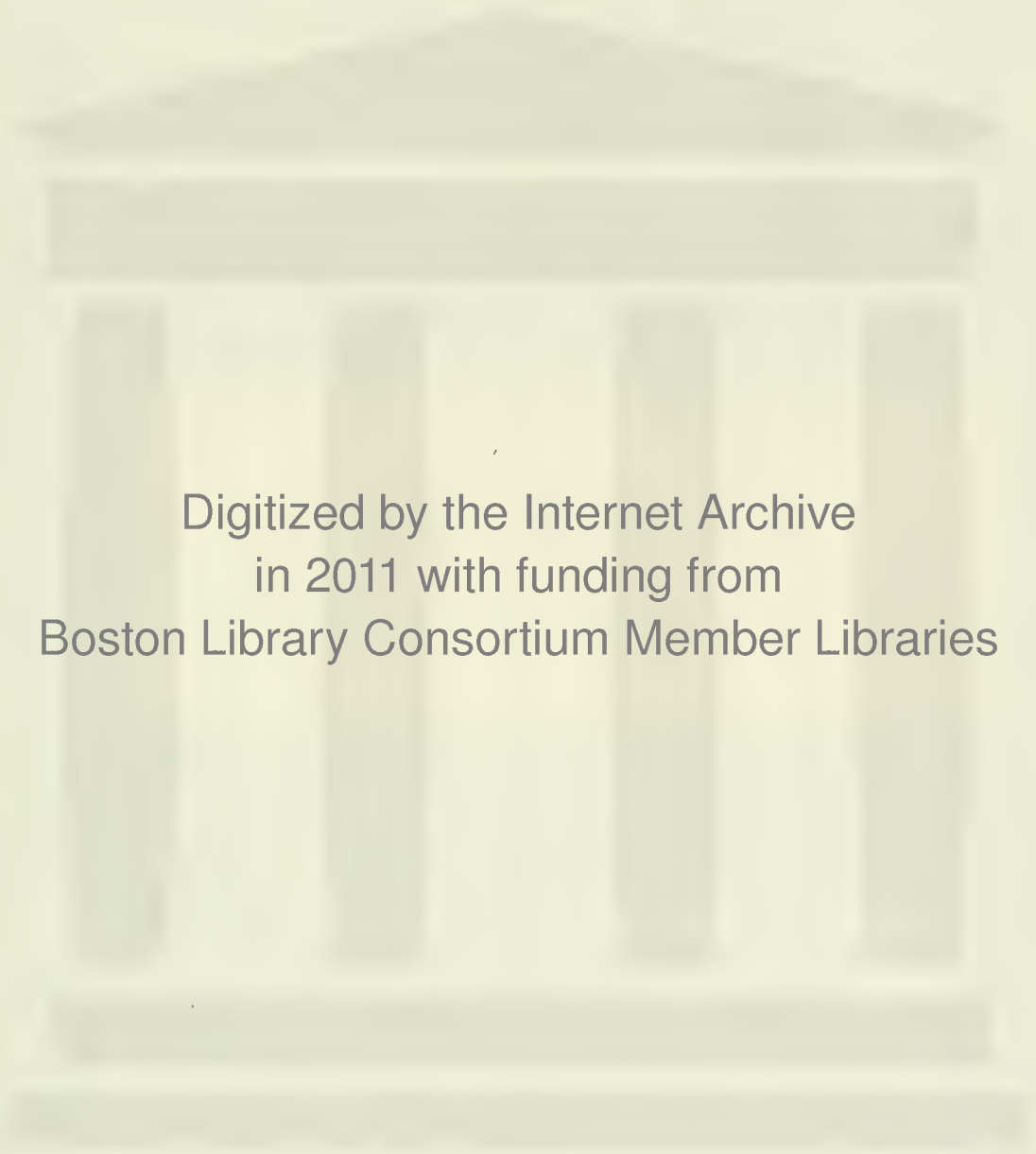

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CAPITAL STRUCTURE AS A CONTROL MECHANISM IN CORPORATIONS

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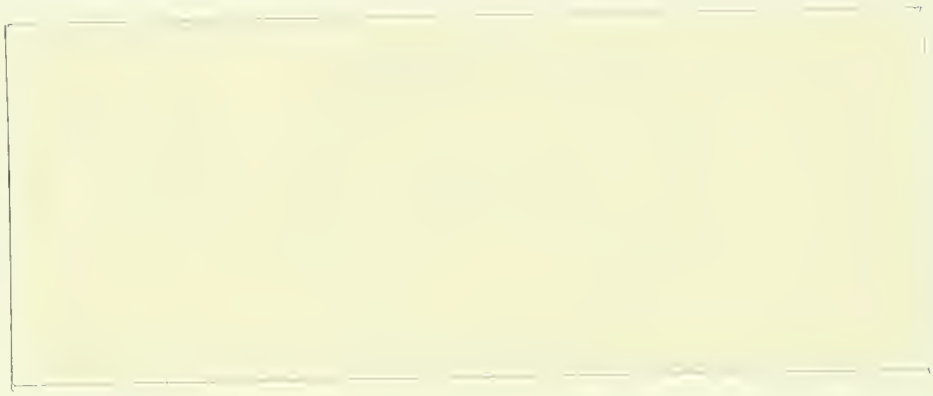

CAPITAL STRUCTURE AS A CONTROL MECHANISM IN CORPORATIONS

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Capital Structure as a Control Mechanism in Corporations

by

Oliver D. Hart*

January, 1987

The last few years have witnessed a new interest by economic theorists in the topic of organizations. In these comments I want to discuss recent developments and also spotlight some major unresolved questions. Since the area is potentially a huge one, my focus will necessarily be quite narrow: I shall concentrate on the firm's capital structure and the corporate form. However, let me start with some general background.

For a long time, the firm's appearance in economic models was anorexic: more bones than flesh. The firm was treated as a glorified profit-making machine. The questions of concern were: how does the machine respond to exogenous changes in the environment, e.g. prices (if the firm is a perfect competitor) or taxes; and, more generally, in an imperfectly competitive environment, how will strategic interactions between firms affect market prices and quantities? Almost no attention was paid to such basic questions as: how is production organized within a firm; on whose behalf is the firm run; or, most fundamentally, what is a firm? (Of course, a literature has existed on some of these questions at least since Coase's famous 1937 paper, but this wasn't integrated into the theoretical mainstream.)

In the last ten years or so, advances have been made that permit some of

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these organizational questions to be addressed more rigorously. A very important theoretical development has been principal-agent theory, which has allowed the formalization of the conflict of interest between an owner and a manager. In principal-agent theory the firm is still seen as a profit machine but now the levers are pulled by a manager who may be interested in other things than profit, e.g. on the job perks, an easy life, size, etc. In order to align the manager's interests with her own, the owner will offer the manager an incentive scheme. A large literature has developed on the form of the optimal incentive scheme and on the nature of the residual inefficiency which will exist even under such a scheme.[1]

The image of the firm as an owner, a manager and a set of production blueprints is a considerable improvement over the traditional view where the firm consists of just the owner and the blue-prints, but it's still very crude. Various enrichments have therefore been attempted. Let me mention a few. One strand of literature has expanded the number of personnel in the firm, introducing workers and more managers, and has studied incentive and communication problems between these various agents. This has led to a theory of hierarchies.[2] A second strand has followed up on the Coase-Williamson insight that the firm as an institution only takes on importance in a world of incomplete contracts, and has viewed the extent and size of firms as a solution to the problem of how to allocate residual rights of control and authority efficiently.[3] A third strand has explored how investments are financed and has considered the determinants of the firm's capital structure.

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[1] For a survey of this literature, see Hart-Holmstrom (1987).

[2] See, e.g., Williamson (1975), Calvo-Wellisz (1978), Rosen (1982), Geanokoplos-Milgrom (1984), and Tirole (1986).

[3] See, e.g., Grossman-Hart (1986) and Williamson (1985).

The first two strands come under the heading of internal organization. I want to focus on the third strand, which is concerned with what might be called the firm's external organization.

First, a little more background. In the traditional or principal-agent views of the firm, who controls the firm's operations is not really an issue. This is obvious in the traditional view since there are no conflicts of interest between the parties. But it is also true in the principal-agent view. There the usual idea is that the owner hires the manager to do a specific task. In the simplest one period version of the model, the manager performs the task more or less well and gets a higher or lower reward on the basis of this. In more complicated dynamic versions, the manager's incentive scheme might change over time according to previous performance; the manager might even be fired if he does sufficiently badly. But the point is that everything is built into the incentive contract between owner and manager at the first date. There are no surprises. Ownership and control of the firm's assets are important only in so far as they affect relative bargaining power at the initial date, i.e. the division of the surplus between owner and manager.

All this changes once we recognize that in reality it is impossible to write a comprehensive contract at the first date, i.e. one that anticipates and deals with all future eventualities. Then control matters because it affects what happens in events not covered by the contract. For example, assume some new opportunity comes along which the firm is in a position to exploit, but that successful exploitation requires a new manager. It's obviously going to make a difference if the owner has control of the firm's assets, in the sense that she can fire the manager and replace him; or if the existing manager has control, in which case he can insist on continuing in his job. (Actually the final outcome -- whether the manager stays or leaves --

may be the same in the two cases, but the ex-post division of surplus is likely to be very different.) The idea that the allocation of control rights influences the ex-post division of surplus -- and through this ex-ante investment and effort decisions -- forms the basis of the theory of firm integration presented in Grossman-Hart (1986a). Recently, Aghion-Bolton (1986) have used a similar idea to explain how a manager (or entrepreneur) raising funds from a single investor chooses between issuing voting shares, non-voting shares or debt to the investor. Nonvoting shares leave all residual rights of control -- including the decision about who should operate the firm -- in the manager's hands (he has all the votes); giving the investor 100% of the voting shares provides her with all the control rights; issuing debt achieves something in between -- the manager has control in the good states, but control shifts to the investor in bad states, when the firm goes bankrupt. Aghion and Bolton argue that capital structure will be chosen to minimize overall agency costs and use this to develop a theory of optimal capital structure.

I want to say a few words about the application of this sort of idea to another context: a widely held corporation. In a widely held corporation the issue of control is a particularly stark one. Since by definition the firm has lots of little owners, the vast majority of whom have no knowledge about, or interest in, the day to day operation of the corporation, it is impossible for control to lie in the owners' hands -- even if this would be desirable in principle. On a day to day basis at least, management must have (residual rights of) control. But this of course raises the old Berle and Means question: what prevents management from abusing their power? Now in a world of comprehensive contracting, this would not be a problem since before going public the original owner of the corporation would write a corporate charter which protects shareholders from managerial abuse. The charter would include

an optimal incentive scheme for management; provisions about the conditions under which management would be replaced; penalties for managers that over-reach themselves; etc., etc. The original owner has an incentive to write such a charter since this enables him to charge initial investors a high price for their investment. Unfortunately, it is clear that in reality writing a comprehensive charter along these lines is extraordinarily difficult because it is very hard for the charter-writer to anticipate the future environment which the firm will operate in (how many charter-writers fifty years ago anticipated the widespread use of green-mail, poison pills, etc.?). So we must ask whether there are other mechanisms that protect shareholders from managerial excess.

I want to argue that a very important mechanism is capital structure. In order to illustrate this, let me focus on a particular concern that investors have in a widely held corporation -- how to ensure that they do not get saddled with an incompetent management team. To repeat a point which is probably clear by now, this is not a major issue in the standard principal-agent model with one owner and one manager. If the owner is worried about managerial incompetence, she'll write a contract that says that the manager can be fired if his performance doesn't satisfy certain criteria (maybe with compensation); or if it's difficult to specify the precise criteria under which management should leave, then the owner will retain the right to fire the manager at any time. Both of these things are essentially impossible with a widely held corporation. First, even if the criteria under which management should be replaced can be specified, who's going to find a new management team? All the shareholders together? This doesn't seem likely to be very effective! Secondly, in practice it probably won't be possible to specify the precise criteria for dismissal; but giving a mass of shareholders the right to fire the manager any time is likely to be either awkwardly rigid (if agreement

by a large fraction of shareholders is required) or anarchic (if it only takes a small fraction of shareholders to dismiss the manager).

So what can be done? One possibility would be to rely on management themselves to get out if they are incompetent. For example, they could be given 1% of the company's shares, say, the idea being that if there's a better management team around incumbent management will have an incentive to resign in their favor and make a substantial capital gain on their shareholdings. Somehow this mechanism doesn't fill one with confidence and there are reasons for this. First, the perks from staying in power may more than outweigh the capital gain on management's holdings. Secondly, if management is incompetent at running the firm, they may also be incompetent at finding somebody better to run it. Thirdly, management may not realize that they're incompetent; or they may not want to admit it. That is, there may be an ego problem -- management may convince themselves that it's only a matter of time before the market recognizes that they're great and they make the capital gain on their holdings, as well as enjoying the perquisites of office.[4]

An alternative approach is to build into the corporation an automatic mechanism for the transfer of control which bypasses incumbent management. But the point is that capital structure does precisely this. A particular capital structure allows an outsider to take control of the corporation by buying up securities with a majority of votes attached [5] and then voting himself into office. In other words, a superior management team can take control from a (possibly unwilling) incumbent by means of a takeover bid. But

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[4] This is not to say that giving management or the board of directors a significant shareholding in the firm does not improve performance. In fact the evidence suggests that within limits it does; see Mork-Shleifer-Vishny (1986).

[5] Or a supermajority, if the corporate charter requires it.

-- and this is the point I want to stress -- the precise way in which the take-over mechanism works depends on the types of securities the corporation issues and which ones have voting rights; more generally, on how many votes are attached to each security. That is, the terms on which an outside management team can get control will be sensitive to whether, say, the firm issues a single class of shares with votes in proportion to shareholdings, that is, adopts a one share/one vote rule; or whether it issues two classes of stock, one with more votes per profit share than the other; or whether it issues shares and bonds, the former having votes, the latter not. So different capital structures can be viewed as allowing an outsider to take control of the firm on different terms.[6,7]

Let me illustrate this point with a simple example, drawn from Grossman-Hart (1987).[8] Consider an incumbent management team (I) that generates a total market value of securities equal to 100; that is, 100 is the net present value of future profit accruing to all the firm's claimants. Suppose also that I receives a private benefit of 20 from running the corporation (this

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[6] Note that the usual situation where there is a sole owner of an object who can veto its sale can be regarded as a special case of this: the owner possesses all the shares and all the votes.

[7] Another way for an outsider to take control is via a proxy fight. That is, instead of acquiring shares and votes, he can try to persuade the shareholders to vote him (and his allies) onto the board of directors. In practice this approach is often not very effective. First, free rider problems may cause shareholders not to vote or at least not to vote very intelligently. Secondly, the outsider typically must pay the costs of his proxy campaigns whereas incumbent management can use company funds to oppose him (see Eisenberg (1976)).

[8] Two prior papers on the implications of different voting-securities structures for corporate control should be mentioned. Easterbrook-Fischel (1983) contains an interesting general discussion of the economic and legal issues. Blair, Gerard and Golbe (1986) carry out a formal analysis, but along different lines from those followed here.

represents perks, synergies realized by other companies I owns, etc.). Assume that there is an alternative management team B (B stands for buyer) which would generate a total market value of 150 and whose private benefit is negligible. Clearly the security holders are better off if B gets control. We show that whether this happens depends on the firm's security-voting structure. We consider two cases: in the first the firm adopts a one share/one vote rule, while in the second the firm issues voting and nonvoting shares.

Case 1: One class of voting shares (and majority rule)

Under one share/one vote, B will win control by making an unconditional offer for all shares at a price just above 150. To see this, note first that if B offers less than 150 a shareholder who thinks B is going to win will prefer to hold on to his shares (their value will rise to 150). Hence it is not a rational expectations equilibrium for B to win at a price below 150.[9] At any price above 150, however, all shareholders will tender to B and hence B will win if he's unopposed. We show next that I cannot afford to oppose B at a price just over 150. To see this note that the maximum I is prepared to offer for all shares is 120 (if I owns everything, he gets 100% of the "public" value 100 plus the private value 20).[10] But an offer of 120 will of course lose to B's offer of 150. In fact I can raise his per share price a bit by making a restricted (or partial) offer for 50% of the shares at a price of 140 (per 100%). (This follows from the fact that I's willingness to pay

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[9] This is the free-rider problem discussed in Grossman-Hart (1980). The argument assumes that each shareholder is negligible, and so his or her tender decision does not affect the outcome of the bid.

[10] If I does not have the funds himself for a bid, one can imagine that he approaches a white knight (who we suppose also has access to the private benefit of 20).

for 50% of the firm is $\frac{1}{2}$ (100) + 20 = 70.)[11] However, even this is below 150 and so I will again lose.[12]

The conclusion is that under one share/one vote, B will take control and the market value of the firm will rise from 100 to 150.

Case 2: Half the shares voting, half non-voting (and majority rule)

Now B will not get control. To see this, note that the maximum B is prepared to pay for a fraction f of the voting shares is 75f (that's all they're worth to him given that his private benefit is negligible). However, I's willingness to pay for 50% of the voting shares is $\frac{1}{4}$ 100 + 20 = 45, which means that he is prepared to make a restricted offer for half of them at a price up to 90. Hence if B makes an (unconditional) unrestricted bid for the voting shares at 75, I can counter with an (unconditional) restricted bid for 50% at 76, say, and I will then receive more than 50% of the votes and win. (This follows from the fact that in equilibrium the rates of return from tendering to B and I will be equalized. Since I is offering a higher price per share, this can only happen if I gets more shares than he asks for and returns some.) The conclusion is that B doesn't bother to make a bid in this case, I retains control and the firm's market value remains at 100.

The intuition behind this example is fairly clear. What may prevent B from getting control is I's private benefit which raises I's willingness to

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[11] With a restricted offer for 50%, I agrees to buy all shares tendered to him if the total fraction tendered falls short of 1/2; and a fraction 1/2f of the shares each shareholder tenders if the total fraction f tendered exceeds 1/2 (so that in this case I takes up a total of 50%; this is the proration rule).

[12] It should be clear that a restricted offer enables I to raise the per share price because the private benefit is applied to a smaller number of shares. Since B's private benefit is, by assumption, negligible, a restricted offer doesn't help B.

pay for securities above their market value, and which may allow I to outbid B even though B is more efficient. The effect of the private benefit is larger under dual class stock than under one share/one vote since it is spread over a smaller fraction of the firm's profit required to achieve control. Hence efficient changes of control which would occur under one share/one vote may be stymied in the presence of non-voting shares.

The example is of course very special in that I has a private benefit while B doesn't. In Grossman-Hart (1987) the analysis is generalized to the case where both parties can have a private benefit, and sufficient conditions for a one share/one vote rule to be optimal are derived. Examples are also presented showing that in certain cases deviations from one share/one vote may be desirable in the sense that they can increase the firm's total market value.

While this work is still very preliminary, some general observations can be made. First viewing capital structure as a transfer of control mechanism seems potentially fruitful in understanding the sorts of securities firms issue and how votes are allocated across these securities. Of course, any general theory should incorporate securities other than shares, such as preferred shares and debt. An analysis of the latter requires the development of a satisfactory theory of the institution of bankruptcy, which is in itself a formidable task.[13] However, the hope is that eventually this approach will answer such basic questions as: (1) Why do most firms issue one class of common stock with votes attached, i.e., dual class stock is the exception

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[13] In principle, bankruptcy provides another mechanism for removing inefficient incumbent management. One difficulty in understanding how this mechanism works is that Chapter 7 bankruptcy, in which the firm's assets are liquidated, operates very differently from Chapter 11 bankruptcy, in which incumbent management is given the chance to reorganize the firm.

rather than the rule? (2) Why do firms issue debt and equity as separate securities rather than issuing a combined debt-equity security (so called strip financing)?[14] (3) Why typically does equity have voting rights while debt doesn't (except when the firm is in severe financial difficulty)?

It is worth contrasting the control view of capital structure with more conventional approaches which emphasize signalling or bonding aspects.[15] The idea behind signalling and bonding theories is that managers use capital structure to signal their private information about the firm's prospects, or to constrain themselves to act in security-holders' interests.[16] While there is surely something in these ideas, these theories do not explain (a) why managers can't signal information or constrain themselves in other (and arguably more direct) ways, e.g., by the choice of a managerial incentive scheme; (b) why signalling or bonding requires the issuance of several securities rather than just a single omnibus security. (This is related to (2) above. The point is that a manager who issues debt in addition to equity to signal that times are good or to constrain himself can do this as well by issuing the combined debt-equity security discussed in footnote 14.); (c) what determines how votes are distributed across securities (since voting is not a part of the signalling and bonding theories, they are silent on the allocation of votes).

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[14] The combined security would say that the holder is owed an amount corresponding to the debt component and may receive a dividend on top of this corresponding to the equity component. Strip financing like this is common in leveraged buyouts. It has the advantage of avoiding conflicts of interest between different classes of claimants. See Jensen (1986).

[15] There is also a large literature on the tax implications of different capital structures. See, e.g.,King (1977) and Miller (1977).

[16] See, e.g., Jensen-Meckling (1976), Leland-Pyle (1977), Ross (1977) and Myers-Majluf (1984).

So far I have talked about the role of control contests and takeover bids in ensuring that shareholders in a widely held corporation do not get saddled with inefficient management, or more generally in limiting managerial excess. I do not want to give the impression, however, that takeover bids are the only mechanism which protects shareholders. I have mentioned the role that incentive schemes can play. Another way in which shareholder rights are safeguarded is through the internal structure of the corporation itself, which is designed so as to provide some checks and balances on managerial behavior. For example, standing between management and shareholders there is an intermediate layer, the board of directors with whom the legal right to manage the corporation resides. While management is an agent of the board of directors, the board is not, at least in any formal sense, an agent of shareholders. However, the board has a fiduciary responsibility towards shareholders; that is, their position is that of a trustee (see Eisenberg (1976) and Clark (1985)). This means that although shareholders have no legal right to tell the directors what to do, they can sue them for dishonesty or disloyalty.[17] This right to sue affords shareholders some protection against self-serving behavior by directors and management.[18]

Fiduciary responsibility is a concept that economists to date have pretty much ignored. As Robert Clark (1985) has emphasized, understanding its role -- and more generally the other checks and balances provided by the standard form contract that is the corporation -- is an interesting topic for future research. A basic question which, it is to be hoped, this research

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[17] But not for poor business judgement; shareholders can, however, vote directors out of office under certain circumstances.

[18] Empirical work on the role of outside directors in removing bad management has recently been carried out by Weisbach (1986).

will answer is why directors have a fiduciary responsibility to shareholders, but not to bondholders or other of the firm's claimants.[19]

Let me conclude by repeating the main point of the paper. Viewing the corporation in control terms seems a useful, but so far relatively unexplored, approach to understanding capital structure. The approach holds out the hope of explaining both the types of securities a firm issues and the allocation of voting rights across these securities.

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[19] No doubt this has something to do with the fact that shareholders are residual claimants while bondholders and others have a fixed claim on the firm's profit. The precise relationship between this and fiduciary responsibility is far from clear, however.

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