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ARTICLE INFO	Jianping Qi (2009). How can shareholder lawsuits promote the collective interests of all shareholders?. *Investment Management and Financial Innovations*, *6*(3-1)
RELEASED ON	Tuesday, 20 October 2009
JOURNAL	"Investment Management and Financial Innovations"
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
0	0	0

Investment Management and Financial Innovations, Volume 6, Issue 3, 2009

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How can shareholder lawsuits promote the collective interests of all shareholders?

Abstract

Individual shareholders sometimes file lawsuits to seek redress of misdeeds by corporate executives. Do such lawsuits promote the collective interests of all shareholders? This is an important question because plaintiff shareholders' interests generally differ from those of shareholders as a whole. In this paper, we develop a simple model to illustrate the essential elements of a legal system that enable efficient shareholder lawsuits. First, the plaintiff shareholder, if he loses his suit, must be held responsible for the defendant's litigation costs. Second, the plaintiff shareholder must be compensated, if he wins his case, not just for his costs to bring the suit, but also for the penalty he would have received if he had lost the case because of judgment errors of the courts.

Keywords: plaintiff shareholder, strike or meritorious suits, efficient legal system.
JEL Classification: G38, G39, K22.

Introduction

Publicly traded corporations typically consist of a large number of outside shareholders who individually own a very small proportion of firm shares but collectively hold a super majority of the shares. A diffuse ownership structure gives rise to the de facto separation of ownership from control which is exerted by management insiders. Much debate concerns how investors (shareholders) can protect their interests by mitigating potential agency problems of management[1]. This paper examines an alternative mechanism – shareholder litigation – and the efficacy of this mechanism in promoting shareholder interests. We are motivated in part by available evidence that casts doubt on the efficacy of shareholder lawsuits in the US[2]. This raises some troubling implications. On one hand, alleged misdeeds by corporate executives or insiders, for example, earlier in Enron and Worldcom and more recently in Countrywide and Lehman, have led to the spectacular failure of the firms, causing their shareholders to lose much of investment and leaving litigation as perhaps their only means for redress. On the other hand, the evidence suggests that shareholder lawsuits are costly and yet ineffective in dealing with insider misdeeds.

Can shareholder lawsuits be made efficient, i.e., to promote the collective interests of all shareholders? We develop a simple model to address this question; we ask what elements are essential for a legal system to enable efficient shareholder litigation. To accommodate such litigation, we posit a highly stylized agency problem of the firm's top executive (manager), assuming that the manager wants to divert the firm's available cash for her personal gains at the expense of its shareholders. Evidently, Enron's top executives were alleged to have transferred the firm's valuable assets to partnerships owned by the executives. Such misdeeds of the corporate insiders are possible because outside investors generally lack information that enables them to distinguish the abuse from the necessary business expenditures. The premise is that if a shareholder undertakes costly monitoring or investigation and becomes informed of the problem, he can prevent this abuse or he can seek a recovery with a successful lawsuit. However, since the plaintiff shareholder's monitoring (investigation) and litigation efforts are generally not contractible, there is a dual incentive problem of the plaintiff.

Clearly, individual shareholders have a free-rider incentive, preferring that others undertake the costly litigation-relevant actions, thereby sharing the benefits of such actions without incurring their costs. The legal system addresses this free-rider incentive by awarding fees to plaintiff shareholders who win their cases. However, courts make judgment errors. If the winning fees are expected to be large, individual shareholders can be tempted to file frivolous lawsuits that are not only costly for the defendants but can also hurt the collective welfare of shareholders. Indeed, it is typically the shareholders of the firm who ultimately pay for the litigation costs, including costly disruptions to the business. In the U.S., management liabilities for the most part are either indemnified or are covered by insurance purchased by the firm on behalf of the executives[3].

I wish to thank George Kanatas, Rick Meyer, Scott Stephens, Jose Suay, Ken Wieand, and seminar participants at the FMA Meetings for helpful comments and suggestions.

[1] Since Jensen and Meckling (1976), mechanisms thought to play a role include financial policy (Ross, 1977), labor market discipline (Fama, 1980), compensation contracts (Smith and Watts, 1982), corporate takeovers (Jensen and Ruback, 1983), shareholder monitoring (Shleifer and Vishny, 1986 and 1989), and internal control by the board of directors (Weisbach, 1988). See also Jensen (1986).

[2] For example, see Alexander (1991), Coffee (1985), and Romano (1991).

[3] Romano (1991) describes the common practice of managerial liability insurance and indemnification, and finds that in most suits alleging managerial misconduct, shareholders eventually pay for both the plaintiffs' and the defendants' legal costs.

Even if executives must purchase liability insurances themselves, the firm incurs the costs indirectly by having to increase the executives' compensations to defray their insurance costs, as the insurance premiums drive up the executives' reservation wages in a competitive managerial labor market.

It is also important, however, to see that if the anticipated award of fees to a winning plaintiff shareholder is large enough to compensate him for his monitoring (investigation) and litigation costs, thereby mitigating his free-rider incentive, the plaintiff shareholder has the incentive to file a strike suit – one that is not based on prior monitoring or investigation. The plaintiff can pocket the compensation for such activities without incurring their costs. An efficient legal system, therefore, must also deter the incentive for strike suits. To the extent that the plaintiff shareholder is more likely to lose a strike suit than one with merit – based on evidence from monitoring – we see that holding the plaintiff accountable for the defendant's costs if the plaintiff loses his case is a credible threat to deter strike suits.

Thus, a legal system can promote efficient shareholder lawsuits only if it properly accounts for the dual incentives of the plaintiff shareholder. Two elements are shown to be essential. First, the plaintiff shareholder, if he loses his case, must be responsible for the defendant's costs. Second, the plaintiff's expected award if he wins the lawsuit must fully compensate him not just for his monitoring and litigation costs but also for the penalty he would have received if he had lost the case because of judgment errors of the courts[1]. Since a losing plaintiff in the U.S. federal courts is traditionally not required to pay for the costs of the winning side, our model's implications are consistent with the forementioned evident that questions the efficacy of shareholder lawsuits[2].

The general implications of our model go beyond tort reform in the U.S. Outside shareholders in many emerging economies, for example, in China and India, increasingly view lawsuits, or the threat of such, as a possible deterrence against misdeeds by corporate insiders. To the extent that outside shareholders in these economies are less well protected by usual forms of corporate governance, shareholder lawsuits would be more important in such environments, and a legal system that promotes efficient lawsuits would seem to be more imperative.

1. The model

To accommodate shareholder monitoring (investigation) and litigation in the simplest fashion, we assume a highly stylized managerial agency problem that can be remedied only with a successful legal action by shareholders. While we do not imply that shareholder litigation is the better way to deal with this problem, the basic point of our analysis is applicable in a more general setting. We specify an all-equity firm lasting two periods, t = 1 and 2. The firm's operations will generate a random cash flow R_1 at t = 1 and another R_2 at t = 2. With probability π, $0 < \pi < 1$, the t = 1 cash flow is R_1 = K > 0, and with probability 1 - π, it is R_1 = 0. The t = 2 cash flow has a probability density function h(R_2) for $0 \le R_2 < \infty$ and $\int_0^\infty R_2 h(R_2)dR_2 > 0$. The firm's shares are diffusely held by a large number of shareholders and the control of the firm is delegated to a manager. For simplicity, shareholders and the manager are all risk-neutral. The manager's control is critical to the firm at t = 1, and because of this control, only the manager knows the realized cash flow R_1 = K or 0. The manager's control is no longer important at t = 2. Thus, at t = 2, shareholders can replace the manager and seize the firm's realized cash flow R_2 plus any previous cash left unspent.

The manager's incentive problem is her determination to divert all cash, if it is available at t = 1, for personal gains at the expense of shareholders, for example, by transferring it to her own business ventures (as per example of the Enron executives cited earlier). We assume that this diversion is not observable presumably because outside shareholders would have difficulty distinguishing between the managerial abuse of discretion and legitimate business expenditures.

Shareholders can undertake costly monitoring of the firm at t = 1. At a cost of I > 0, a shareholder's monitoring enables him to learn privately the availability of interim cash R_1 = K and hence its diversion by the manager. With this evidence, the shareholder must file a lawsuit which, if it is successful, allows the firm to recover fully the diverted amount. Lawsuits are costly, however. We assume a cost of P > 0 for the plaintiff shareholder, including his attorney fees and legal expenses, and a cost of D > 0

[1] Kraakman, Park, and Shavell (1994) also study the efficacy of shareholder litigation. The present model differs by considering the effects of both a winning award and a losing penalty and by analyzing the important incentive of shareholder monitoring or investigation. Shleifer and Vishny (1986) argue that the existence of large shareholders partially mitigates the free-rider problem in shareholder monitoring. See also Cross, Davidson, and Thornton (1989), Fischel and Bradley (1986), Jones (1980), and Rosenberg and Shavell (1985) for related studies.

[2] Some U.S. state courts have begun imposing a losing penalty on plaintiffs (Snyder and Hughes, 1990). The efficacy of such suits is not yet empirically documented.

for the defendant (the manager), including the disruption to the firm's operations because of the lawsuit's demand on the manager's time.

Although the manager could be held personally liable for damage, in practice, it is difficult to prove in the courts of law an intentional misdeed by management and the burden of proof resides with the plaintiff. The courts are not well equipped to assess the original merit and intent of a business decision that has turned out poorly. Consequently, firms for the most part either indemnify their managers' legal liabilities or purchase liability insurance for them. In our analysis, we assume the indemnification of managerial legal liabilities. We will later extend the analysis to the case of liability insurance.

In our model, three types of shareholder lawsuits are generally possible. The first is a "strike suit"– a lawsuit filed by a shareholder who has not monitored and hence has no evidence of managerial wrong doing. The second is a "meritorious suit" which is filed by a shareholder who has monitored and has detected the evidence of interim cash K (and its diversion). The third is a "meritless suit" which is filed even though the monitoring shareholder has found no interim cash and hence no basis for a lawsuit. To focus on the more plausible tradeoff between strike suits and meritorious suits, we assume the following probability of the plaintiff shareholder's winning his case, conditioned on his finding of the firm's interim cash position:

$$\Pr(\text{Plaintiff Winning} \mid R_1 = K) = q,$$
$$\Pr(\text{Plaintiff Winning} \mid R_1 = 0) = 0.$$

With 0 < q < 1, the courts can make judgment errors. Since plaintiffs cannot win a meritless suit, the choice of a plaintiff shareholder is between a strike suit without prior monitoring and a meritorious suit after his monitoring uncovers the evidence.

1.1. The optimal monitoring and litigation strategy. We first consider the optimal (first-best) strategy of shareholder monitoring and litigation. For this purpose, suppose a planner is to maximize the collective wealth of all shareholders and he can also allocate the monitoring and litigation costs proportionally among all shareholders. If the planner's strategy is a meritorious suit, he first monitors and then files a suit when his monitoring uncovers interim cash K. With this strategy, the expected payoff for the firm's shareholders is

$$E_a^{\ m} = \pi(qK - P - D) - I.$$

We recall that managerial liabilities are indemnified by the firm. Thus, shareholders bear the monitoring cost I as well as both sides' litigation costs P and D when a suit is filed (with probability π), and shareholders' expected recovery is πqK. In contrast, if a strike suit is the strategy of the planner, there is no monitoring, and the expected payoff for the firm's shareholders is

$$E_a^{\ s} = \pi qK - P - D.$$

In the latter case, there is no monitoring cost but the litigation costs P and D are always incurred.

Comparing the shareholder payoffs of the two strategies, we see that the planner is better to choose a meritorious suit over a strike suit if and only if $E_a^{\ m} \geq E_a^{\ s}$, i.e.,

$$I \leq (1-\pi)(P+D). \qquad (1)$$

The planner trades off the monitoring cost from a meritorious suit against the increased litigation costs from a strike suit. A meritorious suit is also better than doing nothing if $E_a^{\ m} > 0$, i.e.,

$$K > \frac{I + \pi(P+D)}{\pi q}. \qquad (2)$$

A strike suit is better than doing nothing if $E_a^{\ s} > 0$, i.e.,

$$K > \frac{P+D}{\pi q}. \qquad (3)$$

Combining conditions (1), (2), and (3), we depict in Figure 1 the first-best monitoring and litigation strategy. Shareholders are better off with a meritorious suit in region M, a strike suit in region S, and no suit elsewhere. The result is also summarized below.

Remark 1. *The first-best strategy of shareholder monitoring and litigation is:*

- *Given* $I \leq (1-\pi)(P+D)$, *the planner pursues a meritorious suit if condition (2) is satisfied, but takes no action if otherwise.*
- *Given* $I > (1-\pi)(P+D)$, *the planner files a strike suit if condition (3) is satisfied, but takes no action if otherwise.*

1.2. The strategy of a plaintiff shareholder. Can the optimal strategy given in Remark 1 be implemented by individual shareholder lawsuits? We now examine this question.

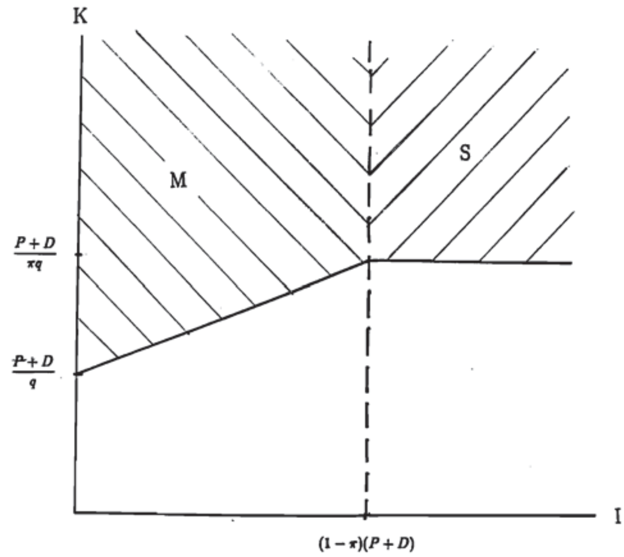

Fig. 1. Optimal litigation strategy

We are interested in the design of a legal system that enables efficient lawsuits by individual shareholders. Let $\alpha \in (0,1)$ denote the proportion of the firm's shares owned by a plaintiff shareholder. Let $F \geq 0$ denote the amount of fees that will be awarded to the plaintiff shareholder if he wins his case; obviously, state-contingent fees are necessary to mitigating the free-rider problem. If the plaintiff shareholder's strategy is a meritorious suit, he monitors and files a suit only when he uncovers the interim cash K. In this case, the plaintiff shareholder's expected payoff is

$$E_b^{\ m} = \pi\{q[\alpha K + (1-\alpha)F] - P - \alpha D\} - I.$$

The payoff $E_b^{\ m}$ differs from the earlier $E_a^{\ m}$ because of the plaintiff shareholder's fractional ownership $\alpha < 1$. The plaintiff shares only his proportions of the expected recovery $\pi q K$ and the defendant's cost D. Similarly, the plaintiff's expected net winning award is $\pi q(1 - \alpha)F$. Alternatively, if the plaintiff shareholder's strategy is a strike suit, he files a suit without monitoring. Here, the plaintiff's expected payoff is

$$E_b^{\ s} = \pi q[\alpha K + (1-\alpha)F] - P - \alpha D.$$

Comparing the two payoffs above, an individual plaintiff shareholder prefers a meritorious suit to a strike suit if and only if $E_b^{\ m} \geq E_b^{\ s}$, i.e.,

$$I \leq (1-\pi)(P + \alpha D). \tag{4}$$

The plaintiff shareholder trades off his monitoring cost against his share of the litigation costs. Clearly, he is more likely to prefer a strike suit. A meritorious suit is also better for the plaintiff shareholder than doing nothing if $E_b^{\ m} > 0$, i.e.,

$$K > \frac{I + \pi[P + \alpha D - q(1-\alpha)F]}{\pi q \alpha}. \tag{5}$$

A strike suit is better than doing nothing if $E_b^{\ s} > 0$, i.e.,

$$K > \frac{P + \alpha D - \pi q(1-\alpha)F}{\pi q \alpha}. \tag{6}$$

Combining conditions (4), (5), and (6), we have the following monitoring and litigation strategy by a plaintiff shareholder.

Remark 2. *Fix F. The plaintiff shareholder's monitoring and litigation choice is:*

- *Given* $I \leq (1-\pi)(P + \alpha D)$, *the plaintiff shareholder pursues a meritorious suit if condition (5) is satisfied, but takes no action if otherwise.*
- *Given* $I > (1-\pi)(P + \alpha D)$, *the plaintiff shareholder pursues a strike suit if condition (6) is satisfied, but takes no action if otherwise.*

From Remarks 1 and 2, we see the differences between the plaintiff shareholder's strategy and that of the first best. The plaintiff shareholder is more likely to prefer a strike suit. Moreover, even if the plaintiff shareholder chooses to monitor – condition (4) is satisfied – his decision can still differ. If the winning fee award is anticipated to be sufficiently generous, the plaintiff shareholder can file a lawsuit when the aggregate costs of this suit exceed its aggregate benefits. Indeed, if the fee award satisfies $F > (I + \pi P)/(\pi q)$, we have

$$\{K : K \textit{ satisfies condition (2)}\} \subset$$
$$\{K : K \textit{ satisfies condition (5)}\}.$$

The above shows that the plaintiff shareholder can file a suit at a lower level of cash recovery K than where such a suit increases the collective wealth of shareholders. Conversely, if the fee award is anticipated to be sufficiently small, $F < (I + \pi P)/(\pi q)$, the plaintiff shareholder may not file a suit at a level of recovery K although such a suit would benefit all shareholders.

The result is similar if the plaintiff shareholder's strategy is a strike suit – if the monitoring cost is $I > (1-\pi)(P + \alpha D)$. In this case, if the fee is $F > P/(\pi q)$,

$\{K : K \text{ satisfies condition (3)}\} \subset$
$\{K : K \text{ satisfies condition (6)}\}.$

That is, a sufficiently large fee award can motivate a suit when this suit reduces the welfare of shareholders as a whole. But, if $F < P/(\pi q)$, the shareholder may not file a suit when such a suit would be collectively beneficial.

The above analysis indicates a special schedule of fee award, which ensures that shareholders are collectively better off when a plaintiff shareholder files a lawsuit:

$$F = \begin{cases} (I + \pi P)/(\pi q), \text{ if } I \le (1-\pi)(P + \alpha D), \\ P/(\pi q), \text{ if } I > (1-\pi)(P + \alpha D). \end{cases} \quad (7)$$

This award schedule just compensates the plaintiff shareholder for his expected monitoring and litigation costs. Indeed, if $I \le (1-\pi)(P+\alpha D)$, the plaintiff prefers a meritorious suit and his costs are $I + \pi P$, while if $I > (1-\pi)(P+\alpha D)$, he prefers a strike suit and his cost is P. With this schedule, conditions (5) and (6) are identical to conditions (2) and (3), respectively. Thus, whenever the plaintiff shareholder files a suit, the cash recovery K is large enough to benefit all shareholders.

Remark 3. *If F is as given in equation (7), the plaintiff shareholder's monitoring and litigation choice is:*

- *Given* $I \le (1-\pi)(P+\alpha D)$, *the plaintiff shareholder pursues a meritorious suit if condition (2) is satisfied, but takes no action if otherwise.*
- *Given* $I > (1-\pi)(P+\alpha D)$, *the plaintiff shareholder pursues a strike suit if condition (3) is satisfied, but takes no action if otherwise.*

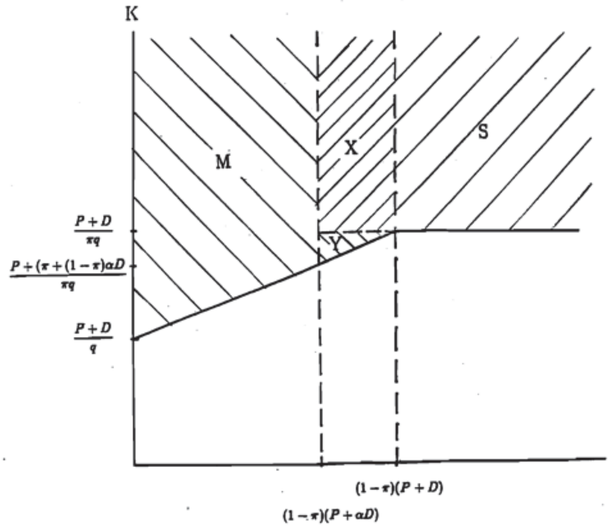

Fig. 2. Plaintiff litigation strategy

In Figure 2, we depict the plaintiff shareholder's monitoring and litigation strategy, given the fee schedule (7). The plaintiff shareholder prefers to file a meritorious suit in region M and a strike suit in region S (including region X), but to do nothing elsewhere (including region Y). Comparing Figures 1 and 2, we see the differences between the plaintiff shareholder's strategy and that of the first best. In Figure 2's region X, the plaintiff shareholder favors a strike suit but shareholders collectively would prefer a meritorious suit. In Figure 2's region Y, the plaintiff shareholder prefers doing nothing but shareholders collectively would desire a meritorious suit. These differences indicate that adjusting the plaintiff's winning award alone cannot lead to the implementation of the optimal monitoring and litigation strategy by individual plaintiff shareholders.

1.3. The essential elements of a legal system. We now analyze the essential elements of a legal system that enable efficient lawsuits by plaintiff shareholders, ones that promote the collective interests of all shareholders. Suppose now the legal system permits the courts to assess a penalty on the plaintiff who loses his case, for example, by requiring the losing plaintiff to pay for the defendant's legal costs. Let $L \ge 0$ denote this penalty amount. As before, $F \ge 0$ is the fee award if the plaintiff wins his case. We want to derive an optimal combination of F and L that ensures efficient shareholder lawsuits. With a losing penalty L, if the plaintiff shareholder files only a meritorious suit, his expected payoff is

$$E_c^{\,m} = \pi\{q\alpha K + (1-\alpha)[qF - (1-q)L] - P - \alpha D\} - I.$$

The addition in the above is the expected penalty of $\pi(1-\alpha)(1-q)L$ because of the courts' judgment errors. Given the indemnification of managerial liabilities, the penalty on the plaintiff is reimbursed to the firm and hence benefits all shareholders, including the plaintiff. Likewise, if the plaintiff shareholder files a strike suit, his expected payoff is

$$E_c^{\,s} = \pi q\alpha K + (1-\alpha)[\pi qF - (1-\pi q)L] - P - \alpha D.$$

In the latter case, the losing penalty is expected to be $(1-\alpha)(1-\pi q)L.$

Now, the plaintiff shareholder prefers a meritorious suit to a strike suit if and only if $E_c^{\,m} \ge E_c^{\,s}$, i.e.,

$$I \le (1-\pi)[P + \alpha D + (1-\alpha)L]. \quad (8)$$

Comparing condition (8) with the earlier (4), we see that as long as L > 0, the plaintiff is more likely to choose a meritorious suit over a strike suit. The plaintiff also prefers a meritorious suit to doing nothing if $E_c^{\,m} > 0$, i.e.,

$$K > \frac{I + \pi\{P + \alpha D - (1-\alpha)[qF - (1-q)L]\}}{\pi q \alpha}. \quad (9)$$

The plaintiff prefers a strike suit to taking no action if $E_c^s > 0$, i.e.,

$$K > \frac{P + \alpha D - (1-\alpha)[\pi q F - (1-\pi q)L]}{\pi q \alpha}. \quad (10)$$

Thus, with a penalty L, the plaintiff shareholder's monitoring and litigation strategy is as follows.

Remark 4. *Fix F and L. The plaintiff shareholder's monitoring and litigation choice is:*

- *Given* $I \le (1-\pi)[P + \alpha D + (1-\alpha)L]$, *the plaintiff shareholder pursues a meritorious suit if condition (9) is satisfied, but takes no action if otherwise.*
- *Given* $I > (1-\pi)[P + \alpha D + (1-\alpha)L]$, *the plaintiff shareholder pursues a strike suit if condition (10) is satisfied, but takes no action if otherwise.*

The threat of a losing penalty reduces the plaintiff shareholder's incentive for a strike suit. However, imposing this penalty without compensating the plaintiff shareholder for his expected penalty because of the courts' judgment errors can also reduce the efficacy of shareholder lawsuit by discouraging him from filing a meritorious suit. That is, the plaintiff shareholder's fee award must also compensate him for his expected loss due to court errors:

$$F = \begin{cases} \{I + \pi[P + (1-q)L]\}/(\pi q), \text{ if } I \le (1-\pi)[P + \alpha D + (1-\alpha)L], \\ [P + (1-\pi q)L]/(\pi q), \text{ if } I > (1-\pi)[P + \alpha D + (1-\alpha)L]. \end{cases} \quad (11)$$

With the above fee schedule, we can establish our main result. If the plaintiff shareholder's losing penalty fully accounts for the defendant's cost – i.e., if L = D in schedule (11) – then the plaintiff's monitoring and litigation strategy is identical to that of the first best in Remark 1. That is, for a legal system to ensure that the plaintiff shareholder's incentive is fully aligned with the collective interests of all shareholders, the system must contain two essential elements. First, the plaintiff shareholder, if he loses his suit, must be held responsible for the defendant's costs. Second, the plaintiff shareholder must be compensated, if he wins his case, not just for his costs to bring the suit but also for the penalty he would have received if he had lost the case because of judgment errors of the courts.

Remark 5. *If L = D and F is as given in equation (11), the plaintiff shareholder's monitoring and litigation choice is identical to the first-best strategy given in Remark 1.*

2. The case of liability insurance

We have assumed thus far that managerial liabilities are indemnified by the firm. In practice, legal liabilities are commonly insured by a third party with the firm's paying the insurance premiums. This arrangement raises an additional question. Once the liability insurance premiums are paid, shareholders would not be concerned with the manager's legal costs and hence would have the greater incentive to file a lawsuit. However, the insurer would anticipate the increased litigation risk and would charge higher insurance premiums. Thus, a legal system that minimizes managerial liability insurance premiums is also the one that is best for shareholders. In this section, we first examine the plaintiff shareholder's monitoring and litigation incentive, given managerial liability insurance. We then derive an optimal combination of a winning award and a losing penalty that ensures efficient shareholder lawsuits, given the insurance.

With a full managerial liability insurance provided by a third party, if the plaintiff shareholder pursues a meritorious suit, his expected payoff is

$$E_d^m = \pi\{q\alpha K + [qF - (1-q)L] - P\} - I.$$

In the above, we note that none of the award F, the penalty L, and the defendant's cost D is relevant for the plaintiff shareholder. Likewise, if the plaintiff shareholder pursues a strike suit, his payoff is

$$E_d^s = \pi q \alpha K + [\pi q F - (1-\pi q)L] - P.$$

Thus, the plaintiff shareholder prefers a meritorious suit to a strike suit if and only if $E_d^m \ge E_d^s$, i.e.,

$$I \le (1-\pi)(P + L). \quad (12)$$

A meritorious suit is also better than doing nothing if $E_d^m > 0$, i.e.,

$$K > \frac{I + \pi[P - qF + (1-q)L]}{\pi q \alpha}. \quad (13)$$

A strike suit is better than doing nothing if $E_d^s > 0$, i.e.,

$$K > \frac{P - \pi q F + (1-\pi q)L}{\pi q \alpha}. \quad (14)$$

Combining conditions (12), (13), and (14), we have the following plaintiff shareholder's monitoring and litigation choice, given the liability insurance.

Remark 6. *Fix F and L. With full managerial liability insurance, the plaintiff shareholder's monitoring and litigation choice is:*

- *Given* $I \leq (1-\pi)(P+L)$, *the plaintiff shareholder pursues a meritorious suit if condition (13) is satisfied, but takes no action if otherwise.*
- *Given* $I > (1-\pi)(P+L)$, *the plaintiff shareholder pursues a strike suit if condition (14) is satisfied, but takes no action if otherwise.*

The winning award F and the losing penalty L again determine the plaintiff's strategy. To mitigate the greater incentive for a lawsuit because of the liability insurance, the plaintiff shareholder must be fully responsible for the defendant's cost, i.e., L = D, if he loses his case. However, the plaintiff's winning award must be lowered to reflect the reduced litigation costs because of the insurance. Indeed, conditions (13) and (14) are identical to conditions (2) and (3) only if the fee schedule becomes

$$F = \begin{cases} \{I + \pi[P + (1-q)L] - \alpha[I + \pi(P+D)]\}/(\pi q), & \text{if } I \leq (1-\pi)(P+L), \\ [P + (1-\pi q)L - \alpha(P+D)]/(\pi q), & \text{if } I > (1-\pi)(P+L). \end{cases} \quad (15)$$

With this schedule, the plaintiff shareholder once again chooses a monitoring and litigation strategy that is aligned with the interests of all shareholders, as we remark below.

Remark 7. *If L = D and F is as given in equation (15), the plaintiff shareholder's monitoring and litigation choice is identical to the first-best strategy given in Remark 1.*

Conclusion

This paper examines the efficacy of shareholder litigation. We show that two elements are essential for a legal system to enable efficient shareholder lawsuits. First, the plaintiff shareholder who loses his lawsuit must be responsible for the defendant's costs. Second, the plaintiff shareholder's winning award must compensate him not only for his expected monitoring and litigation costs but also for his expected losing penalty because of the courts' judgment errors. The former deters frivolous lawsuits while the latter motivates beneficial ones.

Our analysis could provide an explanation for why shareholder lawsuits have not been very effective in the U.S. and suggests a direction for tort reform. The U.S. legal system prides itself for its open access for injured small parties to seek legal redress, and therefore, it traditionally does not impose penalty on losing plaintiffs. However, without this reform, it would be difficult for shareholder litigation to promote the collective interests of all shareholders.

Our model is obviously highly stylized, and as such, we are cautious with the general interpretation of its results. An implicit assumption of our model is that the courts are capable of assessing the expected costs to the plaintiff and to the defendant. In practice, not only do courts make mistakes, but plaintiff shareholders' limited liability can also make it difficult to hold them fully responsible for the defendants' costs. Nevertheless, we believe the basic point of our analysis would remain qualitatively similar; that is, the plaintiff shareholder's incentive considerations must be properly accounted for in any legal system striving to be efficient.

Some specific aspects of our model could also be modified without changing the basic point. For example, we could extend the analysis to where managerial liabilities are only partially indemnified or insured. It could also be extended to situations where plaintiff shareholders are risk averse. In these situations, risk sharing would be the additional consideration for the design of an optimal legal framework. These extensions could be interesting topics for further research.

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