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Antitakeover measures, golden parachutes, and target firm shareholder welfare

Ellie G. Harris*

Adopting antitakeover measures can enable the shareholders of a target firm to increase their share of any synergy gains expected to result from combining their firm with a bidder. Adopting such measures enhances the bargaining power of the target's manager, who will be a tougher bargainer than the nonmanagerial shareholders will, owing to his expected loss of his job following the target's acquisition. If the manager's expected loss of utility is very large, target firm shareholders may maximize their takeover-related gain by both adopting antitakeover measures and awarding the manager a golden parachute of the optimal size.

1. Introduction

■ Daley and Subramaniam (1989) report that of a sample of NYSE firms that had adopted antitakeover measures and were subsequently acquired by other NYSE firms, 70% also had awarded their managers golden parachutes. Several recent examples of acquired firms that had both adopted antitakeover measures and awarded their managers golden parachutes include Kraft, Pillsbury, and Macmillan. Two interesting issues are why shareholders are ever willing to adopt antitakeover measures and why they are sometimes willing to both adopt antitakeover measures and award their managers golden parachutes.¹ A comprehensive theory of antitakeover measures should provide answers to both questions.

Those questions stem from the severe agency problem that may arise when a firm is the subject of a takeover attempt. A large body of evidence indicates that the shareholders of firms that are acquired by other firms realize large premia on their shares upon the acquisitions. (See, for example, Jensen and Ruback (1983).) The managers of a target firm, however, may lose utility if the firm is acquired, since they may lose their jobs. Accordingly, managers may wish to block takeovers that are in the interests of their shareholders. An immediate implication is that it is difficult to understand why shareholders would ever be

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¹ Some types of antitakeover measures can be adopted, and until recently golden parachutes could be awarded, without an immediate shareholder vote. However, in all cases the firm's charter, which *has* been approved by the shareholders, must have provided authority for its managers or board (nonmanagement directors in the case of golden parachutes) to adopt or award them.

willing to go along with the adoption of antitakeover measures by their firm, since many types of antitakeover measures enhance the ability of the managers to block a takeover.²

Golden parachutes are often explained as attempts to resolve the agency problem. (See, for example, Baron (1983) and Lambert and Larcker (1985).) Clearly, if the manager will receive a large payment in the event that he leaves his job as a result of a takeover, he will be less inclined to try to block one. If we accept that reason for the existence of golden parachutes, however, it appears difficult to understand why shareholders would ever be willing to both adopt antitakeover measures and award their managers golden parachutes, since the need for the costly golden parachutes may stem in large part from the adoption of the antitakeover measures. That is, if the shareholders did not, through the adoption of antitakeover measures, enhance the abilities of their managers to block takeovers, there might be no need to pay the managers not to block them. On the surface, at least, it appears that shareholders would be better off without antitakeover measures and golden parachutes and, perhaps, with contractual or charter provisions designed to eliminate managerial interference when a takeover of the firm is attempted.³

In this article I show that it may be perfectly rational for target firm shareholders to both adopt antitakeover measures and provide their managers with golden parachutes, or simply to adopt antitakeover measures alone. Doing so can enable the target firm's shareholders to obtain a larger proportion of the synergy gains that will result from combining their firm with the bidder.

That result stems from the fact that by adopting the antitakeover measures the shareholders have, in effect, substituted their manager in place of themselves into the position of bargainer on behalf of their firm, for purposes of negotiating the price that will be paid for it by the bidder. No bargainer will agree to a bargain under which he would receive less utility than if no bargain were concluded. Accordingly, if the shareholders of the target bargain with the bidder, they will certainly not agree to sell their firm for any sum that is less than its stand-alone value. However, if the manager of the target, who owns some of its stock, acts as the target's bargainer, the minimum for which he will agree to sell the target exceeds its stand-alone value. That is because of the job-related utility loss that the manager will suffer if the target is acquired.

It is frequently true in shareholder-manager agency situations that in order to minimize their welfare loss, the shareholders grant their manager only limited authority to act as their agent. In the present case, however, the nonmanagerial shareholders of the target are able to benefit from the fact that there is a difference between their utility functions and that of their agent by granting their manager full authority to act for them in the event of a proposed acquisition.

In certain circumstances the nonmanagerial shareholders of the target may, in addition to strengthening their manager's authority to act as their agent, find it optimal to manipulate his utility payoffs through the imposition of an incentive mechanism. Those circumstances exist when the utility function of the manager is such that even if the price offered for the target ensures that the target's shareholders obtain substantially all of the synergy gains, he will still not be agreeable to its sale. Providing the manager with a golden parachute under those circumstances, however, can make him agreeable. I show that the nonmanagerial shareholders of the target may be better off in the just-described circumstances by both

² For example, the board of directors, which is usually dominated by the management (on decisions in which the management is allowed to participate), generally has the authority to make ineffective both poison pills, which can make hostile takeovers prohibitively expensive, and supermajority provisions. Supermajority provisions also reduce the number of shares that the management needs to control to be able to block mergers or sales of major corporate assets. Hence, if a target has a poison pill or supermajority provisions, a bidder may be forced to negotiate with the target's management. Similarly, if a target has a classified board of directors, an offer that the management likes would be more likely to result in a cooperative board after the bidder obtains voting control.

³ Easterbrook and Fischel (1981, 1982) have proposed the adoption of regulations to that effect.

adopting antitakeover measures and providing their manager with a golden parachute than by doing neither and bargaining with the bidder themselves. The increase in the synergy gains obtained by the target from the bargain that results with antitakeover measures and the optimal golden parachute may exceed the cost of the parachute.

Other explanations for shareholder adoption of antitakeover measures have been proposed. DeAngelo and Rice (1983), for example, have suggested that antitakeover measures may benefit target firm shareholders by enabling them to act in a unified manner when a takeover is attempted. Stein (1988) has suggested that takeover pressure may lead to myopic firm behavior and, therefore, that reducing such pressure via antitakeover measures may be beneficial. Knoeber (1986), on the other hand, has suggested that antitakeover measures may represent methods of protecting long-term compensation implicitly promised to management by shareholders.⁴ Although all of the preceding explanations are reasonable, none of them demonstrates the desirability of antitakeover measures in the presence of the previously discussed agency problem. My explanation not only does so, but it also shows that the agency “problem” alone is sufficient to explain shareholder adoption of antitakeover measures.

Section 2 contains the model and some results. In Section 3 the model’s empirical implications are discussed. Section 4 contains concluding remarks.

2. The model and some results

■ **The setting.** There are two firms, X and Y , with market values of X and Y , respectively, when viewed in isolation from each other. Both firms are financed solely with equity. Firm Y faces no impediments to acquiring firm X , and if it does so, there will be synergy gains of S . Firm Y has at least $X + S$ in cash on hand and has no potentially positive net present value investment opportunities other than the acquisition of firm X .

The situation of firm X , however, is such that if it were to acquire firm Y , all synergy gains from combining the two firms would be lost. For example, firm X may lack the means to acquire firm Y , and it might face costs in raising cash or issuing securities sufficient for the acquisition that exceed S .⁵

The shareholders of firm Y will find it to be optimal to retain their current manager to manage the postacquisition firm.⁶ The idea here is that a firm benefits from continuity of management and from having the best-qualified person hold the job of manager. Consequently, if in order to gain a bargaining advantage in the acquisition negotiations, a firm’s shareholders followed a policy of firing their manager every time the firm made an acquisition, the quality of the firm’s management, and hence its value, would suffer. It is assumed that the net effect on firm value of following such a policy would be negative.

The background and skills of the manager of firm X are such that there will be no real place for him in the postacquisition firm.⁷ The postacquisition firm will be very different from firm X and will not simply consist of the two preacquisition firms in their preacquisition forms.⁸ It is clear that any job in the postacquisition firm for which the manager of firm X

⁴ Knoeber (1986) views the award of golden parachutes as an alternative to the adoption of antitakeover measures for achieving that purpose.

⁵ Those costs could include such things as commercial and investment banking fees, legal fees, and the costs of making information public that are incurred when securities are registered with the SEC.

⁶ Assuming that the manager of the acquiring firm manages the postacquisition firm accords with at least casual observation.

⁷ Unlike the shareholders of a firm that is expected to make an acquisition, the shareholders of a firm that is expected to be a target have no incentive to hire a manager who would be well suited to manage the postacquisition firm. Their concern with firm management ends with the takeover.

⁸ That is, after its acquisition by firm Y , firm X might not exist even in the form of a separate division of the combined firm. If so, it would not require a divisional management head. Hence, the preacquisition job of firm X ’s manager may disappear completely upon the acquisition.

is suited would give him less utility than he could get if he took the best job available to him outside the postacquisition firm.

However, the best job available to the manager of firm *X* outside the postacquisition firm will give him less utility than he currently gets as manager of firm *X*. If he were guaranteed a monetary payment of size *Z* upon leaving his job at firm *X* to take his best alternative job, the manager of firm *X* would be indifferent between leaving his job and retaining it.

Each manager owns stock in the firm that he manages, and, at least with respect to the manager of firm *X*, the proportion of stock owned is too small for him to be able to affect the outcome of any shareholder vote, in the absence of antitakeover measures. Furthermore, each manager always acts in his own interest. In addition, to keep the model simple, no shareholder in either firm owns stock in the other, and all parties are risk neutral.

Any sort of bribe from firm *Y* to the manager of firm *X*, whether in the form of a higher payment for his shares than the other shareholders receive or in the form of an offer of an excessively compensated job in the postacquisition firm, would become public knowledge with very high probability.⁹ If information to that effect became public, the parties involved would face lawsuits. The expected costs of those lawsuits are such that any form of bribery of the manager of firm *X* by any party connected to firm *Y* is ruled out.

Firm *X*'s shareholders are able to act in a unified manner and, therefore, to bargain with firm *Y* on their own in the absence of antitakeover measures giving their manager bargaining authority. Small, noncooperating, target firm shareholders would be likely to obtain very little of the synergy gains if they dealt with the bidder on their own.¹⁰ Part of the gain that small nonunified shareholders could obtain from adopting antitakeover measures that make their manager their bargaining agent results from the unification that is achieved by doing so.¹¹ The unification gain, however, could be achieved without making the target's *manager* its bargaining agent. If the firm's ownership consists solely of small shareholders, they could appoint a nonmanagerial shareholder to bargain on their behalf. Alternatively, certain types of charter amendments that have a unifying effect on small shareholders could be adopted.¹² Furthermore, if the firm has one or more large shareholders, he or they might exercise bargaining power on behalf of the firm.¹³ At any rate, since

⁹ Federal and state disclosure requirements for publicly held firms, which are particularly strong when control changes are attempted, would lead to that result.

¹⁰ Each small, noncooperating shareholder should be willing to sell for slightly more than the amount that he could get if he did not sell and the deal went through. That amount is likely to be the stand-alone value of his shares. Since the synergy gains result from combining the assets of *X* and *Y*, and not from replacing *X*'s manager (as in Grossman and Hart (1980)), firm *Y* should be able to organize the postacquisition firms so that all increased cash flows accrue solely to it. Alternatively, firm *Y* could merge any minority shareholders out of the postacquisition target at the amount provided under the state appraisal law, which is likely to be no more than the stand-alone value of the shares (see Bebchuk (1988)).

¹¹ Unification enables the target shareholders to bargain with the bidder and thereby extract a significant portion of the synergy gains, since by their joint refusal to accept an offer, unified shareholders can preclude the bidder from realizing any synergy gains.

¹² Provisions similar to what are commonly called "fair price" and "share redemption" provisions would have the requisite effect. The necessary provisions are: offers must be for all shares at the same price and, if the bidder obtains control, minority shareholders have the right to be bought out at the offer price. If such provisions are in effect, a bidder making a tender offer can't threaten that any target shareholders who don't accept his offer will later receive less for their shares if he gains control of their firm. Furthermore, the target firm shareholders all know that together they have bargaining power and that each of their fellow shareholders knows that. Therefore, there is no reason for any *individual* target firm shareholder to agree to sell his shares to the bidder for less than the amount that he could obtain if the target's shareholders were formally organized to act as a *unit* for bargaining purposes (as they are in the case of a merger proposal).

¹³ In fact, it is often true that several large shareholders exist at the time of a takeover due to the practice of "risk arbitrage." Arbitrageurs buy up a target's shares in the market once they learn that a takeover attempt will be made, in an effort to make a profit on the deal.

DeAngelo and Rice (1983) have already pointed out the existence of the gain from unification, since the purpose of this article is to examine the additional gain from antitakeover measures that may result because of the manager's loss of utility, and since unifying would appear to be optimal, the base case examined here consists of bargaining between unified, nonmanagerial, target firm shareholders and the bidder. To keep the subsequent discussion as simple as possible, it is assumed that in the absence of antitakeover measures that enhance managerial bargaining power, unification results from having one (perhaps large) nonmanagerial shareholder bargain on behalf of all target firm shareholders. Bribery of that shareholder by firm *Y* is ruled out for reasons similar to those delineated in the previous paragraph.

Any antitakeover measures that are adopted and the size of the golden parachute are locked in by charter provisions that make them unmodifiable.¹⁴ That precludes the bidder from taking actions designed to force the target to modify its antitakeover measures or parachute.

All of the preceding assumptions are common knowledge.

□ **The bargaining problem.** As was previously indicated, there is no reason for firm *X* to attempt to acquire firm *Y*.¹⁵ Firm *Y*, however, has only one possible positive net present value investment for its cash, firm *X*. Hence, if firm *Y* can acquire firm *X* for any amount less than $X + S$, the shareholders of firm *Y*, one of whom is its manager, are better off than if their firm does not make the acquisition. Therefore, the manager of firm *Y* will attempt to acquire firm *X* on behalf of his firm.

The question of how much firm *Y* pays for firm *X* is a bargaining problem. That is, there are two parties who can either cooperate and benefit thereby, or not cooperate and continue at their current utility levels. The parties bargain over the division between them of the benefit from cooperation. They must agree upon such a division if benefits are to be realized by anyone, since in the absence of such an agreement they do not cooperate.

Firms *X* and *Y*, then, can realize synergy gains, the benefit from cooperation, if an acquisition agreement is reached. The agreement must specify a division of synergy gains that is acceptable to both sides. That division, which will be reflected in the price that firm *Y* pays for firm *X*, is what the bargainers representing the two firms bargain over.

The Nash bargaining solution is used to determine the payoffs to the shareholders of the two firms.¹⁶ Nash's result, in brief, is that the outcome of a two-party bargaining process under complete information (about the payoff structure of the game) will be such that the product of the gains in utility from the bargain by the bargaining parties is maximized. For further details on the Nash bargaining solution, see Nash (1950, 1953).

□ **Antitakeover measures.** The first case I shall examine is that in which the manager of firm *Y*¹⁷ deals directly with the shareholders of firm *X* in negotiating the division of the synergy gains between the two firms. In that case, the gains in utility for the negotiating

¹⁴ "Lock-in" provisions often accompany the adoption of antitakeover measures.

¹⁵ The manager of firm *X* has no incentive to attempt to acquire firm *Y* on behalf of his firm in order to preserve his job. As was previously indicated, he would not be a fit manager of the postacquisition firm. Therefore, the shareholders of the postacquisition firm would fire him following the acquisition of firm *Y*.

¹⁶ It should be noted that other bargaining solutions exist, and they might not give exactly the same division of synergy gains as Nash's. It is likely, however, that they would all accord with my main result, which is that the shareholders of the target may be better off if their manager bargains for them, since that stems from the fact that the minimum amount the manager will accept for the firm is always higher than the minimum that is acceptable to the nonmanagerial shareholders.

¹⁷ When the manager of firm *Y* acts as its bargaining agent, the results obtained are identical to those that would be if any other shareholder of firm *Y* were to do so, or if the shareholders of firm *Y* bargained as a unit governed by majority rule. Having the manager of the bidder act as its bargaining agent accords with observation, however.

parties that can result from an agreement between them with respect to the sale of firm X are, for each party, just the fraction of the respective firm owned by the bargaining party multiplied by the amount of the synergy gains his firm is allotted as a result of the agreement.

Let δ be the proportion of the synergy gains, S , that the shareholders of firm X receive, α be the percentage of firm Y owned by the manager of firm Y , and β_i be the proportion of firm X owned by the bargaining shareholder, i , of firm X . Then, the Nash bargaining solution implies that the δ that will result from the bargaining between the manager of firm Y and the shareholders of firm X will be the δ that maximizes $[\alpha S(1 - \delta)][\beta_i \delta S]$, the product of the gains in utility from the bargain by the bargaining parties. That δ will be denoted $\hat{\delta}$. It can be easily shown that $\hat{\delta} = 1/2$.

Thus, if the shareholders of firm X bargain directly with the manager of firm Y over the price for which they will sell their stock, the total amount they will receive is $X + 1/2S$ for stock that would be worth only X if the possibility of acquisition of their firm by firm Y did not exist. Firm Y will increase in value by $1/2S$ as a result of its acquiring firm X for the price of $X + 1/2S$.

I shall now examine the case in which the shareholders of firm X adopt antitakeover measures that give their manager the authority to act as bargainer for firm X in the negotiations over price. The fraction of firm X owned by its manager will be denoted β_M .

In this case, the Nash bargaining solution implies that the δ that maximizes the function $[\alpha S(1 - \delta)][\beta_M \delta S - Z]$ is the proportion of the synergy gains resulting from firm Y 's acquisition of firm X that the shareholders of firm X will receive. It should be noted that the gain in utility by the manager of firm X , if an acquisition agreement is reached, takes into account not only the gain accruing to him from the sale of his shares, but also the job-related loss of utility that he will suffer. Z , it will be recalled, is the size of the monetary payment that will make the manager of firm X indifferent between leaving his current job and taking his best alternative job.

In this case, the maximizing δ will be denoted δ^* . It can be easily shown that
$$\delta^* = \frac{1}{2} + \frac{Z}{2S\beta_M}.$$

Proposition 1. $\delta^* > \hat{\delta}$.

Since Z , S , and β_M are all positive, then $\frac{1}{2} + \frac{Z}{2S\beta_M} > \frac{1}{2}$.

Clearly, then, at least so long as $\delta^* < 1$, the shareholders of firm X can expect to obtain a greater proportion of the synergy gains when they adopt antitakeover measures and thereby give their manager the authority to bargain for them, than when they do not adopt such measures and, therefore, must bargain with the manager of firm Y themselves. That is because of the job-related loss of utility that will be suffered by the manager of firm X if his firm is acquired. Clearly, it would not be rational for the manager of the target to agree to any acquisition deal in which he ended up with less utility than he would have had if no deal were made. Therefore, he must be compensated for his utility loss with respect to his job in any acquisition agreement that emerges. The compensation can be made only through the price that is paid for his shares, since other methods of compensating him, such as bribery by firm Y , have been ruled out. Since the same price must be offered for all shares, however, the manager of firm X can receive a price for his shares that includes compensation for his loss only if all shareholders of firm X receive that price. In essence, then, the manager of firm X will drive a harder bargain than the nonmanagerial shareholders will because if an acquisition agreement is reached, he stands to suffer a loss that they do not.

□ **Golden parachutes.** As noted in the previous section, whether or not firm X 's shareholders are made better off by the adoption of antitakeover measures may depend on whether or not $\delta^* < 1$. If antitakeover measures are adopted when $\delta^* > 1$, the manager of firm X

may block its acquisition by firm Y , since no rational offer by firm Y may be high enough to satisfy the manager of firm X . Thus, the shareholders of firm X may receive no synergy gains at all in that situation. If no antitakeover measures are adopted when $\delta^* > 1$, however, the nonmanagerial shareholders of firm X can negotiate with the manager of firm Y themselves and obtain half of the synergy gains.

It may be possible, nonetheless, for the shareholders of firm X to gain more than $\frac{1}{2}S$ in the event that $\delta^* > 1$. They can do that if they adopt antitakeover measures and provide for compensation to their manager for the loss of utility that he will suffer following the takeover, so long as the cost to them of providing the compensation is less than what they are able to gain in terms of synergy gains by giving their manager the authority to bargain on their behalf and providing for the compensation.

As was indicated in the introduction, a guarantee of compensation to a manager if he leaves his job as a result of a change in control at the firm that he manages is commonly referred to as a golden parachute. Clearly, from the standpoint of the nonmanagerial shareholders of firm X , the optimal golden parachute payment will be such as to maximize the synergy gain of firm X net of the cost of the parachute.¹⁸ Accordingly, if P is the size of the parachute payment, the shareholders of firm X will choose P to maximize

$$[\delta(P)]S - P \quad (1)$$

subject to: $\delta(P) < 1$

and $[\delta(P)]S - P > \frac{1}{2}S$, with $P = 0$ and $\delta = \frac{1}{2}$, otherwise.

If the manager of firm X has a parachute guaranteeing him a cash payment of P , the Nash bargaining solution implies that the proportion of the synergy gains obtained by firm X as a result of the bargaining between the managers of firms X and Y over the price to be paid for firm X will be the proportion δ that maximizes the function

$$[\alpha S(1 - \delta)][\beta_M \delta S - Z + P - B_M P]. \quad (2)$$

The term $-B_M P$ appears in the expression for the gain in utility from the bargain of the manager of firm X because he bears the cost of any parachute payments to the extent that he is a shareholder.

The δ that maximizes function (2) will be denoted $\tilde{\delta}$. It can be easily shown that

$$\tilde{\delta} = \frac{1}{2} + \frac{Z - P(1 - \beta_M)}{2\beta_M S}.$$

Since B_M , the fraction of firm X owned by its manager, is greater than zero and less than one, $\tilde{\delta}$ is clearly decreasing in P .

If $\tilde{\delta}$ is substituted for $\delta(P)$ in function (1), the firm X shareholders' objective function becomes

$$\left[\frac{1}{2} + \frac{Z - P(1 - \beta_M)}{2\beta_M S} \right] S - P.$$

As with $\tilde{\delta}$, the preceding function is clearly decreasing everywhere in P . Therefore, the shareholders of firm X will give their manager a parachute granting him the smallest payment P that will make $\tilde{\delta} < 1$, provided that $\tilde{\delta}S - P > \frac{1}{2}S$.

If firm Y must be able to obtain some minimum positive fraction, ϵ , of the synergy gains in order for it to be willing to use its cash to acquire firm X , then the shareholders of

¹⁸ In essence, the stand-alone value of firm X is reduced by the value of any parachute payments that will be made. To see that, consider what firm Y would be willing to pay for firm X if no synergy gains were expected to result from the acquisition but, nonetheless, the manager of firm X had a golden parachute.

firm X will choose P so that

$$\tilde{\delta} = 1 - \epsilon = \frac{1}{2} + \frac{Z - P(1 - \beta_M)}{2\beta_M S}.$$

That is, the parachute that the shareholders of firm X will give to their manager will promise him a cash payment, to be denoted P^* , such that

$$P^* = \frac{Z + 2\epsilon S\beta_M - \beta_M S}{1 - \beta_M},$$

provided that $[\tilde{\delta}(P^*)]S - P^* > \frac{1}{2}S$.

Proposition 2. The optimal golden parachute payment does not completely compensate the target's manager for his expected loss of utility. Rather, it is set so that the manager will exact for the target the maximum amount of the synergy gain, such that there can be an acquisition deal.

The optimal parachute payment is just large enough to make the target's manager willing to agree to the highest offer that the bidder will be willing to make. The part of the manager's utility loss that is not compensated for through the parachute is compensated for through the payment he exacts for the target's shares. In other words, golden parachutes are not just managerial compensation devices, they can be used by a target firm as bargaining power enhancement devices.¹⁹

□ **An equity parachute?** Clearly, there is an alternative method by which the target's shareholders could compensate their manager for his loss of utility and induce him to extract the maximum possible amount of the synergy gain for their firm. Instead of giving their manager a parachute promising a cash payment, they could give him one promising equity.

Such an equity parachute could promise payment in the form of stock or options. V will denote X (the stand-alone value of the target) minus the option exercise price on a total firm basis. Hence, when the parachute payment is in the form of stock, $V = X$, and when it is in the form of options, $V < X$. ρ will denote the proportion of the firm to be given to the manager to cause him to bargain optimally.²⁰ Therefore, in the case of a stock or option parachute, the Nash bargaining solution implies that the proportion of the synergy gains that the target will obtain is the δ that maximizes

$$[\alpha S(1 - \delta)][\beta_M \delta S - Z + \rho(\delta S + V) - \beta_M(\rho \delta S + \rho V)].$$

That δ will be denoted δ_E . It can be easily shown that

$$\delta_E = \frac{1}{2} + \frac{Z - \rho V + \beta_M \rho V}{2S\beta_M + 2S\rho - 2S\beta_M \rho}.$$

If δ_E is set equal to $1 - \epsilon$, then ρ equals

$$\frac{-S\beta_M + 2\epsilon S\beta_M + Z}{(1 - \beta_M)(V + S - 2\epsilon S)}.$$

Therefore, the manager's equity parachute payment, $\rho[V + (1 - \epsilon)S]$, which will be denoted

¹⁹ If there were many possible bidders who could realize different amounts of synergy gains with the target, the optimal parachute payment would be set to cause the target's manager to extract the maximum possible amount from the expected highest bidder, with whom the manager of the target would bargain after the completion of bidding.

²⁰ β_M remains the proportion of the firm's stock held by the manager given all the other incentives for him to hold such stock. Hence, after receiving an equity parachute payment, he will control $\rho + \beta_M$ of the firm.

P_E , equals

$$\frac{(-S\beta_M + 2\epsilon S\beta_M + Z)(V + (1 - \epsilon)S)}{(1 - \beta_M)(V + S - 2\epsilon S)}.$$

P_E , the optimal equity parachute payment, can also be written in terms of P^* , the optimal cash parachute payment. That is,

$$P_E = \frac{P^*(V + S - \epsilon S)}{V + S - 2\epsilon S}. \quad (3)$$

Since $V + S - \epsilon S > V + S - 2\epsilon S$, $P_E > P^*$.

Proposition 3. The optimal equity parachute is more costly than the optimal cash parachute.

That result stems from the fact that under the Nash bargaining solution both bargaining parties must gain from the deal an amount proportionate to their stockholdings. Since the bidder's bargainer must gain $\alpha\epsilon S$, the target's manager must likewise gain (after reimbursement for Z and the stand-alone value of his original shares) his percentage ownership of firm X times ϵS . Since the manager's ownership fraction is increased if he is given an equity parachute payment, the value of the parachute in that case is greater than in the case of a cash parachute.²¹

Proposition 4. An option parachute is more costly than a stock parachute, and the cost of an option parachute increases with its exercise price.

That result follows from an examination of the coefficient of P^* in (3),

$$V + S - \epsilon S / V + S - 2\epsilon S.$$

As V reaches its maximum of X (the case of a stock parachute, i.e., when the exercise price is zero), the ratio approaches one from above. As V approaches its minimum (i.e., as the exercise price increases toward its maximum), the ratio becomes infinite.²²

The intuition behind this result is similar to that behind Proposition 3. The manager's required gain from the deal increases as his ownership position in the firm increases. It is necessary to give him a larger ownership position to compensate him for his loss as the exercise price increases, since his gain on a per-share basis falls.

3. Empirical implications

■ As has been indicated, the model predicts that target firm shareholders, on average, should gain most of the synergy gains. That accords with a large body of empirical evidence that is summarized in Jensen and Ruback (1983).²³ Furthermore, since the model predicts different divisions of the synergy gains when a target's shareholders have measures in effect

²¹ That is, in the case of a cash parachute, the manager's total receipts of $\beta_M(1 - \epsilon)S + \beta_M X + (1 - \beta_M)P$ must equal $Z + \beta_M X + \beta_M \epsilon S$. However, in the case of an equity parachute, the manager's receipts of $\beta_M(1 - \epsilon)S + \beta_M X + (1 - \beta_M)(\rho[S(1 - \epsilon) + V])$ must equal $\beta_M X + Z + (\beta_M + \rho)\epsilon S$.

²² The denominator goes to zero when the exercise price is $X + S - 2\epsilon S$. At that point the numerator is ϵS .

²³ An explanation that is often given for the evidence cited in Jensen and Ruback (1983) is the existence of competition to acquire a target. The weakness of that argument is that it only explains the evidence when the two highest bidders can achieve similar amounts of synergy gains with the target. My explanation stems from the fact that in the base case under the Nash bargaining solution the target has equal bargaining power with the bidder. Hence, the target never gets less than one-half of S , since it does better than it does in the base case when it adopts antitakeover measures. However, if under a different bargaining solution the target were in a weaker bargaining position in the base case, the conclusion that the target obtains more than half the synergy gains on average would not necessarily follow.

that place bargaining power in the hands of their management and when they do not, the model may help to explain some of the observed variation in divisions of synergy gains.²⁴

Examinations of P^* , the optimal parachute payment, and δ^* , the proportion of the synergy gains that the target should obtain if antitakeover measures but no golden parachute are in place, provide more predictions. In particular, P^* decreases in S , the total synergy gain, and in β_M , the fraction of the target owned by its manager, for reasonable values of ϵ (i.e., $\epsilon < 1/2$). Moreover, P^* increases in ϵ , the fraction of S obtained by the acquiring firm.

Likewise, δ^* decreases in both S and β_M . Long and Walkling (1984) provide some support for the latter prediction. Their study shows that managers who own less stock in the firms that they manage are more likely to resist takeovers when a given percentage premium is being offered.

Since the model predicts that target firm shareholders should gain more of any synergy gains if they adopt antitakeover measures, a positive effect on share price might be expected upon their adoption by a firm. DeAngelo and Rice (1983), Jarrell and Poulsen (1987), Linn and McConnell (1983), Malatesta and Walkling (1988), and Ryngaert (1988) have examined stock price movements around adoptions of antitakeover measures. They report positive, negative and, very frequently, insignificant price reactions. Perhaps the lack of a clear-cut answer to the question of how the market views the adoption of antitakeover measures stems from the fact that their adoption is somewhat predictable.

The situation with respect to golden parachutes is clearer, however. Lambert and Larcker (1985) have shown that the market reacts positively to awards of golden parachutes by firms to their top managers, in accordance with the prediction of my model.²⁵

The model also explains why some firms have managerial-bargaining-power-enhancing antitakeover measures alone, some firms have both such antitakeover measures and golden parachutes, and some firms have neither. Firm and managerial characteristics will determine which course of action is optimal for a given firm.

Alternative explanations exist, of course, for many of the model's predictions. Perhaps the best and most direct test of the model would be to compare the gains to shareholders when the target's top managers retain their jobs without apparent losses of perquisites and power following a takeover, to their gains when such is not the case. The model predicts that bidder shareholders should do better and target shareholders should do worse when the target's top managers do not suffer losses of utility. Furthermore, the results should be most pronounced in cases in which the target had adopted managerial-bargaining-power-enhancing antitakeover measures or its managers were able to resist effectively through some other means, since if the managers have little ability to block a deal, their losses of utility should have little effect upon the outcome.

4. Conclusions

■ Some insight has been given into the issues of why shareholders adopt antitakeover measures and give their managers golden parachutes. Taking those actions may enable the shareholders of a target firm to gain more of any synergy gains that are expected to result from combining their firm with the bidding firm than would otherwise be the case.

An interesting extension of the model might involve letting S , the synergy gain, be random. Doing so might enable us to understand why shareholders adopt antitakeover

²⁴ Daley and Subramaniam (1989) report some preliminary results indicating that the proportions of synergy gains obtained by targets and bidders are unaffected by whether or not the target's manager has a golden parachute. However, their results appear to suffer from measurement problems.

²⁵ The announcement of a golden parachute award, however, could merely signal a higher probability of takeover of the awarding firm.

measures even though such adoptions sometimes appear to have adverse consequences, since target managers sometimes block all bids. If S were random, adopting antitakeover measures could be attractive on an *ex ante* basis, even though *ex post* their adoption may appear to have been a mistake.²⁶

A concern that is often voiced regarding antitakeover measures is that their adoption might result in fewer bids for a target firm. Baron (1983) has shown that when the target's manager is better informed than other investors, giving him the ability to negotiate for the target reduces the probability of a bid because of adverse selection.²⁷ That is, the target's manager will only accept bids that are too high relative to the firm's true value, which discourages potential bidders from bidding. In my model, that problem does not arise, since all parties are assumed to be perfectly informed. Perhaps only firms that have insignificant inside information adopt antitakeover measures. An examination of whether that is the case might constitute an interesting empirical study. Alternatively, it might be interesting to examine whether those firms to which the market reacts positively, upon their adoption of antitakeover measures, are less likely to have significant inside information than those to which it reacts negatively. At any rate, it is likely that a particular firm's decision regarding whether to adopt antitakeover measures involves a trade-off of potential gains, as delineated in this and other models, against the costs stemming from information problems.^{28,29}

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²⁶ I am indebted to the referee for this point.

²⁷ The probability of a bid could also be reduced if there were a fixed cost to launching a bid and the target did not know its size. If the target knew the size of the cost, of course, it could give its manager a parachute large enough to cause him to agree to a deal that would compensate the bidder for its cost.

²⁸ Pound (1987) has studied that trade-off with respect to supermajority and classified board provisions and concludes that on average, firms do not adopt such provisions in an optimal manner. However, Pound's results appear to have been affected by the fact that he examined cumulative excess returns as of the announcement date of the highest offer for a target, rather than the price *actually paid* by the bidder. Although as likely to be acquired once a bid had been made, Pound's firms with supermajority and classified board provisions were more likely to resist takeover than his firms without them, and resistance reduced the announcement effect of a higher offer.

²⁹ Myerson (1984), however, has shown that bargaining can take place even when one bargainer is better informed than the other.

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¹⁰ **Takeover Bids, The Free-Rider Problem, and the Theory of the Corporation**

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²⁸ **The Effects of Antitakeover Amendments on Takeover Activity: Some Direct Evidence**

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²⁹ **Two-Person Bargaining Problems with Incomplete Information**

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