in catastrophic liability should probably maximize current distributions to shareholders in order to reduce the pool of assests subject to creditor claims. Rather, managers facing such a last period problem may have imposed agency costs on shareholders when they have kept resources within firms and then acquiesced in reorganizations that give mass tort claimants significant ownership in the firm (Roe, 1986). While this creates an agency cost for shareholders, it ameliorates the effects of externalization of the cost of accidents for these firms.

Ribstein argues that owners of limited liability enterprises internalize most costs of tort by virtue of the fact that voluntary creditors will either impose higher credit costs or force additional firm monitoring, or both. Because unsecured contract creditors are at risk of some loss (or loss sharing with tort creditors) in the case of tort liability, he argues that tort risk is sufficiently internalized that the benefits of limited liability outweigh its costs to involuntary creditors (Ribstein, 1991). Obviously this arrangement does not internalize the expected cost of accidents in excess of a firm's unsecured assets. But to the extent that voluntary creditors insist that debtors carry tort insurance, at least some of these costs may also be internalized (Ribstein, 1991). Further, in close corporations, shareholders have significant personal investments to protect, and have incentives to insure to protect them (Ribstein, 1992).

17. The Benefits of Limited Liability in Tort

17.1 Shareholders as Inefficient Monitors of Risky Activities Ex Ante

The capital market benefits discussed earlier apply equally to limited liability in tort. The exposure of railroads to heavy tort liability, in connection with large scale operations that could not be readily monitored by shareholders, was one of the original justifications for English limited liability rules in the nineteenth century (Blumberg, 1986). Shareholders in public corporations are often poor monitors of much tort liability, which depends on a constant and candid flow of information about agents' behavior (Arlen and Carney, 1992). As specialists in providing capital, these passive investors lack the skills to be effective monitors, so their monitoring activities would be inefficient (Easterbrook and Fischel, 1995). With unlimited liability in tort, the relevant domain for monitoring by stockholders expands and agency costs increase (Orhnial, 1982). Imposing default liability on the monitor is consistent with the theory of imposing liability on the party who can avoid it most cheaply

(Ribstein, 1991). In large corporations, this will almost never be dispersed public shareholders. Limited liability eliminates the disincentive for wealthy investors to take large (perhaps controlling) ownership positions in risky firms, which increases shareholder monitoring where it is efficient (Hansmann and Kraakman, 1991).

17.2 Reducing Collection Costs of Judgments

Limited liability also reduces the transaction costs of collecting judgments, by shifting some risk to plaintiffs. A system of pro rata liability would increase collection costs, but it would lead to incomplete collections because of the difficulties of obtaining jurisdiction over many individual shareholder defendants (Alexander, 1992; Grundfest, 1992; but see Hansmann and Kraakman, 1992a; Patterson, 1995). Grundfest argues that a class of attachment-proof investors would develop that would specialize in holding risky common stocks, which would arbitrage away any price differences between risky and less risky businesses that should send managers signals about behavior (Grundfest, 1992). But Grundfest's argument ignores managers' personal incentives to avoid risk, in order to protect their firm-specific human capital. Bainbridge argues that limited liability encourages investors to more fully capitalize firms, so that tort claimants are better off collecting from firm assets than bearing the transaction costs of collection from shareholders (Bainbridge, 1993). Bainbridge's argument is stronger under a pro rata liability rule than a joint and several liability regime.

17.3 Incomplete Insurance Markets

Easterbrook and Fischel suggest that limited liability was more important in the nineteenth century because insurance markets were less developed, but this ignores the more recent development of mass tort liability, where insurance markets are probably as incomplete as were nineteenth-century markets (Easterbrook and Fischel, 1985; Schwartz, 1985). One solution proposed for the problem of high collection costs under unlimited liability is to provide for personal liability of shareholders only when a corporation is uninsured against the risk, which would increase incentives to insure (Alexander, 1992; Dent, 1991; Leebron, 1991; Schwartz, 1985). The difficulty is that insurance markets are incomplete (Blumberg, 1986; Dent, 1991). The existence of insurance markets will depend on (i) information costs; (ii) moral hazard, (iii) adverse selection and (iv) ability to bear risk (Halpern, Trebilcock and Turnbull, 1980). Because many firms will fail because of systematic risk, insurers will be unable to diversify this risk (Easterbrook and Fischel, 1985; Halpern, Trebilcock and Turnbull, 1980; Leebron, 1991). Further, the potential for mass torts, which are uncertain in both their incidence and extent of liability, may make some activities uninsurable (Hansmann and Kraakman, 1991; Ribstein, 1991). Finally, because lower-risk firms will self-insure rather than purchase costly insurance, the insurance market will be dominated by higher-risk purchasers, raising insurance costs and causing even more firms to self-insure (Ribstein, 1992). Finally, firms cannot be expected to insure against remote risks to their full extent, in part because of bounded rationality (Schwartz, 1985). Mandatory insurance may create new moral hazard problems, encouraging managers to take risks, if insurers are not efficient monitors (Easterbrook and Fischel, 1985). Some manufacturing activities may create potential liabilities decades in the future, where managers will heavily discount the risk (Hansmann and Kraakman, 1991). Further, the high loading costs of insurance (as much as 25 percent) reduce its efficiency (Hansmann and Kraakman, 1991). If liability insurance were mandatory, it would create a new barrier to entry of small firms (LoPucki, 1997).

18. Substitutes for Shareholder Liability

18.1 Tort Creditor Superpriority

One substitute for unlimited liability for shareholders is to provide tort creditors with greater priority in a bankruptcy system. Under US law, secured creditors have priority over tort creditors. Providing tort creditors with a priority over all voluntary creditors would shift risk from involuntary creditors to voluntary creditors (Buckley, 1986; Presser, 1992). While this would increase monitoring by creditors, their comparative advantage in monitoring for this kind of risk over shareholders is not always clear. One author suggests that contract creditors specialize in valuing firm assets in alternative uses, while shareholders capture the quasi-rents from the current firm-specific use (Johnsen, 1995). Whether credit terms would be set to reflect accurately the new risks that the firm's owners (including creditors) could not escape is an empirical question, but the increasing use of public markets for borrowings in the US suggests that these markets might become efficient, so prices would accurately reflect risks. At the same time, securitization of financial assets enhances their availability to the same passive investors likely to hold stocks, which probably reduces any comparative advantages in monitoring formerly held by creditors. Leebron argues that tort victims might consent to the priority of secured creditors if the loan made additional assets available to satisfy their claim or provided increased creditor monitoring. If new funds are provided to operate the business by the loan, tort creditors will suffer if firm assets subsequently shrink (Leebron, 1991).

18.2 Lender Liability

Another substitute for unlimited shareholder liability is to treat contract creditors as owners of the firm, and subject them to unlimited liability. Leebron argues that in many public corporations creditors can exercise more control than public shareholders, and are better able to diversify risk than tort victims. Further, private contract lenders (as opposed to bondholders) are superior monitors when compared to tort victims (Leebron, 1991). Indeed, some creditors may well be superior monitors to public shareholders as well (Easterbrook and Fischel, 1985). At the very least, large creditors are in a position to monitor firms for adequate capitalization, and to adjust interest rates to create incentives to capitalize the firm (Ribstein, 1992). On the other hand, unlimited liability for creditors would exacerbate the stockholder-bondholder conflict, and because of liability for catastrophic torts, lenders' negative covenants would be of less value (Leebron, 1991).

18.3 Managerial Liability

To the extent that neither shareholders nor creditors are effective monitors of managers' risky choices, one solution might be to make managers personally liable for corporate obligations. But managers, while perhaps best able to monitor themselves, are inefficient risk-bearers, so that imposing liability on them will lead to even more risk aversion in firm decisions than managers may now choose (Thompson, 1994). Further, their investments in firm-specific human capital are uninsurable (Easterbrook and Fischel, 1985). Apparently because of the large risk premiums that would be required to persuade managers to bear liabilities personally, Kraakman has argued that managerial liability does not provide enough additional deterrence over enterprise liability to offset the greater costs involved (Kraakman, 1984). In the context of deliberate torts such as securities fraud, it is precisely managerial liability - both civil and criminal - that is required to deter these actions, given the last period problems facing managers tempted to commit securities fraud (Arlen and Carney, 1992). Indeed, Kraakman also states that enterprise (limited) liability fails when costs are shifted to third parties through firm wrongdoing, and firms lack sufficient assets to respond in damages. But he also argues that imposing liability on managers while permitting indemnification provides managerial incentives to keep firms solvent and able to respond to judgments. Dual liability of firms and managers lessens the risk that penalties were set too low for either, because now two levels of decision-makers must calculate costs and benefits (Kraakman, 1984).

If French managers violate the company's constitution or law, they can be made personally liable to the company, its shareholders and creditors. France is thus in the forefront of the movement to extend the liability of management, and not simply of the membership (Perrott, 1982).

19. Risk-Bearing Ability and the Role of Insurance

There is general consensus that diversified shareholders are superior risk-bearers to tort victims (Leebron, 1991; Menell, 1990; Murphy, 1995; Thompson, 1994). But some authors have argued that the risk-bearing superiority of shareholders is not obvious. Tort victims may be superior risk-bearers if they can obtain insurance more cheaply (Leebron, 1991) or if individual harms are small while corporate (and shareholder) liability is large, relative to wealth. The principal argument in favor of limited liability with respect to risk-bearing is that insurance markets are incomplete, and would not allow investors to insure against personal liability for corporate failures. The occurrence of corporate bankruptcies will be positively correlated with the business cycle, and with the systematic risk of shares. Because of this, insurers will find they cannot easily diversify such risk, and will decline to write such insurance (Halpern, Trebilcock and Turnbull, 1980). Further, there may be an adverse selection problem: shareholders will choose to insure only their risk attached to ownership of high beta companies. Because managers are undiversified, they have incentives to have firms insure against liability to protect the life of the firm (Thompson, 1994). Additional insurance caused by unlimited liability only serves to reduce the cost of accidents if insurance companies are efficient monitors, and can adjust premiums to reflect experience (Ribstein, 1992). The ability and incentives of insurers to monitor for risky activities may be limited in several ways. First, insurers will retain some ability to contest claims if contract conditions are violated. Second, experience-based rates are set *ex post*, so that rates will lag observation of risky behavior. Third, where an insured believes it is in the last period of insurance coverage, incentives to avoid higher premiums are eliminated (Price, 1995).

While involuntary tort claimants cannot diversify their risk in the same way tortfeasors can because their entire future wealth and earning power may be at stake, they can insure against their loss (Leebron, 1991; Meiners, Mofsky and Tollison, 1979). Because potential victims can decide how much insurance they desire, forcing either corporations or shareholders to carry additional insurance may cause overinsurance, except for the fact that most individuals do not insure against pain and suffering (Hansmann and Kraakman, 1991), perhaps because this is a risk they are willing to bear (Leebron, 1991). Indeed, it is not clear such insurance is available to individuals, perhaps because no market for it has been demonstrated. Where tortfeasors are in risky industries or in cyclical industries, they may be more efficient risk-bearers than the tortfeasors or their shareholders because of their superior ability to purchase all-risk insurance (Ribstein, 1992). Analysis may also change when the corporation is closely held, so that tort victims may be better able to diversify and insure than shareholders. Similarly, where unlimited liability discourages diversification and forces investors to hold fewer stocks to improve monitoring, the risk-bearing ability of shareholders declines (Thompson, 1994). Further, analysis may change if mass tort liability involves relatively small injuries to large numbers of victims, and the possibility of catastrophic shareholder liability. The nature of mass tort liabilities has been explored with respect to this issue by only one writer (Schwartz, 1985).

Bibliography on Limited Liability (5620)

Adams, Michael (1991), 'Eigentum, Kontrolle und Beschränkte Haftung (Property, Control and Limited Liability)', in Ott, Claus and Schäfer, Hans-Bernd (eds), *Ökonomische Probleme des Zivilrechts*, Berlin, Springer-Verlag, 193-225.

Alexander, Janet Cooper (1992), 'Unlimited Shareholder Liability Through a Procedural Lens', **106** *Harvard International Law Journal*, 387-445.

Alting, Carsten (1995), 'Piercing the Corporate Veil in American and German Law - Liability of Individuals and Entities: A Comparative View', **2** *Tulsa Journal of Comparative and International Law*, 187-251.

Amsler, Christine E., Bartlett, Robin L. and Bolton, Craig J (1981), 'Thoughts of Some British Economists on Early Limited Liability and Corporate Legislation', **13** *History of Political Economy*, 774-793.

Anderson, Gary M. and Tollison, Robert D (1983), 'The Myth of the Corporation as a Creation of the State', **3** *International Review of Law and Economics*, 107-120.

Bainbridge, Stephen M (1993), 'In Defense of the Shareholder Wealth Maximization Norm: A Reply to Professor Green', **50** *Washington and Lee Law Review*, 1423-1446.

Banerjee, Anindya and Besley, Timothy (1990), 'Moral Hazard, Limited Liability and Taxation: A Principal-Agent Model', **42** *Oxford Economic Papers*, 46-60.

Blumberg, Phillip L (1986), 'Limited Liability and Corporate Groups', **11** *Journal of Corporation Law*, 573-631.

Boyd, James and Ingberman, Daniel E (1996), 'The Polluter Pays Principle: Should Liability be Extended when the Polluter Cannot Pay?', **21** *Geneva Papers on Risk and Insurance*.

Brander, James A. and Lewis, Tracy R (1986), 'Oligopoly and Financial Structure: The Limited Liability Effect', **76** *American Economic Review*, 956-970.

Brander, James A. and Spencer, Barbara J (1989), 'Moral Hazard and Limited Liability: Implications for the Theory of the Firm', **30** *International Economic Review*, 833-849.

Buckley, Francis H (1986), 'The Bankruptcy Priority Puzzle', **72** *Virginia Law Review*, 1393-1470.

Byam, John I (1982), 'The Economic Inefficiency of Corporate Criminal Liability', **73** *Journal of Criminal Law and Criminology*, 582-603.

Carney, William J (1995), 'Limited Liability Companies: Origins and Antecedents', **66** *University of Colorado Law Review*, 855-880.

Carr, Jack L. and Mathewson, G. Frank (1988), 'Unlimited Liability as a Barrier to Entry', **96** *Journal of Political Economy*, 766-784.

Coffey, Michael P (1994), 'Note: In Defense of Limited Liability - A Reply to Hansmann and Kraakman', **1** *George Mason Law Review*, 59-91.

Craig, Ben and Thiel, Stuart E (1990), 'Large Risks and the Decision to Incorporate', **42** *Journal of Economics and Business*, 185-194.

Demsetz, Harold (1986), 'A Commentary on Liability Rules and the Derivative Suit in Corporate Law', **71** *Cornell Law Review*, 352-356.
Dent, George W., Jr (1991), 'Limited Liability in Environmental Law', **26** *Wake Forest Law Review*, 151-182.
Diamond, Aubrey L (1982), 'Corporate Personality and Limited Liability', in Orhnial, Tony (ed), *Limited Liability and the Corporation*, London and Canberra, Croom Helm, 22-43.
Dobson, Juan (1986), '"Lifting the Veil" in Four Countries: The Law of Argentina, England, France and The United States', **35** *International and Comparative Law Quarterly*, 839-863.
Dodd, E. Merrick (1948), 'The Evolution of Limited Liability in American Industry: Massachusetts', **61** *Harvard International Law Journal*, 1351-1379.
Easterbrook, Frank H. and Fischel, Daniel R (1985), 'Limited Liability and the Corporation', **52** *University of Chicago Law Review*, 89-117.
Ekelund, Robert B., Jr and Tollison, Robert D (1980), 'Mercantilist Origins of the Corporation', **11** *Bell Journal of Economics*, 715-720.
Eswaran, Mukesh and Kotwal, Ashok (1989), 'Why are Capitalists the Bosses?', **99** *Economic Journal*, 162-176.
Evans, Lewis T. and Quigley, Neil C (1995), 'Shareholder Liability Regimes, Principal-Agent Relationships, and Banking Industry Performance', **38** *Journal of Law and Economics*, 497-520.
Fischel, Daniel R (1989), 'The Economics of Lender Liability', **99** *Yale Law Journal*, 131-154.
Forbes, Kevin F (1986), 'Limited Liability and the Development of the Business Corporation', **2** *Journal of Law, Economics, and Organization*, 163-177.
Frost, Christopher (1993), 'Organizational Form, Misappropriation Risk and the Substantive Consolidation of Corporate Groups', **44** *Hastings Law Journal*, 449 ff.
Garven, James R. and Pottier, Stephen W (1995), 'Incentive Contracting and the Role of Participation Rights in Stock Insurers', **62** *Journal of Risk and Insurance*, 253-270.
Gillman, Max and Eade, Tim (1995), 'The Development of the Corporation in England, with Emphasis on Limited Liability', **22** *International Journal of Social Economics*, 20-32.
Gilson, Ronald J (1991), 'Unlimited Liability and Law Firm Organization: Tax Factors and the Direction of Causation', **99** *Journal of Political Economy*, 420-428.
Grossman, Peter Z (1995), 'The Market for Shares of Companies with Unlimited Liability: The Case of American Express', **24** *Journal of Legal Studies*, 63-85.
Grundfest, Joseph A (1992), 'The Limited Future of Unlimited Liability: A Capital Markets Perspective', **102** *Yale Journal on Regulation*, 387-425.
Halpern, Paul J., Trebilcock, Michael J. and Turnbull, Stuart M (1980), 'An Economic Analysis of Limited Liability in Corporation Law', **30** *University of Toronto Law Journal*, 117-150.
Hansmann, Henry B. and Kraakman, Reinier H (1991a), 'The Uneasy Case for Limiting Shareholder Liability in Tort', **101** *Yale Law Journal*, 1879-1934.
Hansmann, Henry and Kraakman, Reinier (1991b), 'Toward Unlimited Shareholder Liability for Corporate Torts', **101** *Yale Law Journal*, 1879-1934.
Hansmann, Henry B. and Kraakman, Reinier H (1992a), 'A Procedural Focus on Unlimited Liability', **106** *Harvard Law Review*, 446-459.
Hansmann, Henry B. and Kraakman, Reinier H (1992b), 'Do the Capital Markets Compel Limited

Liability?', **94** *Yale Law Journal*, 427-436.

Hellwig, Martin F (1981), 'Bankruptcy, Limited Liability, and the Modigliani-Miller Theorem', **71** *American Economic Review*, 155-170.

Hicks, John R (1982), 'Limited Liability: The Pros and Cons', in Orhnial, Tony (ed), *Limited Liability and the Corporation*, London and Canberra, Croom Helm, 11-21.

Horvath, Michael T.K and Woywode, Michael J (1996), *Entrepreneurs and the Choice of Limited Liability*, Working paper No. 129, John M. Olin Program in Law and Economics, Stanford University Law School.

John, Kose, John, Teresa and Senbet, Lemma W (1991), 'Risk-Shifting Incentives of Depository Institutions: A New Perspective on Federal Deposit Insurance Reform', **15** *Journal of Banking and Finance*, 895-915.

Johnston, David (1995), 'The Development of Law in Classical and Early Medieval Europe: Limiting Liability: Roman Law and the Civil Law Tradition', **70** *Chicago-Kent Law Review*, 1515-1538.

Katz, Wilbur G (1960), 'Responsibility and the Modern Corporation', **3** *Journal of Law and Economics*, 75-85.

Kim, Sung Bae (1995), 'A Comparison of the Doctrine of Piercing the Corporate Veil in the United States and in South Korea', **3** *Tulsa Journal of Comparative and International Law*, 73-94.

Klaus Macharzina (1982), 'Corporate Forms and Limited Liability in German Company Law', in Orhnial, Tony (ed), *Limited Liability and the Corporation*, London and Canberra, Croom Helm, 44-72.

Kornhauser, Lewis A (1982), 'An Economic Analysis of the Choice Between Enterprise and Personal Liability for Accidents', **70** *California Law Review*, 1345-1392.

Kraakman, Reinier H (1984), 'Corporate Liability Strategies and the Costs of Legal Controls', **93** *Yale Law Journal*, 857-898.

Krendl, Kathy S. and Krendl, James R (1978), 'Piercing the Corporate Veil: Focusing the Inquiry', **55** *Denver Law Journal*, 1-59.

Landers, Jonathan M (1967), 'Another Word on Parents, Subsidiaries and Affiliates in Bankruptcy', **43** *University of Chicago Law Review*, 527-540.

Landers, Jonathan M (1975), 'A Unified Approach to Parent, Subsidiary and Affiliate Questions in Bankruptcy', **42** *University of Chicago Law Review*, 589-652.

Lawrence, William H (1989), 'Lender Control Liability: An Analytical Model Illustrated with Applications to the Relational Theory of Secured Financing', **62** *Southern California Law Review*, 1387-1447.

Leebron, David W (1991), 'Limited Liability, Tort Victims, and Creditors', **91** *Columbia Law Review*, 1565-1650.

Lehmann, Michael (1986), 'Das Privileg der Beschränkten Haftung und der Durchgriff im Gesellschafts- und Konzernrecht. Eine Juristische und Ökonomische Analyse (The Privilege of Limited Liability and the Piercing of the Corporate Veil in Association and Trust Law)', **3** *Zeitschrift für Unternehmens- und Gesellschaftsrecht*, 345-370.

Livermore, Shaw (1935), 'Unlimited Liability in Early American Corporations', **43** *Journal of Political Economy*, 674-687.

Llebot Majo, José Oriol (1996), 'Doctrina y Teoría de la Empresa en el Derecho Mercantil (Una Aproximación al Significado de la Teoría Contractual de la Empresa) (Doctrine and Theory of the Firm in Contract Law: Approaching the Meaning of Corporate Contractual Theory)', **210** *Revista de Derecho Mercantil*, 319-388.

LoPucki, Lynn M (1996), 'The Death of Liability? A Systems/Strategic Analysis', **106** *Yale Law Journal*, 1-92.

Macey, Jonathan R. and Miller, Geoffrey P (1992), 'Double Liability of Bank Shareholders: History and Implications', **27** *Wake Forest Law Review*, 31-62.

Macharzina, Klaus (1982), 'Corporate Forms and Limited Liability in German Company Law', in Orhnial, Tony (ed), *Limited Liability and the Corporation*, London and Canberra, Croom Helm, 44-72.

Manne, Henry G. (1967), 'Our Two Corporate Systems: Law and Economics', **53** *Virginia Law Review*, 259-284.

McChesney, Fred S. (1993), 'Doctrinal Analysis and Statistical Modeling in Law: The Case of Defective Incorporation', **71** *Washington University Law Quarterly*, 193-534.

Medici, Maria Teresa Guerra (1982), 'Limited Liability in Mediterranean Trade from the 12th to the 15th Century', in Orhnial, Tony (ed.), *Limited Liability and the Corporation*, London and Canberra, Croom Helm, 122-136.

Meiners, Roger E., Mofsky, James and Tollison, Robert D (1979), 'Piercing the Veil of Limited Liability', **4** *Delaware Journal of Corporate Law*, 351-367.

Menell, Peter S (1990), 'Legal Advising on Corporate Structure in the New Era of Environmental Liability', *Columbia Business Law Review*, 399-413.

Minchinton, Walter E (1982), 'Chartered Companies and Limited Liability', in Orhnial, Tony (ed), *Limited Liability and the Corporation*, London and Canberra, Croom Helm, 137-160.

Mitchell, Lawrence E (1989), 'Close Corporations Reconsidered', **63** *Tulane Law Review*, 1143-1190.

Murphy, N. Scott (1995), 'Note: It's Nothing Personal: The Public Costs of Limited Liability Law Partnerships', **71** *Indiana Law Journal*, 201-233.

Old, J.L (1985), 'Some Economic Considerations of Limited Liability', **19** *Law Teacher*, 84-89.

Orhnial, Tony (1982), 'Liability Laws and Company Finance', in Orhnial, Tony (ed), *Limited Liability and the Corporation*, London and Canberra, Croom Helm, 179-190.

Pardinas, Claudia M (1991), 'The Enigma of the Legal Liability of Transnational Corporations', **14** *Suffolk Transnational Law Journal*, 405-456.

Patterson, Mark R (1995), 'Is Unlimited Liability Really Unattainable?: of Long Arms and Short Sales', **56** *Ohio State Law Journal*, 815-898.

Paz-Ares, Cándido (1983), 'Sobre la Infracapitazación de las Sociedades (Infracapitalization of Ventures)', *ADC*, 1587-1639.

Paz-Ares, Cándido (1994), 'La Infracapitalización. Una Aproximación Contractual (A Contractual Approach to Infracapitalization)', *Rds. nº. extraordinario*, 253-269.

Perrott, David L (1982), 'Changes in Attitude to Limited Liability - the European Experience', in Orhnial, Tony (ed), *Limited Liability and the Corporation*, London and Canberra, Croom Helm, 81-121.

Posey, Lisa Lipowski (1993), 'Limited Liability and Incentives when Firms can Inflict Damages Greater than Net Worth', **13** *International Review of Law and Economics*, 325-330.

Posner, Richard A (1976), 'The Rights of Creditors of Affiliated Corporations', **43** *University of Chicago Law Review*, 499-526.

Presser, Stephen B (1991), *Piercing the Corporate Veil*, Deerfield, Ill., Clark Boardman Callaghan.

Presser, Stephen B (1992), 'Commentary: Thwarting the Killing of the Corporation: Limited Liability, Democracy, and Economics', **87** *Northwestern University Law Review*, 148-179.

Price, Andrew (1995), 'Tort Creditor Superiority and Other Proposed Solutions to Corporate Limited Liability and the Problem of Externalities', **2** *George Mason Law Review*, 439-476.

Ribstein, Larry E (1988), 'An Applied Theory of Limited Partnership', **37** *Emory Law Journal*, 837 ff.

Ribstein, Larry E (1991), 'Limited Liability and Theories of the Corporation', **50** *Maryland Law Review*, 80 ff.

Ribstein, Larry E (1992), 'The Deregulation of Limited Liability and the Death of Partnership', **70** *Washington University Law Quarterly*, 417 ff.

Ribstein, Larry E. and Kobayashi, Bruce H (1995), 'Uniform Laws, Model Laws and Limited Liability Companies', **66** *University of Colorado Law Review*, 947-999.

Ringleb, Al H. and Wiggins, Steven N (1990), 'Liability and Large-Scale, Long-Term Hazards', **98** *Journal of Political Economy*, 574-595.

Roe, Mark J (1986), 'Corporate Strategic Reaction to Mass Tort', **72** *Virginia Law Review*, 1-59.

Roth, Günter H (1986), 'Zur "Economic Analysis" der Beschränkten Haftung (On the "Economic Analysis" of Limited Liability)', **3** *Zeitschrift für Unternehmens- und Gesellschaftsrecht*, 371-382.

Roth, Günter H (1991), 'Kommentar (Comment on Adams, Eigentum, Kontrolle und beschrän)', in Ott, Claus and Schäfer, Hans-Bernd (eds), *Ökonomische Probleme des Zivilrechts*, Berlin, Springer-Verlag, 226-233.

Saville, John (1956), 'Sleeping Partnerships and Limited Liability, 1850-1856', **8** *Economic History Review, Second Series*, 418-433.

Schiessl, Maximilian (1986), 'The Liability of Corporations and Shareholders for the Capitalization and Obligations of Subsidiaries under German Law', **7** *Journal of International Law and Economics*, 480-506.

Schwartz, Alan (1985), 'Products Liability, Corporate Structure, and Bankruptcy: Toxic Substances and the Remote Risk Relationship', **14** *Journal of Legal Studies*, 689-736.

Shannon, Herbert A (1931), 'The Coming of General Limited Liability', **2** *Economic History*, 267-291.

Siliciano, John A (1987), 'Corporate Behavior and the Social Efficiency of Tort Law', **85** *Michigan Law Review*, 1820-1864.

Suen, Wing (1995), 'Risk Avoidance under Limited Liability', **65** *Journal of Economic Theory*, 627-634.

Sundow, Gerardo (1982), 'Some Reflections on Company Law in Europe', in Orhnial, Tony (ed), *Limited Liability and the Corporation*, London and Canberra, Croom Helm, 73-80.

Thompson, Robert B (1994), 'Unpacking Limited Liability: Direct and Vicarious Liability of Corporate Participants for Torts of the Enterprise', **47** *Vanderbilt Law Review*, 1-41.

Thümmel, Hans (1978), 'Piercing the Corporate Veil - Germany', **6** *International Business Law*, 282-287.

Walter, E. Minchinton (1982), 'Chartered Companies and Limited Liability', in Orhnial, Tony (ed), *Limited Liability and the Corporation*, London and Canberra, Croom Helm, 137-160.

Weber-Ray, Daniela (1995), 'Insolvency of a German Limited Liability Company: De Facto

Shareholders, Group Liability for Individual Shareholders', **7** *Pace International Law Review*, 523-531.

Woodward, Susan (1985), 'Limited Liability in the Theory of the Firm', **141** *Journal of Institutional and Theoretical Economics*, 601-611.

X (1994), 'Note: Investor Liability: Financial Innovations in the Regulatory State and the Coming Revolution in Corporate Law', **107** *Harvard Law Review*, 1941-1958.

Other References

Arlen, Jennifer and Carney, William J (1992), 'Vicarious Liability for Fraud on the Market: Theory and Evidence', **1992** *University of Illinois Law Review*, 691-740.

Carney, William J. (1990), 'Does Defining Constituencies Matter?', **59** *University of Cincinatti Law Review*, 385-424.

Carney, William J (1997), 'The Political Economy of Corporate Laws', **26** *Journal of Legal Studies*, 303-329.

Clark, Robert C (1977), 'The Duties of the Corporate Debtor to its Creditors', **90** *Harvard Law Review*, 505-562.

Clark, Robert C (1986), *Corporate Law*, Boston, Little, Brown & Co.

Demsetz, Harold and Lehn, Kenneth (1985), 'The Structure of Corporate Ownership: Causes and Consequences', **93** *Journal of Political Economics*, 1155-1177.

Easterbrook, Frank H. and Fischel, Daniel R (1991), *The Economic Structure of Corporate Law*, Cambridge, Harvard University Press, 40-62.

Hamilton, Robert W (1995), 'Registered Limited Liability Partnerships: Present at the Birth (Nearly)', **66** *University of Colorado Law Review*, 1065-1103.

Hessen, Robert (1979), *In Defense of the Corporation*, Stanford, Hoover Institution, 17-21.

Holdsworth, W.S. (1925), *A History of English Law*, London, Methuen & Co. Ltd., Vol. VIII, 192-222.

Hovenkamp, Herbert (1991), *Enterprise and American Law*, Cambridge, MA, Harvard University Press, 49-55.

Jensen, Michael C. and Meckling, William H (1976), 'Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure', **3** *Journal of Financial Economics*, 305-360.

Johnsen, D. Bruce (1995), 'The Quasi-Rent Theory of Corporate Enterprise: A Transaction Cost Theory,' **44** *Emory Law Journal*, 1277-1356.

Klein, William A. and Zolt, Eric M (1995), 'Business Form, Limited Liability, and Tax Regimes: Lurching Toward a Coherent Outcome?', **66** *University of Colorado Law Review*, 1001-1041.

Posner, Richard A (1992), *Economic Analysis of Law* (5th edn), Boston, Little, Brown & Co., 393-398, 406-409.

Roe, Mark J (1994), *Strong Managers, Weak Owners: The Political Roots of American Corporate Finance*, Princeton, NJ, Princeton University Press.

Smith, Adam (1776) (Cannan, Edwin, ed., 1937), *The Wealth of Nations*, New York, Random House, 690-715.