ONE SHARE-ONE VOTE AND THE MARKET FOR CORPORATE CONTROL

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1.1 Introduction

A corporation's securities give the holder claims to the firm's income stream and voting rights. These securities can be designed in various ways: one share of a given class may have a claim to votes disproportionately larger or smaller than its claim to income. In this paper we analyze some of the forces that make it desirable to set up the corporation so that all securities have votes in the same proportion as their claim to income (one share-one vote).

The literature on corporations has viewed security-voting structure as a response to the agency problems created by the delegation of control to management. For example, Easterbrook and Fischel (1983) write: "As the residual claimants, the shareholders are the group with the appropriate incentives (collective choice problems to one side) to make discretionary decisions" (p.403). The connection between agency problems and security-voting structure is not simple, however, for two reasons. First, although the delegation of control creates a conflict of interest between those who make decisions and those who bear the consequences, this agency problem does not bear directly on the security-voting structure; it implies only that management should receive performance-based compensation. Second, although it is clear that shareholders as a group have an incentive to monitor management--and hence tying votes to shares may be desirable to allow them to act on this incentive--in practice, monitoring by individual small shareholders will be

limited because of free-rider problems [as Easterbrook and Fischel (1983) recognize].[1] That is, we would expect monitoring of management to be effective only when a single party becomes large enough to internalize the externalities of collective action, e.g., by making a takeover bid. This suggests that the main impact of a firm's security-voting structure will be in its influence on the market for corporate control--an influence the literature has so far not analyzed in detail.

The purpose of this paper is to analyze this influence. We will think of a corporation as a collection of assets; the key issue is who should manage them. At any moment, there is an incumbent management team, but it may not be the best group to run the corporation. We will view the corporation's security-voting structure as a mechanism for shifting control to a superior rival, if such a team exists.

We consider the following stylized scenario. We suppose that the corporate charter is written by an entrepreneur who wants to maximize the total market value of securities issued. The charter creates n classes of shares and specifies the share of dividends and total votes to which the ith class is entitled. The charter also specifies a fraction alpha of the outstanding

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[1] Fischel (1986, p.16) notes that large shareholders have better incentives to monitor management than do small shareholders and that "one share/one vote recognizes this economic reality by assigning votes and thus the ability to monitor managers, in direct proportion to shareholders' stake in the venture." DeAngelo and DeAngelo (1985, p.37) recognize that a one share-one vote rule does not assign effective votes in direct proportion to shares, since under majority rule someone with 50.1% of the shares has 100% of the effective votes.

votes a rival team must receive in an election for directors to replace existing management.

The charter is set up with the expectation that the corporation's securities will be widely held, and in the belief that incumbent management cannot be relied upon to oversee future changes in control and in particular to fire itself if a superior management team becomes available (i.e., agency problems will exist). Thus takeover bids will be important in ensuring changes in control. We model a corporate control contest by assuming that a single buyer desiring control will appear, and will compete against the incumbent management team or its "white knight." It is also supposed that in an election small security-holders either do not vote or vote in favor of incumbent management.[2] Thus alpha = 0.5 refers to the situation in which there is majority rule and an acquirer must purchase at least 50% of the votes to take control.

Our analysis distinguishes between two classes of benefits from control: private benefits and security benefits. The private benefits of control are the benefits current management or the acquirer obtain for themselves, but that the target securityholders do not obtain. These include synergy benefits

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[2] This assumption is not unreasonable. If shareholders are small, each one has little incentive to vote, since it is very unlikely that he will be pivotal. Moreover, if a shareholder does vote, it may make sense for him to vote for a known incumbent rather than for an unknown outsider. Empirically it does seem that incumbent management usually receives the support of small shareholders in a proxy fight. However, outsiders do sometimes win proxy fights; see Dodd and Warner (1983).

realized by the acquirer; the return from being able to freezeout minority shareholders at a price below the value of their shares; perquisites of control; and in extreme cases the diversion of resources from the securityholders to subsidiaries of management or the acquirer. The security benefits refer to the total market value of the income streams that accrue to the corporation's securityholders.

We show that the security-voting structure determines the extent to which a bidder with significant private benefits faces competition from parties who value the firm only for its security benefits. For example, in the absence of competition from another buyer, a voting claim with no dividend rights will be tendered by a securityholder to an acquirer at any positive price. The vote holder would fail to tender at such a price only if he faced a more attractive offer, but the only potential source of competition for pure votes comes from another party with private benefits. In contrast, if dividend rights are bundled with voting claims, some competition can come from parties with only security benefits of control, since such parties will have a positive willingness to pay for a bundle of dividends and votes.

Through this competition effect, the assignment of voting rights determines both whether control will rest in the hands of a high-private-benefit party or a high-security-benefit party, and the value of income claims under the controlling management. Together these effects represent what we call the allocative role

of the assignment of claims. The assignment of voting rights also determines the price an acquirer must pay vote holders for the private benefits of control, which we call the surplus-extraction role. In general, there can be a conflict between the two roles. In particular, while one share-one vote will be optimal if only the allocative role is important, deviations from one share-one vote may sometimes be desirable to take advantage of the surplus-extraction role. In practice, however, we argue that the surplus-extraction role is likely to be small, in which case one share/one vote will dominate all other security-voting structures. We also provide sufficient conditions for alpha to equal 0.5, i.e., for simple majority rule to be optimal.[3]

The paper is organized as follows. In section 2 we provide a summary and overview of our results. This section is designed to give the general flavor of our analysis, using numerical examples only. It can be skipped by those who are comfortable with the more formal analysis that follows. Section 3 describes the model. In section 4 we analyze first the case in which discriminatory restricted offers by a bidder are not feasible, i.e., if an offer is made for a fraction of the shares in a class, then the shares that are not acquired cannot be given

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[3] Ours is not the first attempt to develop a model of security-voting structure. Blair, Gerard, and Golbe (1986) also analyze the effect of security-voting structure on takeover bids, but restrict attention to conditional tender offers and find that security-voting structure is irrelevant in the absence of taxes. Mention should also be made of the paper by Harris and Raviv (1988) written contemporaneously with this one. The Harris-Raviv paper is discussed briefly in section 6.

payments worth less than those for the shares acquired. We provide conditions under which one share-one vote is optimal, and explain that alpha is almost irrelevant when discriminatory restricted offers are not feasible. In section 5, we turn to the case in which discriminatory restricted offers are feasible, where there is a role for alpha as well as security structure. Extensions are discussed in section 6, the empirical evidence is discussed in section 7, and conclusions are presented in section 8.

2 Summary of Results

2.1 Optimal Security Structure in the Absence of Restricted Discriminatory Offers, and With One-Sided Private Benefits

We begin our formal analysis in section 4 by considering the case in which discriminatory restricted offers are not feasible. We also start by assuming that at most one party can obtain substantial private benefits from control. This simplifies the analysis and brings out the following essential point. If the company has two classes of stock, each with voting and dividend rights, but a control change can be effected through the purchase of only the first class of shares, then security holders can achieve a better outcome by shifting dividends to the first class so that a rival must buy more of the dividends to gain control.

For example, suppose the class A shares have a claim to all the votes and 50% of the dividends, while the class B shares have no voting rights and a claim to 50% of the dividends. Assume that the value of the dividends is 200 under the incumbent (i.e., class A and class B are each worth 100 per 100% of their respective class, exclusive of any expected tender premium), and that the total dividend stream is worth 180 under the rival's management (i.e., each class is worth 90). Further assume that the rival is the only party with significant private benefits of control. Let the rival make a tender offer for all of class A at a total price of 101. Then in the absence of a counteroffer, a small holder of class A shares faces the choice of not tendering (and thus holding onto a claim worth 100 if the rival loses or 90 if he wins) or tendering to the rival and receiving 101. The shareholder therefore tenders and the rival obtains control for a price of 101. Holders of class B own shares that are now worth 90. The shareholders have lost by the takeover since the two classes combined receive only 191. The rival pays 101 for the class A shares, which will give him a dividend stream worth only 90. Nevertheless, if there is a synergy value (i.e., private benefit) of more than 11, the transaction will have been profitable for the rival.

Could the above value-reducing offer be blocked by another bidder? The answer is no, given our assumption that the rival is the only party with a private benefit from control. In the absence of a private benefit, a party would be willing to pay at

most 100 for the class A shares, since that is the value of their dividend claims when the rival is defeated and the incumbent retains control. (This conclusion changes if the incumbent can use the target company's assets to pay for a counterbid, since this bestows a private benefit on incumbent management. For discussion of the use of company funds, see section 6.)

Now consider the same situation, except that the class A shares have a claim to 75% of the firm's total dividend stream. The class A shares would be worth 150 under the incumbent. If the rival made an offer for these shares at a price of 101, then a party representing the incumbent could make a counteroffer at a price of 150. Shareholders facing these two competing offers would tender to the higher bidder, and the rival would lose. Clearly, to deter the incumbent now, the rival must pay 151 for the class A shares. If he does this, the value of the firm will still fall, but by less than before: from 200 to (151 + .25 x 180) = 196. Moreover, the rival's capital loss increases from 11 to 16, since he now pays 151 for the class A shares, which yield a dividend stream worth only 135 to him. Hence the likelihood that the rival will make a bid is lower than previously: he will do so only if his synergy value exceeds 16.

What this example illustrates is that when the rival is the only party with a private benefit, raising the dividend claims attached to the votes he must acquire makes him pay more for the benefits of control by intensifying the competition from a party who values the votes only for their dividend claims. The best

outcome for shareholders is achieved when all the dividends are attached to the class A voting shares. In this case--which corresponds to one share-one vote--a rival must purchase the whole dividend stream to get the benefits of control. Further, since it is always possible for the incumbent or his supporters to offer shareholders the value of the status quo, the rival must pay the full value for this dividend stream. Hence, under one share-one vote, shareholder property rights are fully protected; value-reducing bids are impossible.

The above example is concerned with the case in which the rival will decrease the value of the dividend stream. If the rival increases the value of the dividend stream, one share-one vote is neither better nor worse than any other security-voting structure. In this case all shareholders can enjoy the benefits of the rival's improved management by holding onto their shares; furthermore, the rival does not have to pay a premium since, whatever the security-voting structure, an offer that values the firm according to its improved dividend stream cannot be resisted by an inferior incumbent with negligible private benefits of control. Putting the value-decreasing and value-increasing cases together yields the conclusion that one share-one vote dominates all other security-voting structures when the incumbent's private benefit of control is small.

An exactly analogous argument covers the situation in which the rival has negligible private benefits and the incumbent has substantial private benefits. That is, when the incumbent has

private benefits, he may be willing to pay more for the class A shares than a value-increasing rival. In particular, the incumbent will defeat rivals who could increase the total dividend stream as long as his private benefit of control is larger than the share of dividends owned by class A multiplied by the increment in dividend value generated by the rival. To the extent that class A has larger dividend rights, the defeat of such a rival will be more expensive (i.e., occur in fewer situations), and this will increase the total value of the firm's securities when it first goes public.

2.2 Optimal Security Structure in the Absence of Restricted Discriminatory Offers and With Two-Sided Private Benefits

If both parties have private benefits, the security structure can affect securityholders' ability to extract some of the private benefit from the winning bidder. Since the security benefits are a public good to the security holders, a bidder's willingness to pay for control is determined by its private benefit. Therefore, if a class of shares has small dividend claims and large voting claims, both parties will compete for this class, and to win a party must pay the security holders an amount close to the private benefit of the competing party. Thus security holders may receive a large fraction of private benefits as compensation when votes are separated from dividend claims (the surplus-extraction effect). As a result, departures from one share-one vote may sometimes increase market value.

This possibility can be illustrated by an example. Suppose the value of dividends is 10 under the incumbent and 100 under the rival; and that the incumbent's private benefit is 1, while the rival's exceeds 1. This is a case in which the rival's public and private benefits are both greater than the incumbent's. Under one share-one vote, the rival will win control by making an offer for all the shares at a price just above 100. Shareholders will tender because they are being offered more than the post-acquisition value of the company under either the rival or the incumbent. Moreover, the incumbent cannot resist this offer since the most he can afford to pay for 100% of the shares is 11 (comprising the value of the dividend stream under his management plus his private benefit of control). Hence, under one share-one vote the value of the corporation will be (just above) 100.

Suppose instead the charter specifies two classes of securities: class A has all the votes and none of the dividends and class B has all the dividends and none of the votes. Now the competition for control will take place over the class A securities (pure votes). The rival will still win since his willingness to pay for the votes (given by his private benefit of control) exceeds the incumbent's. To deter the incumbent, the rival will make an offer for the votes at just above 1. Thus class A security-holders receive 1, while class B holders have securities which are worth 100 under the rival's management. Therefore security holders receive a total of 101 under a charter

with voting and nonvoting shares, which exceeds the 100 they receive under one share-one vote.

To put it very simply, shareholders benefit when the rival and incumbent compete over products for which they have similar willingnesses to pay; in the example, pure votes qualify better for this than shares and votes together. (In more general examples, where neither party is dominant with respect to both public and private benefits, competition is maximized by a security structure lying somewhere between pure votes and one share-one vote.)

In this example, the surplus-extraction effect dominates the allocative rule discussed previously and leads to a departure from one share-one vote. An important feature of the example is that security holders are confident that both parties to the control contest have substantial private benefits; and that the party with high private benefits also has high security benefits. If high private benefits are not associated with high security benefits, shifting dividend claims away from voting claims may cause a bidder with low security benefits to win control, thus reducing market value overall. In practice we argue that the extraction of large private benefits from a public company is relatively unlikely, and so security holders cannot be confident that both parties to a control contest will have substantial private benefits. Under these conditions we show that the allocative role will dominate the surplus-extraction role and one share-one vote will be the optimal security structure.

2.3 Restricted Offers and the Determination of Alpha

Section 5 discusses the determination of the voting rule alpha. The fraction of votes necessary to defeat the incumbent becomes important in situations in which a party can make an offer for less than 100% of a class, and not provide equal treatment to those shareholders who tender but whose shares are not accepted. Restricted offers allow a party to acquire control by purchasing a fraction of the dividend stream of a class. Therefore the impact on the bidding process of restricted offers for a single class is very similar to the impact of unrestricted offers for a two-class firm where the bidder can acquire control by buying the votes of only one of the classes.

The choice of alpha affects the fraction of total dividends a rival must acquire to obtain control, as well as the fraction of dividends the incumbent needs to acquire to resist the rival (the latter is determined by one minus alpha). The former effect makes a high alpha optimal, whereas the latter effect makes a low alpha optimal. For example, if the corporate charter specifies that alpha = 0.95, then even under a one share-one vote security structure, the incumbent can easily block value-improving offers. In particular, if the dividend stream is worth 100 under the incumbent and 200 under the rival, the incumbent can resist an offer by the rival by making a counter-offer for 5% of the shares at a price of 201. If the rival has no private benefit he will

not be willing to pay more than 200 for any shares, so the incumbent's offer will win. The incumbent pays 10.05 for shares that are worth 5 under his management, and this will be worthwhile if his private benefit exceeds 5.05.

Among other things, we show that one share-one vote and simple majority rule will be optimal when the incumbent's private benefits are substantially larger than the rival's.

3. The Model

3.1 The Corporate Charter

We suppose that the corporate charter is written by an entrepreneur who wants to maximize the total market value of securities issued. The charter creates n classes of shares and specifies the share of dividends s_i and the fraction of total votes v_i to which the i^{th} class is entitled. The charter also specifies a fraction alpha of the outstanding votes a rival team must receive to replace existing management, where $1/2 \leq \text{alpha} \leq 1$.[4]

To simplify matters, we will concentrate on the case where

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[4] We assume alpha $\geq$ 1/2 for two reasons. First, in a more general model with several rival teams, alpha < 1/2 could lead to ambiguous situations in which more than one team achieved the fraction alpha. Second, below we study a contest between the rival R and the incumbent I under the assumption that I requires (1-alpha) votes to fight off R. If alpha < 1/2, however, it would pay I to approach a white knight to fight the contest on his behalf; in this case he would require only alpha votes to win.

there are only two classes of shares, A and B, with dividend and vote entitlements given by s_A, v_A and s_B, v_B, respectively (where $s_A + s_B = 1$, $v_A + v_B = 1$). However, all our results can be extended without difficulty to the case of n classes.[5] Without loss of generality we take A to be the superior voting stock, i.e., $v_A \geq v_B$. Note that one share-one vote is a special case of this dual-class structure where $s_A = v_A = 1$.

We suppose that there are only two candidates for the management position: the incumbent team, I, and a rival team, R. We represent by y^I (y^R) the market value of the income stream accruing to all the firm's security-holders under incumbent management (under the rival R); and by z^I (z^R) the present value of the incumbent's (the rival's) private benefits of control. (So all benefits are measured in current dollars.)

When the corporate charter is written, the market recognizes that the incumbent's characteristics (y^I, z^I) and those of potential rivals, (y^R, z^R), cannot be known far into the future. The charter thus creates a mechanism that will work well in allocating control, averaging over the future random occurrences of (y^I, z^I) and (y^R, z^R). Below we analyze how the assignment of voting rights in the charter affects the allocation of management and shareholder benefits in the event of control

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5 For details, see Grossman and Hart (1987). Formal statements and proofs of many of the propositions in this paper will also be found there.

changes.[6]

3.2 The Corporate Control Contest

We suppose that to become large, a party must make a public tender offer. Some time after y^I, z^I, y^R, z^R are realized, the rival appears and either makes such an offer or doesn't. If R makes a bid, the incumbent will choose whether or not to resist it.[7]

Faced with one or two offers, security-holders will decide whether to tender to R, tender to I, or hold onto their shares. As a result of these tender decisions, R will either accumulate more than the fraction alpha of the corporation's votes necessary for him to win the election or he won't. If he does, R will replace I; if he doesn't, I will retain control. I will also retain control if R chooses not to bid.[8]

We assume that at the time of the control contest the characteristics (y^I, z^I, y^R, z^R) of the bidders are common

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6 We take (y,z) to be exogenous for R and I. In a richer model, (y,z) would depend on managerial actions. For an analysis of managerial agency problems in the presence of takeover bids, see Scharfstein (1986).

7 The incumbent may finance the counterbid out of his own resources (e.g., as in a leveraged buyout) or he may find a "friendly" firm to which the private benefit z^I can be transferred, and which will make the counteroffer (i.e., a white knight).

8 Grossman and Hart (1987) consider a model in which I represents an arbitrageur who can attempt to accumulate enough shares to block R, and thus force R to negotiate a payment for I's shares. This model gives additional insights into the determination of security structure and the choice of alpha. In the present model, bargaining between I and R is assumed not to occur.

knowledge and that security-holders have rational expectations about the contest outcome. Since this outcome is deterministic (either R bids and receives more than alpha of the votes, in which case he wins; or in all other cases I wins), this means that security holders predict the winner with certainty. We also suppose that each securityholder ignores his impact on this outcome. The latter assumption is reasonable, given that securityholders are individually small. The two assumptions together have the important implication that it never pays a bidder to make a losing tender offer. The reason is that a bidder cannot make a capital gain on any shares purchased, since if he offers less than $s_i y^W$ for class i (i = A or B), where y^W represents the value of the firm's dividend stream under the winning management team (W = R or I), individual shareholders in that class can do better by holding onto their shares and receiving their pro-rata share of the value $s_i y^W$ in the post-takeover company. Hence the only return a bidder can make is through the private benefits of control that he receives if he wins.[9]

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[9] This is the free-rider problem discussed in Grossman and Hart (1980). We ignore the possibility that the corporate charter explicitly allows a successful bidder to dilute minority shareholder property rights by diverting company profits to himself, e.g., in the form of salary (the private benefits z do, however, represent an implicit dilution of such property rights). Indeed there is a growing body of evidence that acquirers in hostile takeovers do not benefit significantly from the acquisition; see Jensen and Ruback (1983, p.22). However, see Demsetz (1986) on the existence of large shareholders and Shleifer and Vishny (1986) on their role in reducing the free-rider problem.

3.3 Form of Bid

The most general bid we consider is an unconditional, restricted (i.e., partial) offer (but see section 6). That is, the bidder offers to buy up to a fraction f_i of class i at a price of p_i per 100% of class i, and will prorate equally if more than f_i is tendered. For example, if the bidder makes an offer for 50 Class A shares at a price of $1 per share and 100 shares are tendered, then half of the shares tendered by each investor are returned, and the bidder pays out a total of $50. On the other hand, if 40 shares are tendered, the bidder takes them all and pays out $40.

It turns out that a restricted offer, which allows a bidder to pay a premium on only a fraction of the shares in a class, can be a very potent tool in a takeover contest. Such an offer may sometimes cause difficulties for the bidder, however. For example, in some circumstances it may be possible for a management team to realize its private benefits of control z only if it carries out a second-stage merger with another firm it operates. A problem with such a merger is that management may face allegations of "unfair" treatment by minority shareholders who tendered shares that were not taken up in the original tender offer. In particular, if in its initial tender offer management bid for a fraction f of the class A shares, say, at a price p (per 100% of the class), then in the second-stage merger, minority shareholders whose shares were returned might have good

grounds for arguing that the "fair" value of these shares is at least p and so this is what they should be paid.[10] If the courts accept this, management will be forced to buy up the whole class for p, which means that its attempt to pay a premium on only a fraction of shares in the class fails. In other words, under these conditions, a restricted offer within a class is impossible.

Of course, management will not always face this problem. In some cases, it will be able to realize the benefits z while maintaining the firm as a separate operation. Under these conditions restricted offers are presumably feasible. In what follows we therefore distinguish between the case in which restricted offers can be used and the case in which they cannot. It is also worth noting that it may be easier for the incumbent to realize z without a second-stage merger than for the rival. We therefore also look at the case in which the incumbent can

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10 Shareholders may be able to claim that the fair value exceeds p. In fact our assumption is that shareholders will be able to claim the fair value $s_i y^W$ if $s_i y^W > p$. In Weinberger v. UOP, 475 A.2d 701 (Del. 1983), the Delaware Supreme Court clearly stated that the "fair" value in an appraisal of a minority squeeze-out includes consideration of the future benefits to be expected from the merger. See Herzel and Colling (1984). Note however that federal law does not prohibit second-stage mergers at prices below the first-stage tender price: see Radol v. Thomas 772 F.2d 244 (1985). However, see A C Acquisitions v. Anderson, Clayton & Co., 519 A.2d 103 (Del. ch., 1986), p.113-114, for recognition of the "coercive" nature of a restricted offer, where "coercive" seems to refer to the fact that a restricted offer at a high price per share can lead shareholders to tender to a value-decreasing bidder. See Eisenberg (1976) for a discussion of fiduciary responsibility, and Fischel (1983) for a discussion of the appraisal remedy and of Weinberger v. UOP.

take advantage of a restricted offer, but the rival cannot.[11]

4. The Situation in which Neither the Incumbent nor the Rival Can Benefit from a Restricted Offer within a Class

Consider first the case in which neither R nor I can take advantage of a restricted offer within a class. In other words, each party must make an offer for "any or all" of the shares of a class at a particular price. Note that quite different prices can be offered for the different classes; moreover, the bidder can choose not to buy any shares of one class or equivalently to offer such a low price that none are tendered.

To analyze the control contest, it is useful to start with the situation in which the incumbent's private benefit of control is insignificant. This situation is equivalent to one in which I is an arbitrageur (rather than the incumbent) who holds a small amount of the company's securities before R's offer arrives, and can make a counteroffer such that if R loses, the status quo is maintained.

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[11] We have assumed that the corporate charter is designed by an entrepreneur who chooses the security-voting structure to maximize the market value of securities issued. From a social point of view, the appropriate objective function is the market value of securities plus the net present value of private benefits of control enjoyed by management. The divergence in objectives arises from our implicit assumption that the entrepreneur cannot charge management for its private benefits of control, e.g. by setting an entry fee. There are two justifications for this assumption. First, if management is risk-averse and private benefits are uncertain at the contracting date, management may not be prepared to pay a significant entry fee. Secondly, if management has limited initial wealth, it may not be able to afford a significant entry fee.

Situation 1: z^I is insignificant in relation to z^R, y^I, y^R

To see under what conditions R will make a bid, it is useful to consider how I will respond to such a bid. As argued above, it will not pay I to make a losing counteroffer. Now, in making a winning counterbid, I cannot profit from offering less than $s_i y^I$ for either class i, since then nobody from this class will tender (given that they expect I to win). On the other hand, I cannot afford to offer more than $s_i y^I$ for either class i, since his private benefit is negligible. Hence I's best (break-even) response to a bid from R is to:

(*) offer exactly $s_A y^I$ for class A and $s_B y^I$ for class B.

The issue for R then is whether he can make a bid that (a) will win him more than the fraction alpha of the corporation's votes if it is unopposed; (b) will deter the best response (*) from I, i.e., if both these offers are made, R will win the necessary fraction of votes alpha; and (c) is profitable for R.

Consider first the case in which $y^R > y^I$, i.e., R is the superior management team (in terms of security benefits). Then the following bid by R satisfies (a)-(c): offer a price just above $s_A y^R$ for class A and just above $s_B y^R$ for class B. To see why, note that with only this bid on the table shareholders from both classes will tender to R because, whether they think R will win or not, they are being offered more than the post-acquisition value of the company. In addition, if I resists with the counteroffer (*), I will receive no shares since his offer is

dominated by R's; hence R's bid does deter I. Finally, R makes a profit of z^R on his offer because he breaks even on the shares tendered to him (he pays what they are worth).

There is no more profitable bid for R that wins him control. This follows immediately from our previous observation that since no bidder can make a capital gain on shares tendered to him, a bidder's return is bounded above by his private benefit of control.

Consider next the case in which $y^R < y^I$, i.e., I is the superior management team. Then to deter I, R must offer (slightly) more than $s_A y^I$ for the class A shares if $v_A >$ alpha (i.e., if the superior voting class by itself provides him with enough votes to win); and (slightly) more than $s_A y^I$ for class A shares and $s_B y^I$ for class B shares if $v_A \leq$ alpha (i.e., if he needs both classes to win). The reason is that if R does not make such an offer, I can pick up the (1-alpha) votes necessary to defeat R with the counteroffer (*). Now at the price $s_i y^I$ R makes a capital loss on the class i shares (their value to him is only $s_i y^R$) and so he will purchase as few shares as possible. Hence if $v_A >$ alpha, R will purchase only the class A stock and his capital loss will be $L = s_A(y^I - y^R)$; while if $v_A \leq$ alpha, R will have to purchase both classes and his capital loss will be $L = (y^I - y^R)$. This loss must be weighed against R's private benefit of control, z^R. We may conclude that R will win control if and only if $z^R > L$.

Summary of Situation 1:

(1) If $y^R \geq y^I$, R wins control with an offer of (just above) $s_A y^R$ for class A shares and $s_B y^R$ for class B shares. All shareholders will tender and the market value of the firm will be y^R.[12]

(2) Given $y^R < y^I$, R will win control if and only if $z^R > L$, where $L = s_A(y^I - y^R)$ if $v_A >$ alpha and $L = (y^I - y^R)$ if $v_A \leq$ alpha. In the event $z^R > L$, R will offer (just above) $s_A y^I$ for the class A shares if $v_A >$ alpha (and the class B shares will be worth $s_B y^R$); while if $v_A \leq$ alpha, R will offer (just above) $s_A y^I$ for the A shares and (just above) $s_B y^I$ for the B shares. Given $z^R > L$ (i.e., R does take control), the market value of the firm will therefore be $V = s_A y^I + s_B y^R$ if $v_A >$ alpha, and y^I if $v_A \leq$ alpha. We can rewrite this as $V = y^R + L$. On the other hand, if $z^R \leq L$ (i.e., the incumbent retains control), the market value of the firm will be y^I.

It is easy to see from the summary how the security-voting structure influences the outcome of the control contest. If $y^R \geq y^I$, it has no effect, since R wins regardless of the structure. However, if $y^R < y^I$, the security-voting structure does matter, since it determines the size of L and hence both whether R takes

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12 Market value here refers to the value of the firm once the characteristics of the incumbent and rival become common knowledge.

control and the value of the firm if R does take control. Shareholders never benefit when an inferior rival wins control, since the market value doesn't rise above y^I (its status quo value) and in some cases it falls (in particular, when R has to buy up only the A shares). Furthermore, the capital loss experienced by shareholders is decreasing in L. Therefore if $y^I > y^R$, shareholders want to make L large. This goal is accomplished by setting s_A large, alpha large, and v_A small. In particular, <u>either</u> one share-one vote (or, more generally, any structure with $s_A = 1$) <u>or</u> a dual-class structure with $s_A < 1$ but $v_A \leq$ alpha will dominate all other structures, since both force R to buy up 100% of the profit stream and so the firm's market value never falls below y^I. In contrast with any other structure there will be values of y^I, y^R, and z^R such that an inferior rival takes control by buying up less than 100% of the profit stream and reducing the value of the firm.

Under one share-one vote, alpha is irrelevant, since R has to buy 100% of the single class regardless (the same is true if $s_A = 1$). In contrast, alpha is important if $s_A < 1$ because it determines whether R has to buy up both classes or just class A shares. Further, the only optimal dual-class structure is one in which the winning bidder must buy 100% of all classes. This is really equivalent to a one share-one vote security structure.

One striking feature of situation 1 is that all security-voting structures allow a superior rival to win control at the price y^R. This is a consequence of the assumption that z^I is

insignificant and so I cannot use his private benefit to fight off the rival. We now drop this assumption, considering first the polar opposite of situation 1: where z^I is significant but z^R is not.

Situation 2: z^R is insignificant in relation to z^I, y^I, y^R

Essentially we can adapt the analysis of situation 1, reversing the roles of R and I. It is now useful to start by considering the most aggressive bid that R can make for the firm. Given that he will win control, R is prepared to:

(**) offer $s_A y^R$ for the class A shares and $s_B y^R$ for the class B shares,

since this will allow him just to break even. R cannot offer more because his private benefit is insignificant; on the other hand, he cannot offer less and receive any shares, since given that he is expected to win, shareholders will prefer to hold on than to tender.

If $y^I \geq y^R$, it is clear that I can easily defeat this offer by bidding (just above) $s_A y^I$, $s_B y^I$ for the two classes, since then, whomever shareholders think will win, they will tender to I rather than to R. Hence in this case R will not make an offer at all and I will retain control.

On the other hand, suppose $y^I < y^R$. Now, to defeat R's offer, I must take a capital loss on the shares he purchases. Since $v_A \geq 1/2 \geq$ (1-alpha) (i.e., the class A shares provide enough votes for I to defeat R), I will minimize this loss either

by offering (just above) $s_A y^R$ for the class A shares alone; or, if $v_B \geq$ (1-alpha) and $s_B < s_A$, by offering $s_B y^R$ for the class B shares alone. This makes I's capital loss $L_I = s_A (y^R - y^I)$ if $v_B <$ (1-alpha); and $L_I =$ Min (s_A, s_B) $(y^R - y^I)$ if $v_B \geq$ (1-alpha). Of course, I will be prepared to incur this loss only if it is less than his private benefit. We may conclude that, given $y^I < y^R$, R will take control if and only if $z^I \leq L_I$.

We may summarize situation 2 as follows:

Summary of Situation 2:

(1) If $y^I \geq y^R$, I retains control and the value of the firm = y^I.

(2) Given $y^I < y^R$, R wins control if and only if $z^I \leq L_I$, where $L_I = s_A(y^R - y^I)$ if $v_B <$ (1-alpha); and $L_I =$ Min (s_A, s_B) $(y^R - y^I)$ if $v_B \geq$ (1-alpha). If $z^I \leq L_I$, R makes the offer (**) and the market value of the firm is y^R. If $z^I > L_I$, R does not make an offer and the market value of the firm is y^I.

One asymmetry between situations 1 and 2 should be noted. In situation 1, when $y^R < y^I$, the size of L affects both whether R takes control and the value of the firm in this event; in contrast, in situation 2, when $y^I < y^R$, L_I affects whether I retains control but the value of the firm is independent of L_I in this event. The difference stems from our assumption that in order to win control, R must make an offer that deters I and this

offer will disgorge some of R's private benefits; on the other hand, when I retains control, R does not bid at all and so I is not forced to make a deterring offer; hence the value of the firm does not rise above y^I.

The effects of the security-voting structure on control contests in situation 2 are easy to discern. If $y^I \geq y^R$, security-voting structure has no effect since R wins regardless. However, if $y^I < y^R$, security-voting structure does have an effect by determining the size of L_I. When a superior rival takes control, this is good for shareholders because the value of the firm increases from y^I to y^R. Therefore a good security-voting structure is one that maximizes L_I. It follows that one share-one vote, or more generally $s_A = 1$, $v_B <$ (1-alpha), dominates all other structures. In particular, under such a structure $L_I = (y^R - y^I)$, whereas under all other structures $L_I < (y^R - y^I)$.

If we combine situations 1 and 2, we see that one share-one vote (more generally, a security structure with $s_A = 1$ and $v_B <$ (1-alpha)) dominates all other security-voting structures. The intuition for this is that when only one party has a significant private benefit, competition between the two parties is maximized by having them fight over as large a fraction of the firm's profit stream as possible since this puts minimum weight on private benefits in relation to public benefits. Having one class of shares with votes attached is good in this regard because it forces each party to buy up 100% of the profit stream

(in the absence of restricted offers). Any other security structure, in contrast, allows at least one party to gain control with a purchase of less than 100% of the profit stream.

When both parties' private benefits are significant, matters become more complicated. We turn next to this case.

Situation 3: z^I, z^R are both significant (in relation to y^I, y^R)

When both parties have significant private benefits, competition between them is no longer necessarily maximized by having them fight over 100% of the firm's profit stream. As a result, departures from one share-one vote may sometimes increase market value. An example of this possibility was given in section 2.2. In the example, the rival's public and private benefits are both greater than the incumbent's. Hence the rival wins control under any security structure. Under one share-one vote, however, shareholders extract none of R's private bneefit. This is because in the competition over bundles of public benefit y and private benefit z, R is sufficiently dominant in relation to I that R can win by paying only y^R; which is what shareholders get by free-riding anyway. In contrast, under a pure votes system, the competition takes place over the pure private benefit, and this leads to the extraction of some of R's surplus.

The example shows that when both parties have private benefits, the surplus-extraction effect can dominate the allocative effect described previously. We discuss the importance of this possibility further below. First, however, we

complete our analysis by considering:

Situation 4: z^I and z^R are both insignificant (in relation to y^I, y^R)

This situation is very straightforward. If $y^R > y^I$, R wins control by making an offer at (just above) $s_A y^R$ for the A shares and $s_B y^R$ for the B shares. I cannot resist this offer because he would incur a large capital loss by doing so. On the other hand, if $y^R < y^I$, I retains control, because R cannot afford to bid $s_i y^I$ for either class and this would be required to deter I.

Hence in situation 4, the superior management team always wins control regardless of the security-voting structure, because neither party can use its private benefit to offset any disadvantage in security benefit.[13] Although this conclusion is fairly obvious, it confirms the idea that private benefits of control are a crucial ingredient in determining optimal security-voting structure.

We may summarize the analysis for the case in which neither the rival nor the incumbent can take advantage of discriminatory restricted offers as follows. One share-one vote (more generally, $s_A = 1$ and $v_B <$ (1-alpha)) dominates all other security-voting structures if either the incumbent's or the rival's private benefit of control is insignificant; if both

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[13] There is one case in which this conclusion does not hold and it occurs when there is a security consisting of pure votes ($s_i = 0$). This structure is inferior to all others in situation 4, however, and so will be disregarded.

private benefits are insignificant, one share-one vote is neither better nor worse than other structures; but one share-one vote may not be optimal if both private benefits are significant.

How important are the events described in situation 3 in predicting that firms will find it optimal to deviate from one share-one vote? Our feeling is that, although a high likelihood of situation 3 events may explain some observed departures from one share-one vote, in general the surplus-extraction effect is overwhelmed by the allocation effects identified in situations 1 and 2. As support for this position, note that while the potential private benefits z^R, z^I may sometimes be large (relative to y^R, y^I), corporate law will tend to make it difficult for the controlling party to realize these benefits. The corporation's directors have a fiduciary duty to all shareholders, and overt diversion of wealth to a controlling party at the expense of minority shareholders would violate this duty. The controlling party can avoid the conflict of interest between itself and other shareholders by buying out the shareholders, but in this case the courts, in an appraisal proceeding, could decide that it is unfair for the controlling party to get a large benefit without compensating the shareholders. In particular, unless the corporate charter explicitly permits the majority to derive significant benefits from control [through the types of dilution discussed in Grossman and Hart (1980)], minority shareholders can assert and perfect claims against the private benefits enjoyed by the majority. Of

course, the courts cannot always be relied upon to ensure that the majority and minority enjoy equal treatment, so the entrepreneur in writing a charter must take into account the possibility that z^R, z^I will sometimes be large. Arguably, however, the chance that both will be simultaneously large can be ignored.

We can sum up as follows.

Proposition 1. Suppose the situation in which both the incumbent's and the rival's private benefits of control are significant can be ignored. Then if neither party can take advantage of restricted offers, one share-one vote (more generally, a structure in which the superior voting stock receives all the dividends and the inferior voting stock has less than a fraction (1-alpha) of the votes) dominates all other security-voting structures. Further, under one share-one vote, the choice of alpha is irrelevant.[14]

The conclusion that alpha is irrelevant is, of course, a direct consequence of the prohibition of restricted offers. We relax this assumption in the next section.

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[14] We have not discussed the social optimality of different security-voting structures. However, it is worth noting that one share-one vote also leads to an efficient outcome. The reason is that a management team's willingness to pay for a single class of voting equity is given by (y + z) and therefore under one share-one vote the corporate control contest will be won by the team with the higher social (i.e., security plus private) benefits.

5. The Situation in which Restricted Offers are Possible

An important characteristic of a restricted offer is that it can defeat an unrestricted offer even when the latter is worth more. For example, under one share-one vote and majority rule, a restricted offer for 50% of the shares at a price per share of 70 will win over an unrestricted offer of 60. This is because if it is thought that the restricted offeror is going to lose, he will not be prorating the shares he receives. Hence a shareholder will always prefer to tender to the restricted offeror when he is expected to lose. Thus, the restricted offeror wins and shareholders get less than 60 if $(1/2)70 + (1/2)y < 60$, where y is the value of dividends under the winner.

We begin with a situation in which the incumbent can make a restricted offer but the rival cannot. This might be because the rival has to undertake a second-stage merger to realize his private benefit of control, whereas the incumbent can realize his private benefit by operating the firm as an independent company.

A restricted offer is in fact useful to the incumbent only if his private benefit is significant. The reason is that only in this situation does I offer a premium. That is, if z^I is insignificant, I cannot do better than make the break-even offer $s_i y^I$ for class i, in which case he might as well accept all shares tendered to him.

Out of the four situations considered in the last section, therefore, the analysis changes only in situations 2 and 3. In

situation 2, it is now cheaper for I to resist the bid (**) by R when $y^R > y^I$, since he needs to buy up only some of the class A or class B shares at the price $s_i y^R$. In fact, I may choose to buy a combination of A and B shares. To see what I's optimal strategy is, note that the effective cost of a class A vote is $(s_A/v_A)\ (y^R - y^I)$ since, in exchange for the payment $s_A y^R$ for class A, I receives v_A votes and gets a security worth $s_A y^I$. The corresponding cost of a B vote is $(s_B/v_B)\ (y^R - y^I)$. Therefore, if $(s_A/v_A) \leq (s_B/v_B)$, I will buy only class A shares--in fact the fraction $[(1\text{-alpha})/v_A]$ of the class; while if $(s_A/v_A) \geq (s_B/v_B)$, I will buy only class B shares if $v_B \geq (1\text{-alpha})$; and all the B shares plus some A shares if $v_B < (1\text{-alpha})$. I's capital loss is therefore now measured by:

$$L_I = \begin{cases} (1\text{-alpha})\ (s_A/v_A)\ (y^R - y^I) & \text{if } s_A/v_A \leq s_B/v_B \\ (1\text{-alpha})\ (s_B/v_B)\ (y^R - y^I) & \text{if } s_A/v_A > s_B/v_B \text{ and } v_B \geq (1\text{-alpha}) \\ \{s_B + (1\text{-alpha}-v_B)(s_A/v_A)\}(y^R - y^I) & \text{if } s_A/v_A > s_B/v_B \text{ and } v_B < (1\text{-alpha}). \end{cases}$$

Except for this change in L_I, everything else stays the same in the summary of situation 2 given in the last section.

Two points should be noted. First, under one share-one vote, $L_I = (1\text{-alpha})\ (y^R - y^I)$ [since I must buy up a fraction (1-alpha) of the single class of equity], whereas under any other structure $L_I \leq (1\text{-alpha})\ (y^R - y^I)$. The latter observation follows from the fact that it is always feasible for I to accumulate the fraction (1-alpha) of votes he requires by buying a fraction (1-

alpha) of each class A and B; the cost of this strategy is (1-alpha) (y^R-y^I) and so the cost of the optimal strategy cannot be higher.[15] Since we observed in section 3 that a large value of L_I is good, it follows that (given alpha) one share-one vote again dominates all other security-voting structures.[16]

Second, L_I is now strictly decreasing in alpha. It follows that alpha now matters in situation 2 and in fact alpha = 0.5 is optimal. Therefore, since alpha is irrelevant in situations 1 and 4 and if we continue to ignore situation 3 on the same grounds as in section 4, we have:

Proposition 2. Suppose the possibility that the incumbent's and the rival's private benefits are simultaneously significant can be ignored. Then if only I can take advantage of a restricted

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15 In fact it will be strictly lower unless $(s_A/v_A) = (s_B/v_B)$.

16 To be precise, it strictly dominates all structures with $(s_A/v_A) \neq (s_B/v_B)$; and is equivalent to dual-class structures with $(s_A/v_A) = (s_B/v_B)$. This conclusion generalizes to the case of n classes of shares, where class i is assigned a fraction s_i of dividends and v_i of the votes. An incumbent who wants to buy up as small a fraction of the firm's profit stream as possible at the deterring price of y^R(per 100%), but who needs to acquire a fraction (1-alpha) of the votes will solve the linear programming problem: Minimize $(f_1s_1 + f_2s_2 +\ldots + f_ns_n)$ subject to $(f_1v_1 + f_2v_2 +\ldots + f_nv_n) \geq$ (1-alpha); where f_i is the fraction of class i purchased. The value of this problem, S_I, satisfies $S_I \leq$ (1-alpha) with equality if and only if $(s_1/v_1) = \ldots = (s_n/v_n)$. The first part of this statement follows from the fact that $f_1 = \ldots = f_n =$ (1-alpha) is a feasible solution. The second part follows from the fact that the first-order conditions for the linear programming problem imply that the solution cannot be interior unless $(s_1/v_1) = \ldots = (s_n/v_n)$. For further details, see Grossman and Hart (1987).

offer, one share-one vote and alpha = 0.5 dominates all other security-voting structures.

We turn next to the case in which both the rival and the incumbent can take advantage of restricted offers. The only further change this makes is when z^R is significant, since restricted offers do not benefit R otherwise. Therefore it is now situation 1 that is altered. In particular, if $y^R < y^I$, then R, in making a bid that deters I's bid (*), now needs to buy only a fraction of class A or B shares. To see what R's optimal strategy is, note that the cost of a class A vote is $(s_A/v_A)\ (y^I - y^R)$ and the cost of a class B vote is $(s_B/v_B)\ (y^I - y^R)$. Therefore if $(s_A/v_A) \leq (s_B/v_B)$, R will buy the fraction (alpha/v_A) of class A shares if $v_A \geq \text{alpha}$; and all the class A shares plus a fraction $(\text{alpha} - v_A)/v_B$ of the class B shares if $v_A < \text{alpha}$; while if $(s_A/v_A) > (s_B/v_B)$, R will buy all the class B shares and a fraction $(\text{alpha} - v_B)/v_A$ of the class A shares. R's capital loss is therefore now measured by:

$$L = \begin{cases} (s_A/v_A)(y^I - y^R)\,\text{alpha} & \text{if } s_A/v_A \leq s_B/v_B \text{ and } v_A \geq \text{alpha} \\ (s_A + (\text{alpha} - v_A)(s_B/v_B))(y^I - y^R) & \text{if } s_A/v_A \leq s_B/v_B \text{ and } v_A < \text{alpha} \\ (s_B + (\text{alpha} - v_B)(s_A/v_A)(y^I - y^R) & \text{if } s_A/v_A > s_B/v_B \end{cases}$$

In the event that $z^R > L$, the value of the firm is given as before by

$V = y^R + L.$

For the same reasons as in section 4, a large value of L is good for shareholders. Therefore, one share-one vote continues to dominate all other structures in situation 1 (for a given alpha). In particular, one share-one vote yields L = alpha ($y^I - y^R$) (since I must buy up a fraction alpha of the single class of equity), whereas all other structures yield $L \leq$ alpha ($y^I - y^R$) [since it is always feasible for R to win control by buying a fraction alpha of each class at a cost of alpha($y^I - y^R$)]. One important difference from section 4, however, is that L is increasing in alpha and so alpha = 1 (or arbitrarily close to 1) is now optimal in situation 1.

If we put situations 1, 2, and 4 together for the case in which R and I can both make restricted offers (continuing to ignore situation 3), we see that one share-one vote is optimal in all cases, but there is a conflict over alpha. The point is that in situation 2, a low value of alpha is good, since it forces an incumbent with a significant private benefit to buy a large fraction of the firm's profit stream, thereby diluting the distorting effect of this benefit; whereas in situation 1, a high value of alpha is good for similar reasons concerning the rival. Where between 0.5 and 1 the optimal value of alpha should lie therefore depends on the relative importance of situations 1 and 2. We may summarize as follows:

Proposition 3. Suppose the possibility that the incumbent's and rival's private benefits are simultaneously significant can be ignored. Then if both R and I can take advantage of restricted offers, one share-one vote is optimal.[17] The optimal choice of alpha will be close to 0.5 if the likelihood of I's private benefit being significant is relatively high; and close to 1 if the likelihood of R's private benefit being significant is relatively high.

Although one share-one vote continues to be an optimal security-voting structure in the presence of restricted offers, it no longer perfectly protects shareholder property rights. This is clear from the example at the beginning of this section. If $y^I = 60$, $z^I = 0$, $y^R = 40$, $z^I = 15$, and alpha = 0.5, R will win control with a restricted offer for 50% of the shares at just above 60. The point is that, even though the value of the firm falls to 50, I cannot resist this offer, because his best break-even counteroffer is an unrestricted bid at 60. Of course, it should not be surprising that value-reducing bids are possible in the presence of restricted offers, since, as we have noted previously, there are close parallels between restricted offers and dual-class share structures.

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17 To be precise, for each alpha one share-one vote dominates all structures with $(s_A/va_A) \neq (s_B/v_B)$. The situation $(s_A/v_A) = (s_B/v_B)$ is equivalent to one share-one vote in the presence of restricted offers by R and I. Again, this conclusion generalizes to the case of n classes of shares. See footnote 16 and Grossman and Hart (1987).

6. Further Remarks

6.1 Private Benefits, Freeze-out Mergers, and Self-Tenders

It is sometimes argued that the ability of minority shareholders to free-ride on a bidder's improvement in a company is limited by the possibility of freeze-out mergers. We have already allowed for partial freeze-out mergers; in fact the private benefit z can be interpreted as that part of total benefits (y+z) that a management team can divert to itself using such a merger. In the case of an extreme freeze-out merger, however, where minority shareholders receive no benefits at all by not tendering, i.e., $y^R = y^I = 0$, security structure is irrelevant, and all that matters is the fraction of votes each party requires to win control.[18] If we combine the case of extreme freeze-out mergers with that of partial freeze-outs, we see that there is still a strong argument for one share-one vote. In particular, since one share-one vote is optimal when freeze-

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[18] To see this, note that a bidding party who tenders for a security class consisting of votes and dividends in a particular proportion is effectively tendering for the pure votes, since the dividends are worthless under his management. That is, all security structures are equivalent to one in which one security consists of pure votes and the other of pure dividends. The choice of alpha is still important, however. In particular, in the case in which both the incumbent and the rival can make restricted offers, the rival's willingness to pay for the fraction alpha of votes is (z^R/alpha) per vote, while the incumbent's willingness to pay for the fraction (1-alpha) of votes is $(z^R/(1\text{-alpha}))$. Therefore, an increase in alpha will increase the degree of competition between the rival and incumbent to the extent that $(z^R/\text{alpha}) < (z^I/1\text{-alpha})$.

outs are limited and is not suboptimal when they aren't, one share-one vote continues to dominate all other security structures. It is also worth noting that the rival's ability to freezeout is arguably different from the incumbent's. If the rival can engage in a complete freezeout while the incumbent cannot, we are in the section 5 situation in which the rival's private benefit is likely to dominate the incumbent's, and we can apply proposition 3 to conclude that one share-one vote and alpha = 1 is optimal. On the other hand, if the incumbent can engage in a complete freezeout while the rival cannot, we are in the section 5 situation in which the incumbent's private benefit is likely to dominate the rival's, and we can apply proposition 3 to conclude that one share-one vote and alpha = 0.5 is optimal.

Analogous comments can be made about defensive self-tenders by incumbent management. If the incumbent can use the firm's assets to finance a self-tender, the incumbent's offer becomes equivalent to an offer by a party with a large private benefit. For example, if $y^I = 100$ and $z^I = 1$ and the incumbent can pledge 20% of the company's assets to finance a defensive self-tender, then the incumbent is capable of paying $1 + (.2)100 = 21$ for alpha of the votes. Thus the outcome of a control contest will be as if his private benefits are 21 rather than 1. If it is legally feasible for the incumbent to act as above, and this causes the incumbent effectively to have large private benefits in relation to the rival, then proposition 3 can be applied to

conclude that one share-one vote and alpha = 0.5 is optimal[19]

6.2 More General Offers

So far we have considered only different types of restricted offers a bidder might make. More complicated offers are theoretically feasible, however. For example, consider the case of one share-one vote. Then a rival with characteristics (y^R, z^R) could make the following offer: he will pay just above y^R (per 100%) if more than the fraction alpha of shares is tendered to him; and a large amount P (per 100%) if less than the fraction alpha of shares is tendered. Such an offer is more general than the restricted offers we have considered in that it makes the payment for shares a function of the fraction tendered.

It turns out that an offer like this -- in which more is paid if the bidder loses than if he wins! -- is remarkably powerful in deterring competition from the incumbent (or anyone else). The reason is that the only way for the incumbent to block this bid is by paying more than P (per 100%) for a fraction (1-alpha) of the shares. In particular, if the incumbent makes any offer (however complicated or sophisticated) that causes him to pay out less than P (per 100%), this offer cannot win against R because, if shareholders expect it to win, they can do better by tendering to R and receiving P (which R has guaranteed in the event that he loses). It follows that I's losses will be at

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19 See A C Aquisitions v. Anderson Clayton Del. Ch. 519 A.2d 103 (1986) for comments on the legality of defensive self tender offers. See also Bradley and Rozensweig (1985) and Harris and Raviv (1988) for a discussion of self-tenders.

least (1-alpha)(P-y^I), which will exceed his private benefit z^I if P is sufficiently large. Hence I will not make a counter-offer.[20]

Given that R's offer deters competition from the incumbent, R will, of course, win control, since all shareholders will tender to him at above y^R (this is better than holding on and receiving y^R). Hence the rival is able to obtain control at just above y^R and make a net profit of z^R, even if y^R is much smaller than y^I, i.e., even if the rival is far inferior to the incumbent. That is, with general offers like these, the rival will <u>always</u> gain control.

We see then that if general offers are allowed, a one share-one vote security structure no longer protects shareholder property rights. However, no other security structure does better: the rival can win at a price of y^R whatever the structure. Hence to the extent that general offers like these are not always used (and although they do not appear to be illegal, for some reason they are <u>not</u> used), one share-one vote still dominates all other security structures.

6.3 <u>More Complex Security Structures</u>

So far we have analyzed the optimal security structure in a context in which all claims to income are proportional, i.e.,

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20 R's offer to pay more if he loses than if he wins is akin to a firm's announcing that it will lower its output price if any other firm enters its market. It is hardly surprising that such an offer deters entry by another bidder.

each security is characterized by a share "s" of profit. We have thus excluded debt, warrants, convertible debentures, etc. To incorporate such securities in the model we would have to consider nonlinear sharing rules that, say, give the i^{th} security a function $f_i(y)$ of total profit y. It can be shown that if these functions are restricted to be nondecreasing in profit, then (if private benefits are not simultaneously large) an optimal security-voting structure will consist of a combination of riskless debt and one share-one vote common stock.

Another restrictive assumption made is that the charter specifies voting rights to be independent of future information. This excludes risky debt where a default shifts control (i.e., votes) from equity holders to debt holders. It also excludes nonvoting preferred shares that obtain voting rights consequent to a series of low dividend payments. A careful analysis of such state-contingent voting rights would involve studying a multiperiod model, and this is deferred to future work. However, we think that the basic principle we have identified will still apply: tying votes to shares on a one-to-one basis is most likely to cause control to shift to an outsider who will raise the market value of the firm.

The preceding draws attention to a further restrictive assumption, namely that the security-voting structure is responsible for allocating control, while the managerial compensation scheme is responsible for assuring that management maximizes profit to the best of its ability. In reality, the

allocation of control and the managerial compensation scheme are not completely separable. An entrepreneur who sets up a corporation will make various investments of time and other resources, for which adequate compensation may be impossible unless the entrepreneur possesses the residual rights inherent in control.[21] For this reason, parties to the initial capitalization of the corporation will try to allocate control changes in a manner that is as sensitive to public information as is feasible. For example, in the case of debt, the contract will explicitly define default events in which failure to make an immediate payment in full will shift control from management to debt holders. Presumably, the award of ordinary voting rights, which would allow the debt holders to achieve control independent of a default event, gives insufficient protection to the entrepreneur (and possibly other security holders) in relation to its benefits.[22]

6.4 Vote-Selling

We have assumed throughout that it is illegal or infeasible for a party to make a tender offer for the irrevocable proxies of security holders, in which he pays only for the votes and gets

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[21] See Grossman and Hart (1986) for an analysis of the determinants of the allocation of control rights.

[22] See Aghion and Bolton (1986) and Jensen and Meckling (1976) for a discussion of this and related points.

none of the dividend claims.[23] If an acquirer or an investment bank could profitably unbundle votes from shares, and repackage a firm's security-voting structure, then security holders would not be able to protect themselves from high-private-benefit but low-security-benefit acquisitions, and the outcome of any control contest would be as if the firm had all of its votes attached to non-dividend-paying securities.[24]

This assumption - that an acquirer can tender directly for votes no matter what type of security-voting structure is chosen by the firm - is made by Harris and Raviv (1988) in their analysis of optimal security-voting structures. Nevertheless, they reach conclusions similar to ours because <u>each</u> security holder, in tendering his votes, assumes that he will be pivotal to the outcome of the control contest, and thus <u>his</u> tender decision will induce a change in the capital value of any dividend-paying securities he owns. In contrast, we assume that no shareholder thinks his tender decision will be pivotal, but the acquirer cannot separate votes from shares in his offer if the security structure has tied them together.

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[23] Easterbrook and Fischel (1983), argue that a public market in votes separated from dividend claims is illegal.

[24] For example, an acquirer could make an offer to shareholders in a one share-one vote company that paid them a small cash amount $p and gave them one share of a new fund in exchange for each share of their existing securities. The new fund would pass through all dividends, but the acquirer would maintain voting control of the shares deposited in the fund. Acquirers who competed in this manner would, in effect, be making direct offers for votes, and the outcome would be as if the firm had a two-class voting structure in which one class had all the votes and none of the dividends.

6.5 Contested Offers

In section 4, we considered how the surplus-extraction role of the security-voting structure can conflict with the allocative role if the incumbent or the acquirer has private benefits of control. Our analysis and results would be essentially unchanged if, instead of considering competition between the acquirer and the incumbent, we had considered competition between two acquirers. One difference is that if we interpret I as another rival rather than the incumbent, then setting alpha > 0.5 no longer makes it easier for I to attain control. The reason is that the acquisition of (1-alpha) by I would not entitle him to the private benefits of control. Our analysis would have to be modified so that I makes an offer for alpha rather than (1-alpha) when he competes against R. Our results on the optimality of one share-one vote, however, would be unchanged.

7. Empirical Evidence on Deviations from One Share-One Vote

Our theoretical results can be further clarified by reference to empirical evidence on deviations from one share-one vote. First, our model assumes that securities are widely held, and that the market for corporate control is the important factor in allocating control. We thus have nothing to say about the much more complicated specific control agreements that are used

in closely held corporations.[25] Second, since until very recently one share-one vote was a requirement for listing on the New York Stock Exchange, it is necessary to look elsewhere for widely held companies with different voting structures.

DeAngelo and DeAngelo (1985, p.39) identified 78 companies publicly traded on the American Stock Exchange and over the counter (out of a universe of thousands of companies) that had classes of securities with differing voting rights. They found that in a majority of the cases that deviated from one share-one vote, the structure gave the incumbent enough votes so that a change in control was impossible without his approval. In particular, the observed deviation from one share-one vote did not create a situation in which widely held securities had differing effective voting rights; instead it created a situation in which the incumbent had all the effective votes necessary to maintain control, i.e., alpha was effectively equal to one. In our model this can occur when the benefits of preventing value-decreasing hostile control changes outweigh the costs of

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[25] Voting rights are most important to securityholders who are not promised a particular payout, but instead a claim to discretionary payments. Thus, our theory excludes default-free debt and preferred stock issues that are equivalent to such debt (but see section 6.3). Similarly, another deviation from one share-one vote involves mutual insurance companies, banks and investment funds, where the takeover bid mechanism cannot operate to effect control changes. In such firms, the types of activities engaged in are more severely circumscribed by charter provisions than is the case in the typical common stock corporation. This, combined with industry regulation and competition, reduces somewhat the discretionary character of the payments given to security-holders. See Mayers and Smith (1986) for an analysis of mutual versus stock insurance companies.

preventing value-increasing control changes, i.e., where the rival's private benefit is likely to be large, but his security benefits are likely to be less than those of the incumbent (see proposition 3).

In sections 4 and 5, we emphasize that when private benefits are small in relation to security benefits, one share-one vote and alpha < 1 are generally optimal. Empirically, as we noted earlier, management's fiduciary responsibility and the minority shareholders' appraisal remedy limit private benefits. The DeAngelo and DeAngelo study suggests that when there is a deviation from alpha < 1 and one share-one vote, it is for the purpose of maintaining family control over an enterprise. Presumably in such cases the family receives significant private benefits from control. If the private benefits were small, the family would find it in its interest to allow the market to determine control changes, and be rewarded for these benefits by a compensation agreement that paid it following a change in control. Because the private benefits are large, however, the family prefers a charter that makes hostile bids impossible.[26]

Indeed, if the private benefits are available to compensate

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[26] If a compensation agreement were used when private benefits were large, the compensation ("golden parachute") would have to be large. Clearly, compensation that is a significant percentage of the market value creates moral hazards that might lead the incumbent to induce a control change even if it did not raise market value. More to the point, the best compensation rule would involve giving the incumbent a share of market value, but when the private benefits are large this has negative risk-bearing consequences, and hence can be a very costly method of inducing the incumbent to allow the market to decide who should have control.

the family for the sunk investments in setting up the company, then it can be efficient for the charter to give the family the power to block hostile offers from other parties seeking to acquire these private benefits.[27] If the private benefits represent a return to sunk investments, it would not be efficient to have the voting securities widely held, as in our model, since the family would then have to compete against hostile offers and thus pay security holders for the rights to their private benefits.

Therefore the DeAngelo and DeAngelo results are consistent with our theoretical results about optimal security structure. That is, though deviations from one share-one vote occasionally occur, they do so in situations in which private benefits are large.

8. Conclusions

We conclude with some remarks about the relevance of our model to the current policy debate on whether a corporation should be required to have a one share-one vote security structure as a condition for listing on various physical or

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[27] That is, private benefits may represent a return to activities for which the intial security holders were willing to pay. Leo Herzel has suggested a type of private benefit that may lead to alpha = 1. A family may sink costs into setting up a newspaper because of its desire to enjoy the future benefits of editorial control. These benefits are a return to sunk investment, but a rival who took control could get these benefits (possibly by changing editorial style) without having sunk the costs.

electronic stock exchanges. First, our results show that deviations from one share-one vote can be a characteristic of a corporate charter that is in security holders' best interest. We thus see no reason to interfere with the ability of a new company to choose a corporate charter and security structure that gives it the lowest cost of raising capital.

Our analysis has not dealt with the issue of a change in the security-voting structure by an old company which has a one share-one vote charter. Nevertheless, we would view such a change with suspicion. If such a corporation changes its structure so that incumbent management is entrenched and isolated from the market for corporate control, our result that one share-one vote is generally in security holders' interest, and the fact that managerial entrenchment is in a manager's self-interest, leads us to believe that security holders may be harmed. We would hold this view even if a majority (or 2/3) of shareholders voted for the change. The role of the market for corporate control derives from the fact that it is generally optimal for small shareholders to vote with management, and not devote the time and effort to read proxy statements and form an independent view. Hence, the fact that shareholders vote for a withdrawal from the corporate control market is only a weak defense of management's position.

The preceding observation may apply with less force to a corporation in which management already holds a majority of the votes, and wants to change the voting structure so that it may

hold fewer shares of profit, yet still maintain voting control. For example, a family may wish to raise capital for other projects, or to diversify some of its wealth out of a company it founded. It does not necessarily want to sell its shares, since this would entail a loss of voting control, so it separates its shares from its votes by creating a class of shares with lower dividend claims but more votes than the common shares. If the initial shareholders expected management to maintain voting control, this change in security structure is consistent with the original desire to isolate the company from the corporate control market, and hence should not be interfered with. Of course, this conclusion would not be valid if shareholders instead expected that management would sell its combined shares and votes and relinquish control.

Even if it is undesirable to allow ex-post changes in security-voting structures, this has no particular implication for legislation on listing requirements. An exchange's listing requirements are an attempt to provide information to traders about the characteristics of the securities being traded. (Until recently, a trader of shares on the New York Stock Exchange would know, merely from the fact that the firm was trading on the NYSE, that all of the company's equity had one share-one vote.) We see no reason why traders cannot obtain information elsewhere on the voting structure of the firm. But we also see no reason why an exchange should be prevented from specializing in the trading of shares with a particular voting structure if it wishes to do

so.[28]

If ex-post changes in security-voting structure should be subject to further regulation, it would seem more appropriate to give shareholders dissenting rights of the type that they already have in mergers or other asset sales than to regulate listing rights. In particular, dissenting shareholders should be given appraisal rights allowing them to attempt to show that the value of their holdings has fallen under the proposed change in security-voting structure.

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28 See Gordon (1986) for an alternative point of view, however.

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