Chapter 6
Managers' Window Dressing and Liability for Damages to a Stock Sales in Management Buyouts

Ryutaro Nozaki

6.1 Introduction

This paper analyzes the inverse window dressing of managers in their management buyouts (MBOs) and the claims of damages for compensation filed by the small shareholders against the manager.[1]

In Japan, a part of Financial Instruments and Exchange Act (FIEA)[2] was amended in May 2014, namely, FIEA (2014). In recent years in Japan, the situation that managers planning an MBO have deliberately lowered the stock price of their firm and purchase the shares cheaply from shareholders occurred. Before the FIEA (2014), only the shareholders who bought shares approved the claim for damages under the FIEA. But because shareholders who sold their shares had to file a claim for damages under the civil law and bear the burden of proof, it was difficult for them to conduct lawsuit of damages against a manager. Therefore, the Financial Services Agency (FSA) amended the FIEA to address this issue in 2014. In Financial Services Agency (2014), the main aim of the FIEA (2014) is to protect the profit of the shareholders who had already sold the stock from the inverse window dressing by the manager.

[1]In the aspect of corporate accounting point of view, "dressing" refers to the value embroidery reported by managers, more than the real, and "inverse dressing" is in contrary sense.

[2]The origin of FIEA had been enacted in 2007.

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It seems important for us to investigate that managers prevent the inverse window dressing. So we analyze the effect of the amendment of the FIEA on preventing the inverse window dressing by the managers.

Cuny and Talmor (2007) analyze the substitution of incumbent manager with new one under asymmetric information. However, they have not analyzed shareholders protection.

Stein (1988) deals with the determination of stock prices. While he analyzes the timing at which the corporate information disclosure is to be addressed to the threat of hostile takeover by tender offer buyout (TOB), the behavior of the manager is not shown explicitly.

Hanamura (2011) is similar to Stein (1988), and he extends Stein (1988)'s model by employing a signaling game in the analysis. The result shows that in the case of low TOB cost and high threat of TOB, the manager is more likely to disclose firms' information.

Elitzur et al. (1998) investigated whether incumbent managers would implement MBO and show that the incumbent managers implement MBO when the gains from MBO are higher. In addition, they analyze the level of efforts of managers in implementing MBO and show that this increases when going private by incumbent managers than at the time of stock launch. However, they deal only with the case of asymmetric information.

Kato (2011) shows the role of the court in the acquisition of shares in MBO from the legal perspective in Japan. In this paper, the rationality of the issuer company making a misrepresentation disclosure in the share market to be liable for damages against investors is examined from the perspective of the amount of damages that the investor should incur and the damage suffered by the investor.

Tamayama (2010) analyzed the liability of damages to investors and the court's ex post function by using numerical examples in MBO. We assume that asymmetric information exists between the manager who intends to execute MBO and the shareholders. It is possible that socially undesirable MBO would be implemented when managers disrupt the firm value before MBO.

Based on the mentioned above, we investigate information disclosure on the firm value of manager in MBO by using a signaling game. In the analysis, we consider two strategies: pooling strategy and separating strategy, and then we analyze the small shareholders' legal action for damages and investigate the effect of transferring the burden of proof to the injurer through FIEA (2014).

The main results of this paper are as follows. Transferring the burden of proof is effective in deterring the inverse window dressing by managers. However, depending on the degree of damages, even if the burden of proof is passed on, it is not necessarily effective to deter false disclosure.

The rest of the paper is structured as follows. The next section explains the model. In Sect. 6.3, we analyze some cases where the small shareholder has the burden of proof as a benchmark, and then, we analyze the extent of suppression of the inverse window dressing of managers by request of compensation by civil law by small

shareholders. In Sect. 6.4, we analyze the effect of suppressing the inverse window dressing by managers, where we transfer the burden of proof to managers and then compare the results with those of Sect. 6.3. In the final section, we describe the conclusion.

6.2 Model

There exist a manager, many small shareholders, and the court. Further, assume that all agents are risk neutral.

In the beginning, the manager owns $\alpha\%$ of the firm's shares, and the many small shareholders own the remaining $1 - \alpha\%$. The manager wants to acquire all the shares owned by small shareholders in order to acquire a firm. In other words, he is planning an MBO. If he succeeds in the MBO, the firm value would be either V_h with probability p or $V_l(< V_h)$ with probability $1 - p$. At t = 1, small shareholders and the court know only the distribution of the firm value. Hereafter, V_h type is the manager who realized V_h, and V_l type is the manager who realized V_l.

Manager At t = 2, the manager knows the realized firm value when MBO succeeds and sends the firm value as a signal to small shareholders and the court. The manager does not always send correct signals. However, assume that the signals are a verifiable value of the firm. For example, as a signal, we consider the company publishes a settlement of accounts, interim settlements, or performance adjustment reports. As this paper focuses on the inverse window dressing problem of the manager, when V_h is realized, it is possible for the manager to send an incorrect signal (that is, reporting V_l). However, assuming that V_l is realized, the manager only report it correctly. Sending an incorrect signal when V_h is realized implies that part of the firm value is verified. However, it will seem that making a false report is costly for the manager. So we assume that the firm value decreases at the rate of $\phi(0 < \phi \leq 1)$, when the manager makes a false report.[3] Simultaneously, the manager offers a share purchase price to small shareholders. For simplicity of analysis, we suppose the share purchase price which manager offers to the small shareholders, corresponding to the reported firm value. In other words, regardless of the type, we assume that the manager offers the same price when reporting V_l. Further, denote the share purchase price to b_i when he/she reports $V_i(i = h, l)$.

Next, we explain the burden of proof of manager. Assuming that when the small shareholders have burden of proof, the manager will not act. Either, when the manager has burden of proof, he/she will make a defensive effort to influence the judgment of the court if small shareholders sue. Further, the court judges based on

[3]For example, see Burkart and Panunzi (2006)

evidence submitted by small shareholders or the manager. In this paper, we assume that when the management has a burden of proof and if he does not defend, the court would accept the shareholder's assertion. Meanwhile, the manager may oppose the small shareholders' damage claims. Here, denote e to the level of defense efforts that the manager would make and assume the defense success probability itself. Further, assuming that the cost increases with the defense effort, the cost function of effort is defined as follows. Also, d denotes as a cost parameter.

$$C(e) = \frac{de^2}{2} \tag{6.1}$$

Small shareholders Small shareholders are assumed to be homogeneous. And the number of shares owned per small shareholder is very small. At t = 2, they receive, sent a signal related to the firm value, and are offered a share purchase price. Then, these shareholders expect that when V_h is realized, the manager sends an incorrect signal to them with the probability $q(0 \leq q \leq 1)$ and the correct signal at probability $1 - q$. Therefore, when a small shareholder receives a signal V_l, he/she updates the belief as follows.

$$Prob(V_h|V_l) = \frac{pq}{pq + 1 - p}, \quad Prob(V_l|V_l) = \frac{1 - p}{pq + 1 - p}$$

In this paper, the small shareholders are assumed to sell the stock once at the price offered by the manager.[4] Also, the small shareholders may have monitoring ability. In case of filing a lawsuit against damages, when the small shareholders are responsible for proof, they will investigate the information of the firm and try to find evidence.[5]

The level of monitoring by small shareholders is defined as m. Further, let m be the probability of monitoring success. Therefore, the monitoring level itself is assumed to be the discovery probability $(0 < m \leq 1)$. The cost function of monitoring is defined as follows. Also, a denotes as a cost parameter.

$$C(m) = \frac{am^2}{2} \tag{6.2}$$

Court and Damages Before FIEA (2014), small shareholders who sold shares had to file a lawsuit of damage claim under the civil law. Moreover, they had to bear burden of proof. On the other hand, after FIEA (2014), the manager has to prove that he/she is not causing damage.

[4]While it is important to consider the type that the stock price would be, in this paper, we focus on damage claim action after sale.

[5]If there is only a few small shareholder, the cost of litigation would be very high, and there is a possibility of abandoning the lawsuit. However, here, we are considering a class action lawsuit by small shareholders.

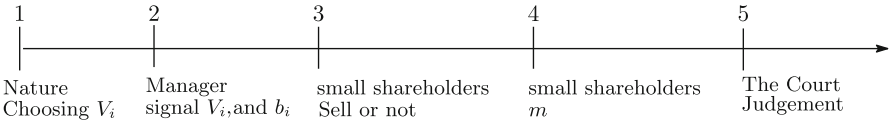

Fig. 6.1 Timelines for small shareholders with burden of proof

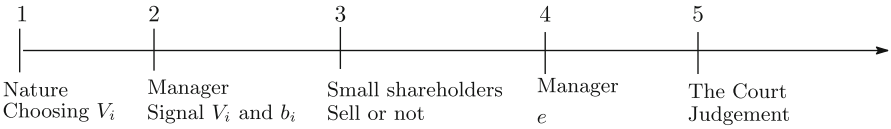

Fig. 6.2 Timelines for the manager with burden of proof

Based on the above, the judgment of the court is assumed as follows. When the burden of proof is on the small shareholders, the court makes a judgment based on the evidence of the small shareholders. If small shareholders fail to find evidence, the court would not accept their damage claims. On the contrary, when the manager has the burden of proof, the court makes a judgment based on the evidence or assertion of the manager. If the manager makes efforts to the level of e, the court may admit his argument and decide not to accept the small shareholders' damage claim at probability e.

Now, we explain the amount of damages decided by the court. When there is a burden of proof on the small shareholders, the amount of damages that the court considers as payment to the small shareholders is up to the amount of damages the small shareholders have suffered due to management false reports, that is $(V_h - b_l)$. On the other hand, when the manager has a burden of proof, the court may judge the punitive damages. Therefore, the court may judge the amount of damages greater than the amount of actual damages suffered by the small shareholders. We define $\beta(V_h - b_l)$ $(\beta \in [0, \bar{\beta}])$ for damages to be paid to small shareholders from the manager. Also, we assume that $\bar{\beta} > 1$, which means punitive damages. Finally, the actions of all agents are shown by the next timelines (Figs. 6.1 and 6.2).

6.3 When Small Shareholders Have Burden of Proof

In this section, we analyze the cases where small shareholders are responsible for the proof.

6.3.1 When Small Shareholders Can Not Monitor

6.3.1.1 Conditions for the Sale of Shares by Small Shareholders

After receiving the signal V_i and offering the share purchase price b_i, the small shareholders decide whether to sell the shares.

While the small shareholders update their beliefs with the received signals, because they cannot monitor, they decide whether to sell at the offering price based on the signal reported by the manager at t = 2. Therefore, the condition of the sale of the stock of the small shareholders will be as follows according to the received signal,

$$b_i \geq V_i. \tag{6.3}$$

That is, the small shareholders sell their stocks if the manager has offered a share price higher than the firm value reported by the manager.

6.3.1.2 The Manager's Decision of Reporting Strategy and Offering Share Purchase Price

The manager offers a share price to small shareholders on the basis of his reporting strategy. We consider each case of the reporting.

Case of Correct Reporting

Consider that the manager sends a correct signal on firm value. Denote Π_I^{ij} as the manager's profit (subscript I represents the manager superscript, i represents true type of the manager(in actually realizing firm value), and superscript j means signal $V_j (j = h, l)$ sent to the small shareholders and the court). When type i manager sends the correct signal, his profit is

$$\Pi_I^{ij} = V_i - (1 - \alpha) b_i. \tag{6.4}$$

Therefore, from equation (6.4), manager's participate condition is

$$b_i \leq \frac{V_i}{1 - \alpha}. \tag{6.5}$$

We compare the right-hand side of equation (6.3) and the right-hand side of equation (6.4). Because the value of the latter (equation (6.4)) is greater than the former, the manager could offer the share price that satisfies the participation condition of

the small shareholders. In order to increase the manager's profit, he/she offers the share price bound to equation (6.3), that is, $b_i = V_i$. Therefore, the profit of each type of manager is as follows:

$$\Pi_I^{ij} = V_i - (1-\alpha)V_i = \alpha V_i \tag{6.6}$$

When the Manager Sends Wrong Signal

Next, we consider the case of a wrong signal sent by the manager. Then, small shareholders are obliged to decide to sell shares at the price according to the firm value V_l that the manager has reported. Thus, the condition of selling the shares for small shareholders is $b_l \geq V_l$. On the other hand, because the V_h-type manager sends a wrong signal, he/she obtains $\Pi_I^{hl} = (1-\phi)V_h - (1-\alpha)b_l$. Therefore, the range of share purchase price that he can offer is

$$b_l < \frac{(1-\phi)V_h}{1-\alpha}. \tag{6.7}$$

A V_h-type manager can offer a stock price that fulfills the participation condition $b_l \geq V_l$ of the small shareholders, if it satisfies

$$\phi \leq \frac{\Delta V + \alpha V_l}{1-\alpha} (\Delta V \equiv V_h - V_l). \tag{6.8}$$

Now, assume the ϕ satisfied equation (6.8).

However, because the V_l-type manager sends the correct signal, the share price that he offers is similar to equation (6.5). Further, as well as sending the correct report, each type of manager sets $b_l = V_l$ since the gain would rise. Then, the profit of the V_l-type manager is (6.6). Otherwise, profit of V_h type is

$$\Pi_I^{hl} = (1-\phi)V_h - (1-\alpha)V_l. \tag{6.9}$$

The Decision of Reporting Strategies

The manager chooses either the pooling strategy (both types of managers report V_l) or the separating strategy (the managers report different signals corresponding to their respective type). In this paper, we assume that the manager chooses the pooling strategy if he/she gains the same profit regardless of the strategy.

We investigate the characteristics of equilibrium at which the managers choose the pooling strategy. In equilibrium, both types of manager do not have incentive to deviate.

The manager has no incentive to deviate from the pooling strategy when the following conditions are satisfied.

$$(1-\phi)V_h - (1-\alpha)V_l \geq \alpha V_h \tag{6.10}$$

$$\alpha V_l \geq \alpha V_l \tag{6.11}$$

For the V_l type, the choice of strategy is indifferent, and thus, we check the condition for which the equation (6.10) holds. If the following inequality holds, the gain from the false report exceeds the gain from the correct report.

$$\phi \leq \frac{(1-\alpha)\Delta V}{1-\alpha} \tag{6.12}$$

Also, comparing equation (6.8) to equation (6.12), $\frac{\Delta V + \alpha V_l}{V_h} - \frac{(1-\alpha)\Delta V}{V_h} = \alpha > 0$ holds. Therefore, within the range that satisfies the participation condition of V_h type, the pooling strategy becomes the equilibrium strategy that ϕ satisfies (6.12). This implies that the manager would report a false signal if the marginal cost of the false report is less than the marginal profit that manager gains from the false report.

6.3.2 The Small Shareholders Having the Ability to Monitor

Here, consider the effect of damage claim lawsuit by small shareholders, when they can monitor after selling the shares and can discover evidence that the report of the management is false.

6.3.2.1 Level of Monitoring by Small Shareholders

After receiving the signal that the manager sent at t = 2, the small shareholders update their belief of the manager's true type. Therefore, they decide the level of monitoring under the ex post belief of it.

When the manager choses the separating strategy, small shareholders recognize the true type of the manager. In the case of the separating strategy, the manager offers the true firm value as the share price, and thus, no damage would occur. Therefore, small shareholders do not monitor. On the other hand, when the manager chooses the pooling strategy in which both types of managers report V_l, small shareholders may monitor the firm.

If small shareholders find the evidence with a probability of m, they win to suit and gain the payment for damages. Thus, their expected profit is as below.

$$(1-\alpha)V_l + m\left\{\frac{pq}{pq+1-p}(1-\alpha)\beta(V_h - b_l) + \frac{1-p}{pq+1-p}0\right\} - \frac{am^2}{2} \tag{6.13}$$

The small shareholders choose the level of monitoring m to maximize the expected profit; therefore, their maximization problem is as follows.

$$\max_m (1-\alpha)V_l + m\left\{\frac{pq}{pq+1-p}(1-\alpha)\beta(V_h - b_l) + \frac{1-p}{pq+1-p}0\right\} - \frac{am^2}{2}$$

From the f.o.c of above, they obtain the optimal level of monitoring m^* as below,

$$m^* = \frac{pq(1-\alpha)\beta(V_h - b_l)}{(pq+1-p)a}. \tag{6.14}$$

Also to ensure interior solution, assume $a > (1-\alpha)\Delta V$. Partial differentiation of optimal solution with q, β, and a, we obtain $\frac{\partial m^*}{\partial q} > 0$, $\frac{\partial m^*}{\partial \beta} > 0$, $\frac{\partial m^*}{\partial a} < 0$. These imply that while if the likelihood of false reporting by the manager increases, or the court accepts more punitive damages, the monitoring level of small shareholders will increase, then the higher the cost structure of monitoring is, the lower the monitoring level becomes.

6.3.2.2 Manager's Decision on the Share Price and Reporting Strategy

The manager decides the share purchase price and reporting strategy by considering the monitoring and legal action by small shareholders.

Decision on the Offering Share Price

Consider manager's offering share price when the manager chooses separating strategy. Because both types of managers report correct signal, then the small shareholders do not monitor the firm. Therefore, the manager chooses $b_i = V_i$ as share price, and so his profit is represented by the value of (6.6).

Next, consider that the manager chooses the share price when he/she selects the pooling strategy. In this case, because the small shareholders would monitor, the expected profit of each type is as follows

$$\Pi_i^{hl} = (1-\phi)V_h - (1-\alpha)b_l - \frac{pq(1-\alpha)^2(V_h - b_l)^2}{(pq+1-p)a}, \tag{6.15}$$

$$\Pi_i^{ll} = V_l - (1-\alpha)b_l. \tag{6.16}$$

Decision on the Share Price Under the Pooling Strategy

Let us derive the conditions under which a pooling strategy is chosen in equilibrium. In order for the pooling strategy to be in equilibrium, the following conditions must be satisfied.

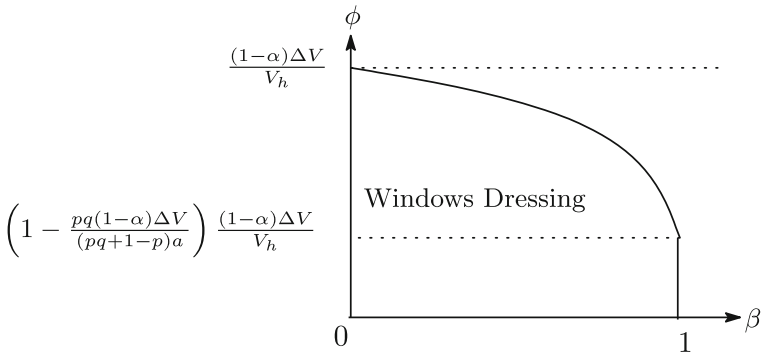

Fig. 6.3 Region of window dressing by the manager under monitoring

$$(1-\phi)V_h-(1-\alpha)b_l-\frac{pq(1-\alpha)^2(V_h-b_l)^2}{(pq+1-p)a}\geq\alpha V_h \quad \text{for } V_h\text{type} \tag{6.17}$$
$$V_l-(1-\alpha)b_l\geq\alpha V_l \quad \text{for } V_h \text{ type.}$$

The second in equation is satisfied if and only if the V_l-type manager offers $b_l = V_l$. Next, under $b_l = V_l$, consider the condition which in equation (6.17) is held. We obtain

$$\phi\leq\left(1-\frac{pq(1-\alpha)\beta^2(\Delta V)^2}{(pq+1-p)a}\right)\frac{(1-\alpha)\Delta V}{V_h}. \tag{6.18}$$

Proposition 6.1 *Litigation by small shareholders has a decreasing effect on the inverse window dressing of the manager, but when the small shareholders are given the burden of proof, if the manager can easily make false reports, then full compensation cannot deter inverse window dressing.*

Proposition 6.1 is obtained by examining the value on the right side of the (6.18). When in equation $\beta\leq\sqrt{\frac{(pq+1-p)a}{pq(1-\alpha)\Delta V}}$ holds, the value of the right side of the (6.18) is no negative. And the value of the right-hand side of this in equation is more than 1, by interior solution condition of e (Fig. 6.3). Under civil law, the court cannot impose punishment, that is, $\beta\leq 1$. Thus, within $0\leq\beta\leq 1$, the sign of the right side of (6.18) is positive. Therefore, regardless of the amount of compensation, ϕ exists in which the pooling strategy is supported in equilibrium (Fig. 6.5 is drawn.).

Since the monitoring of small shareholders is costly, the monitoring levels cannot be increased. Moreover, in compensation for damages under the civil law, since the court only accepts up to the amount of damages actually occurred as damages at most, it is not possible to completely suppress the inverse window dressing of the manager.

6.4 Case Where Burden of Proof Is Imposed on the Management

In this section, we would examine the effect of the amendment of the FIEA (2014).

6.4.1 The Effect of the Transfer of Burden of Proof

Under the burden of proof to the managers when small shareholders take a legal action, consider the behavior of each agent. Also, when the manager makes the correct report, the small shareholders do not sue the manager as in the past, and thus, the results obtained are the same as before.

6.4.1.1 Manager's Defense Level and Litigation by Small Shareholders

When the small shareholders raise a lawsuit, if the manager does not defend anything, the court will find the true value of the firm. However, if the manager makes efforts to defend, his defense may cause a court's wrong judgment, that is, the court would acknowledge the manager's claim.

Under the firm value V_h being realized, when the manager reports V_l and small shareholders take legal action, the manager chooses level of defense to maximize his expected profit. Therefore, his/her maximization problem is as follows:

$$\max_e (1-\phi)V_h - (1-\alpha)b_l - \{e0 + (1-e)(1-\alpha)\beta(V_h - b_l)\} - \frac{de^2}{2} \tag{6.19}$$

From the f.o.c. of e, we obtain the optimal level of defense,

$$e^* = \frac{(1-\alpha)\beta(V_h - b_l)}{d}. \tag{6.20}$$

The more the damage compensation rate β rises, the more defense effort level rises. And the higher the cost parameter d, the lower the effort level. Here, assume that $d > (1-\alpha)\bar{\beta}\Delta V$ for the cost parameter d to ensure the interior solution. On the other hand, when V_l is realized, even if a lawsuit is filed, since the manager reports the true firm value, he chooses not to defend.

Next, consider whether the small shareholders take legal action. After selling their shares, if their net profits are increased by going to trial, they take legal action. In this article, the small shareholder's litigation cost is assumed to be zero. Therefore, the small shareholder's expected profit when bringing a lawsuit is

$$(1-\alpha)b_l + \frac{pq}{pq+1-p}\frac{\{d-(1-\alpha)\beta(V_h - b_l)\}(1-\alpha)\beta(V_h - b_l)}{d} > (1-\alpha)b_l$$

The right-hand side of in equation means the gain when not filing a lawsuit, and the gain is higher when the litigation is made, by interior solution conditions. Therefore, small shareholders choose to file a lawsuit.[6]

6.4.1.2 Manager's Offering Share Price and Reporting Signal

Consider that the manager offers the price and reports the signal. The pooling strategy is supported in equilibrium when it satisfies the participation condition of the small shareholders ($b_l \geq V_l$), and the manager has no incentive to report the true value of the firm in both types. V_l type has no incentive to deviate from the pooling strategy while satisfying $(1-\alpha)b_l \geq (1-\alpha)V_l$. Therefore, the condition under which the pooling strategy is in equilibrium is obtained $b_l = V_l$.

When $b_l = V_l$, if the gain when the manager reports a false signal is greater than that when manager reports correct signal V_h, the V_h type of the manager reports a false signal (V_l). That is,

$$\Pi_I^{hl} = (1-\phi)V_h - (1-\alpha)V_l - (1-e^*)(1-\alpha)\beta\Delta V - \frac{de^{*2}}{2} \geq \alpha V_h \tag{6.21}$$

is satisfied. Here, substitute (6.20) with (6.21), and upon its transformation with respect to ϕ, we obtain the following condition,

$$\phi \leq \left(1-\beta+\frac{(1-\alpha)\beta^2\Delta V}{2d}\right)\frac{(1-\alpha)\Delta V}{V_h}. \tag{6.22}$$

Proposition 6.2 *When the burden of proof is given to the manager and the court is able to impose some punitive damages, the manager always reports the correct signal.*

Proposition 6.2 is obtained by checking the value on the right-hand side of the (6.22). To obtain the condition that the sign of the right-hand side becomes nonnegative, when solving the quadratic inequality $1-\beta+\frac{(1-\alpha)\beta^2\Delta V}{2d} \geq 0$. Then, we get the next solution

$$0 \leq \beta \leq \frac{d-\sqrt{d(d-2(1-\alpha)\Delta V)}}{(1-\alpha)\Delta V}, \quad \frac{d+\sqrt{d(d-2(1-\alpha)\Delta V)}}{(1-\alpha)\Delta V} \leq \beta. \tag{6.23}$$

Substituting $\beta = 0$ into the right-hand side of above in equation, we obtain $\frac{(1-\alpha)\Delta V}{V_h}$, and substituting $\beta = 1$ into the right-hand side of above in equation, we obtain $\frac{(1-\alpha)^2(\Delta V)^2}{V_h} > 0$. Further, we find that $\beta = \frac{d}{(1-\alpha)\Delta V}$ has a local minimum value and

[6]Here, we assume that the cost of litigation is 0 for the simplification of the model. Of course, the magnitude of litigation costs is an important issue, and the results of the analysis can change.

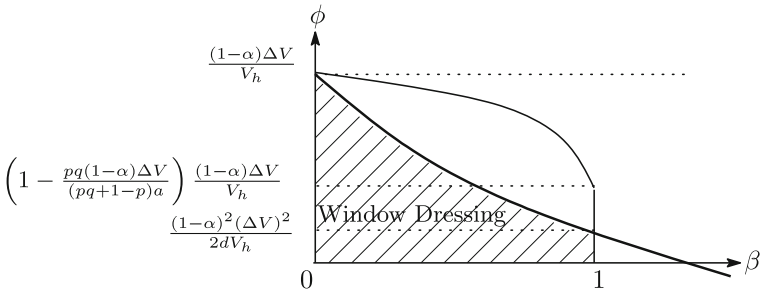

Fig. 6.4 Region of inverse window dressing of the manager when burden of proof is passed on to manager

$\beta = \frac{d}{(1-\alpha)\Delta V} > 1$. So we see that it is at least a β decreasing function within the range of $0 \leq \beta \leq 1$. Therefore, when $\frac{d-\sqrt{d(d-2(1-\alpha)\Delta V)}}{(1-\alpha)\Delta V} \leq \bar{\beta}$, the manager does not make false reports. This figure is shown in Fig. 6.4.

The difference between the previous section and this one is where punitive damages can be made. As mentioned above, if complete reparation merely passes on the burden of proof to the manager, false reports of manager do not necessarily decrease. However, by combining punitive damages, the manager changes his action.

6.4.2 Comparing

We examine the effect of the amendment of the law by comparing the differences between the transfer of the proof of burden and the compensation for damages against the behavior of the manager. We obtain the following proposition.

Proposition 6.3 *Transfer of burden of proof to managers reduces the possibility of inverse window dressing. However, if punitive damages are almost impossible ($\bar{\beta}$ is close to 1), it is better to give shareholders a burden of proof when managers can realize high corporate value with high probability.*

The proof of burden should be given to those who are unlikely to have inverse window dressing by managers. Therefore, we consider whether it is better for managers or small shareholders to have burden of proof to prevent false reports by manager. The possibility of the manager making false reports when small shareholders are given burden of proof is expressed by (6.18). On the other hand, when passing the burden of proof to the manager, it is (6.22). To find out which is desirable, compare the value of ϕ when $\beta = 1$.

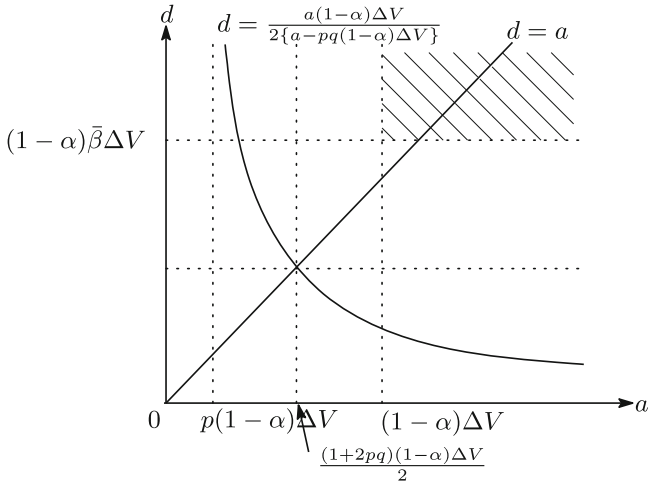

Fig. 6.5 Comparison of the effect of proof burden (case of $pq < \frac{1}{2}$)

In order to compare magnitude relationships, obtain a condition satisfying

$$\left(1 - \frac{pq(1-\alpha)\Delta V}{(pq+1-p)a}\right)\frac{(1-\alpha)\Delta V}{V_h} \geq \frac{(1-\alpha)^2(\Delta V)^2}{2dV_h}. \tag{6.24}$$

The left-hand side is the value obtained by substituting $\beta = 1$ in the (6.22), and the right-hand side is the value obtained by substituting $\beta = 1$ into (6.18). To summarize the above inequalities, we obtain the condition

$$d \geq \frac{a(1-\alpha)\Delta V}{2\{a - pq(1-\alpha)\Delta V\}}. \tag{6.25}$$

When the right-hand side is differentiated with a, the denominator is positive from condition of the interior solution, and we obtain $d' < 0$ and $d'' > 0$. Also, if we obtain the intersection of the straight line $d = a$ and the (6.25), we get

$$d = a = \frac{(1+2pq)(1-\alpha)\Delta V}{2}. \tag{6.26}$$

When examining the magnitude of relationship between the value of (6.26) and $(1-\alpha)\Delta V$ and $(1-\alpha)\bar{\beta}\Delta V$, if $pq < \frac{1}{2}$ hold, $\frac{(1+2pq)(1-\alpha)\Delta V}{2} > (1-\alpha)\Delta V$. Then, in the region satisfying the interior solution condition, $d \geq \frac{a(1-\alpha)\Delta V}{2\{a-pq(1-\alpha)\Delta V\}}$ hold. On the other hand, if $pq > \frac{1}{2}$ holds and $\bar{\beta}$ is close to 1, as shown in the figure, there are areas where it is desirable to have small shareholders account for the burden of proof (Figs. 6.5 and 6.6).

This result is influenced by the incentives for verification efforts. In the situation where the small shareholders have the burden of proof and the compensation is

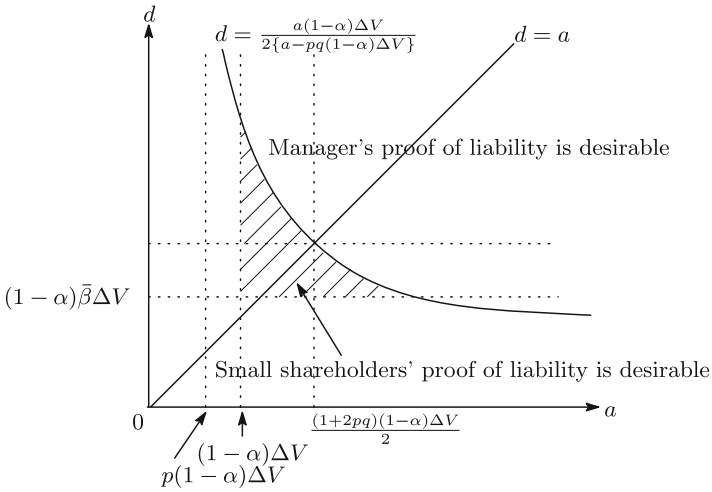

Fig. 6.6 Comparison of the effect of burden of proof (case of $pq > \frac{1}{2}$)

hardly obtained (situation where β is small), there is little incentives to perform effort for proof; thus, the inverse window dressing will be easily performed by the manager. However, as the amount of compensation increases, the effort for proof would increase. Therefore, the possibility of executing inverse window dressing by the manager is low.

On the other hand, even when the manager is charged with proof, the probability of proof is low in a situation where compensation is small (situation where β is small). However, since the manager has to prove himself, the incentive to make a correct report would be strengthened in order to raise his profits. As the amount of compensation increases, the possibility of inverse dressing decreases. Also, unlike cases where the small shareholders have burden of proof, even if the amount of compensation increases, the incentive to stop wrong reporting is gradually small.

In addition, it is thought that managers are more likely to perform inverse window dressing as they gain higher firm value. Therefore, even if decreasing the inverse window dressing, when there is little punitive compensation, the manager may not have the effect of inhibiting inverse window dressing. In that case, it would be more effective to pursue it while leaving the burden of proof to the shareholders seeking to monitor. Therefore, in order to deter inverse window dressing, it will be necessary to recognize punitive compensation to some extent.

6.5 Conclusion

In this paper, the effect of deterring the inverse window dressing of manager is compared based on the civil law and the FIEA (2014).

Naturally, claims for damages by small shareholders have the effect of suppressing the inverse window dressing by the manager. However, it is difficult to deter inverse window dressing perfectly even with full compensation. Meanwhile, under the FIEA (2014), since the burden of proof is passed on to the manager, it is highly effective in deterring the inverse dressing of the manager; furthermore, it can completely deter the inverse window dressing of the manager by punitive damage compensation.

Comparing the two cases, it is possible to show that the pass-through burden of proof to the manager is more deterrent than the burden of proof to the shareholders but even if only passing on the burden of proof is relatively effective to deter. However, if the manager can realize high firm value and cannot almost compensate for punitive damages, it may be desirable for the small shareholders to bear the burden of proof and to pursue. Therefore, it is important as a policy to decide whether to pass the burden of proof burden and punitive damage compensation.

In these analyses, we simplify the model on litigation, assuming that the cost of litigation is zero. In reality, the litigation expenses of shareholders are considered to be very high, so it is necessary to consider it in the model.

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