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Team Production Theory and Corporate Law

Corporations can be understood as solutions to team production problems, rather than as property. Incorporation involves creation of a new legal entity in which control rights are separated from residual claim rights. The corporation itself, not the shareholders nor any other corporate participants, becomes the owner of assets used in production, and of output. Decision-making authority is vested in an organizational hierarchy, headed by a board of directors that is legally independent of shareholders. Understanding corporations in this way helps explain a number of features of corporate law, and provides new insights into the theory of the firm. JEL Classification codes: D23, G34, K22, L22

In recent years, there has been a surge in academic interest in the «ownership» of corporations, and in the links between ownership and performance. The interest in this issue is driven by rapid changes going on in international capital markets, as well as in the corporate sector in many countries. A substantial part of this recent literature regards owning shares of stock in a corporation as if owning shares were the same thing as «owning» the issuing corporation itself. This essay considers the ideas of «ownership», and of «property rights» as they apply to the corporate context.

Just as the idea of private property has been central to our understanding of the workings of capitalist economies, the idea of «ownership» has been a key idea in much of the literature on the theory of the firm and corporate governance in the last twenty years. Professor Oliver Hart, individually and together with various coauthors, advanced our understanding of the role of «property rights» in the theory of the firm by suggesting that «property rights» should be understood as a mechanism for closing gaps in incomplete contracts.[1] By this theory, the economic significance of «ownership» is that property rights have the effect of assigning to the «owner» of an asset the right to make all of the decisions about the use of the asset, except those assigned by law or contract to someone

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1. See, e.g., Grossman and Hart (1986) p. 691; Hart and Moore (1990) p. 1119; Hart (1988) p. 119; and Hart (1989) p. 1757.

else. In other words, the «owner» gets the «residual rights of control».

Furthermore, by this theory, economic decisions about the use of an asset made by the «owner» are likely to be optimal because the residual right of control is bundled with the right to receive the residual income as well as the responsibility to bear the residual risk associated with the asset.

The theoretical work on property rights as a mechanism for closing gaps in contracts forms the basis for an additional literature in which property rights over assets define a firm, or at least, define the boundaries of the firm. This essay argues that, despite all this emphasis on «ownership rights» and their supposed importance in corporations, *ownership of corporations* is not a well-defined concept.

When a corporation is formed, a separate legal entity is created, and the corporation itself becomes the «owner» of the assets put into the corporation by the initial investors. The corporation subsequently has the residual income rights and the residual rights of control over those assets, as well as over the output from production, and over any further assets purchased by the firm. A central legal fact of the corporate form of organization[2], is that, once a corporation has been formed, and assets have been assigned to the corporation by the initial investors, none of the participants in the enterprise own those assets any more. Nor do they own the output of the firm. Nor do they own the assets subsequently added by the reinvestment of profits or by injections of new capital. The corporation itself has *investors*, but does not have any «owners» in the way people normally use that word.

Corporations have «shareholders», of course. Shareholders are often casually referred to as the «owners» of corporations. But shareholders do not have the set of rights and responsibilities that we associate with «ownership» in other contexts. Shareholders do not directly own any of the assets used in production, nor do they own the output of the firm. They do not directly make any of the decisions about the use of the assets. They do not even bear full liability for the activities of the firm[3].

Instead, what shareholders get in exchange for their initial contribution of resources to the corporation are specialized claims against the enterprise that come with some very limited rights. Shareholders subsequently own their *shares* in all the ways that we normally mean when we say someone «owns» something. They bear the risk associated with the shares, they reap the gains, they can sell the shares, or transfer ownership to someone else, or otherwise control the disposition of the shares. But that is not the same as saying that they «own» the corporation itself.

One could argue that the point is merely a semantic one. But in corporate governance debates of the last two decades, the language of ownership has been used as a trump card, to curtail debate about the social and legal purpose of corporations. Hence it is useful to examine the use of this language carefully[4].

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2. The corporate form emerged in the Middle Ages in Europe as a mechanism by which property could be held more or less in perpetuity by churches, monasteries, universities, municipalities, and eleemosynary institutions such as hospitals. The idea was to separate control rights from conveyance rights, so that a bishop, for example, could acquire or sell property for the church, but could not convey that property to his heirs.
3. See discussion of shareholders as «owners»in Blair (1995) p. 223-225, and also discussion of the «property conception» of the corporation, p. 208-210.
4. I first challenged the appropriateness of the use of the word «ownership» in the corporate context in Blair (1995) p. 16-19.

The legal fact is that *none* of the participants in the activities of a given corporation have the full complement of rights and claims and responsibilities that we normally associate with «ownership» and that, when bundled together, are supposed to fill in the gaps in incomplete contracts and provide appropriate incentives. Not the shareholders, not the directors, not the managers, not the creditors, not the employees. As a legal matter, and as a description of the economic realities, there are no «owners» of corporations.

So, the paradox is, if «ownership» is so important to the functioning of a capitalist economy, why does corporate law break up the bundle of claims and responsibilities that we normally associate with «ownership», and assign different parts of the bundle to different players? Why are there no «owners» of corporations?

Some of the work that my colleague Lynn Stout and I have been doing in the last few years provides an explanation for this paradox[5].

Consider the central economic and contractual problems that must be solved when a group of people get together to undertake some joint economic enterprise. Note that we assume that a «group of people» are involved. We do this because the corporate form would not be necessary for organizing production if all production were undertaken by individuals acting alone, using assets they own directly. It would not even be necessary if all production were undertaken by individual property owners working with and directing the efforts of a group of employees. The individual proprietorship form has been used for centuries for such arrangements.

The corporate form came to be used, and continues to be used today, to organize production activities that are too large and too complex to be organized, managed, and financed by a single individual. To be sure, the corporate form has often been co-opted by individual proprietors who want the benefits of limited liability[6]. But it is abundantly clear that the corporate form was not invented just to give limited liability to individual proprietors[7]. The form exists primarily, if not exclusively, to organize enterprises that require complex inputs from a large number of individuals.

Professor Stout and I use the phrase «team production» to refer to the kind of complex organizational problem that we feel provides the primary rationale for the corporate form[8]. We borrow the basic idea from work done in the early 1970s by Armen Alchian and Harold Demsetz who define team production as «production in which (1) several types of resources are used... (2) the product is not a sum of separable outputs of each cooperating resource... [and] (3) not all resources used in team production belong to one person»[9].

We think this description probably applies to a very large part of production in modern economies. Team production presents severe contracting problems. Think about the complex interactions among numerous individuals required to develop a new drug to treat depression, for example. The research effort may involve the work of teams of

5. See especially Blair and Stout (1999) p. 247.
6. For small businesses, the choice of organizational form may also often be influenced by tax considerations.
7. Early general incorporation laws in the United States usually required more than one party to be involved, and did not always provide for limited liability for shareholders.
8. See Blair and Stout (1999).
9. See Alchian and Demsetz (1972) p. 779.

biochemists, neurobiologists, and psychiatrists. The researchers working directly on the project may utilize notes left behind at the research lab by previous researchers who had worked on previous projects. Once a promising chemical compound is identified it must be put through increasingly stringent tests in application. These tests culminate in extended clinical trials in which additional teams of physicians, psychiatric nurses, social workers, and statisticians may be involved. Patents must be applied for, and, in the United States, approval of the Food and Drug Administration must be sought. If a particular drug emerges from this process as one with market potential, a manufacturing process must be developed to scale up production, and a marketing and distribution system must be put in place. All of this may take years, and require a substantial amount of financial capital.

In other words, a substantial number of different people must make contributions along the way toward producing an uncertain output. The process may take years from beginning to end. Try to imagine the contracting problem if all of these people had tried to write individual contracts with each other along the way. Or try to imagine whether a single individual, an «owner» of the whole enterprise, could contract separately with all of the participants. They could never adequately specify in advance what each participant was supposed to contribute. Nor could they adequately specify in advance who is to get what share of the proceeds from the joint production effort.

Suppose they agreed in advance that, since *n* people would need to be involved (whatever number *n* may be), each participant will get *1/n* of the output. This will not be likely to work, since there may be some participants who stay with the project from beginning to end and whose contribution turns out to be much more important than others while others will come and go. But it may be very hard to say in advance which contribution will turn out to be the most important. Moreover, if everyone knows they are going to get *1/n* of the proceeds, whether they exert effort or not, no one will have any incentive to work very hard, and all will want to free ride on the efforts of others[10].

Suppose instead that the participants said we will just wait until the whole cycle of research, production, marketing, and sales is over, and the final tally is in, and then we will decide who gets what, after we see who contributed what. Is there an obvious end to the cycle? How will they know that they are done, and that it is time to divide up the output (liquidate)? And what if they cannot reach agreement ex post? And what protections and recourse will any of the participants have if they are unhappy with the division of rents at the end?

It is easy to see, with very little reflection, that the problems of managing the relationships in long term, complex production activities are just too difficult to solve by attempting to specify a full set of explicit, enforceable contracts in advance.

Alchian and Demsetz' original solution to a much simpler version of this problem was that team members would implicitly agree to allow one member of the team to be the «monitor». The monitor was supposed to compensate everyone else according to their marginal opportunity cost, and make sure that no one shirks. Then, to be sure that the

10. Alchian & Demsetz recognized this problem, as have numerous other scholars. See Holmstrom (1982) p. 324 for a model of an alternative solution to the contracting problem in team production.

monitor has adequate incentives to do her job, Alchian and Demsetz suggested that team members would agree that the monitor should be given all of the residual value, over and above the operating costs. In other words, team members would agree to let one person be the «owner». Alchian and Demsetz used their model as an explanation for the emergence of the capitalist firm.

Oliver Hart and his coauthors tackled a more complex version of the same problem by asking what should happen if the production activity of interest required enterprise-specific investments by the participants, and was so complex that it was too costly or difficult, or impossible, to monitor the inputs adequately. Their answer was similar to the Alchian and Demsetz answer: one person should be designated as the «owner», with that person given the authority to fill in the gaps in the contracts by making all the residual or unassigned decisions.

These two stories, in which ownership emerges as the solution, are probably reasonable descriptions of what happens in individual proprietorships. But these stories are not helpful or accurate descriptions of what happens in most corporations. In all corporations except for those that are just individual proprietorships «in drag», the monitoring roles, the decision-making roles, and the residual claims roles have been divided up. Often, whole teams of people play these roles, and different individuals may cycle on and off of the different teams. As Adolf Berle and Gardiner Means noted seven decades ago when they pointed out that «ownership» had been separated from «control,» the capitalist-as-owner model just does not tell us what modern corporations are really about[11].

The «team production» argument suggests that the separation of control rights and residual claim rights in corporations should not be regarded as a pathology that needs to be corrected – as a substantial amount of corporate governance theory and corporate legal theory has done for the last thirty to forty years. Rather, this separation is what makes the corporate form unique and useful. In fact, Stout and I have argued that the corporate form provides an *alternative solution to the contracting problems presented by team production.* The corporate form provides a hierarchical decision-making structure to fill in the gaps in the incomplete contracts among the participants in the enterprise.

Consider what corporate law accomplishes that cannot be accomplished by simple contracts:

At the time the corporation is formed, a separate legal entity comes into being. That separate entity has the legal authority to own property and write contracts with all of the participants. One of the first tasks that the law demands of the team of people who form the corporation – indeed, it is a prerequisite for creating the separate legal entity – is that the team name a board of directors. The board of directors, then, is given all the authority to act in the name of the corporation, and to make decisions on its behalf.

Once the corporation is formed, it becomes the owner of the assets and efforts contributed to it by financial investors, managers, and employees. It enters into more or less incomplete contracts and other relationships with the various participants about how much and under what circumstances they will be paid, and what rights they have under what circumstances.

11. Berle, Jr., and Means (1932).

Relationships with employees and shareholders are often among the least well-specified, while those with creditors and suppliers may be quite well-specified.

But the key legal fact is that the original team members all agree to give up control rights over the firm-specific inputs they contribute to the enterprise, and over the outputs. They all give up control rights to an internal hierarchy, headed by the board of directors. The board enjoys the ultimate decision-making authority to determine the use of corporate assets, to determine payouts to the various participants, and to serve as an internal «court of appeals» to resolve disputes that may arise among team members. The board may include several team members, but it may also include a number of outsiders.

The act of forming a corporation, then, creates a separate holding tank for the tangible and intangible assets used in the productive efforts of the team. No one team member, nor any specific subset of team members is the «owner» of these assets. No one has full residual rights of control over the team, no one has full rights to the residual income generated by the team, and no one has personal liability for debts incurred and harms caused by the activities of the team.

Although the board of directors is granted many of the most important control rights, clearly they are not the owners. They have very wide discretion under the law in the way they exercise that control, but they also have fiduciary duties of loyalty and care in their roles as directors[12]. These duties mean that directors cannot personally appropriate the assets of the firm to their own use. They also are not the primary residual claimants, and are not personally liable for the debts of the firm.

Managers and other key employees are also clearly not the «owners» of the corporation. They may «own» a substantial amount of the human capital that goes into the enterprise, at least initially. But as they work to generate anything that is separable and alienable, those intellectual assets immediately become the property of the firm. Thus the biochemist's notes become the property of the firm as soon as they are put on paper. The patents received by the team of researchers belong to the firm, not to the individual scientist. The computer code generated by the programmer becomes the property of the firm.

Neither are shareholders the «owners» in any normal sense of the word. Shareholders contract for a residual claim position, in the sense that if things do not work out, the enterprise folds, and the assets are liquidated, they have agreed to be last in line to receive payouts, with all other claimants being paid first. Also, if the firm continues as a going business, profits that are left over on a period-by-period basis after other claimants have received timely payments, may be considered available to pay dividends. Or they may be retained and reinvested. If things work out well, such retained assets may grow substantially over time.

But, importantly, as long as those assets are not paid out, there is no guarantee that they will eventually go to shareholders. The board has the authority at any time to use those accumulated profits to reinvest, or even to raise payments to the other participants. In exchange for giving up so much in the way of control, shareholders as a group are given veto rights over the selection of directors[13].

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12. This is more closely analogous in the law to the role of «trustees» (of, say, estates or nonprofit entities) than it is to the role of «agents» in principle-agent relationships.

13. Shareholders also have a legal right to nominate an alternative slate of directors if they meet certain requirements. But waging such a «proxy fight»is costly and difficult.

How does this arrangement solve the contracting problem in team production? Why would any of the team members enter into such a deal, knowing that by incorporating, they lose control rights over the investments they make in the corporation, over the resources they are using in production, and over the division of economic rents and quasi-rents generated by the enterprise?

The answer is that team members understand that they must collectively give up control rights in order to elicit the full cooperation and contributions of the other team members. Ex ante, they all understand that they will all be better off if they can agree to work together, and not waste resources trying to capture rents from each other. They bind themselves to this cooperative arrangement by giving up control to a decision-making hierarchy.

This argument has a number of implications for the theory of the firm, for practical discussions about corporate governance, and for understanding corporate law.

First of all, while the institution of private «property» is an important mechanism for closing the gaps in incomplete contracts, it is not the only mechanism. Corporate law provides an alternative mechanism. Corporate law, then, is not just an extension of contract law. Instead, it sets up a hierarchical governance structure, headed by a board of directors, to make the decisions that fill in the gaps in the contracts among all the participants. Corporate law creates a zone of decision-making, within which courts will be extremely reluctant to interfere. Courts will, instead, leave nearly all decisions about the use of team assets, and the allocation of team rents, up to the board of directors.

Second, it is a mischaracterization of the law, at least in the United States, to say that directors are «agents» of shareholders[14]. By the act of forming a corporation, all of the participants, both those who contribute human capital and those who contribute financial capital, agree to give up control rights. No one team member is a «principal», with the others being the «agents» of that team member.

Third, although managers and employees may act as agents for the team — that is, for the firm itself — when they take actions or make decisions that direct team resources, directors are not agents of anyone. They are sui generis. Their role is more like that of trustees[15]. They owe their fiduciary duties to the team as a whole, and only indirectly to any of its participants. The exception is that, if the team is being liquidated, or broken up or reconfigured in a merger or acquisition, then they must try to negotiate the best price they can for the shareholders who are being eliminated by the transaction. Or, if a firm is insolvent, then directors may owe fiduciary duties to the creditors.

Finally, the team production model helps to explain several features of corporate law that are inconsistent with a principal-agent theory of corporate law[16]: As already mentioned, for example, directors are not, legally, «agents» but are more like trustees in the eyes of the law. Additionally, shareholders

14. The literature on «principal-agent» theories of the firm is far to voluminous to cite in its entirety. But some of the earliest and most cited pieces from an economist's point of view are Fama (1980) p. 288; and Jensen and Meckling (1976) p. 305. A leading book espousing this view from a legal perspective is Easterbrook and Fischel (1991). For more citations see Blair & Stout (1999) at footnote 1.

15. See discussion in Blair and Stout (1999) p. 290-292, citing Clark (1985) p. 56.

16. These are discussed at greater length in Blair and Stout (1999) p. 287-309.

cannot enforce the fiduciary duties of officers and directors by suing directly, on their own behalf, but must file what is called a «derivative» action against directors. In a derivative action, shareholders first ask the directors to enforce the rules on behalf of the corporation. If the directors are tainted by conflict of interest, then shareholders may sometimes act on behalf of the corporation. But any proceeds from such an action go to the corporation, not to the shareholders who filed the action.

Finally, the substance of fiduciary duties under the law reveal that director discretion is limited only when directors are acting in a self-interested or careless way. Their actions are not constrained by fiduciary duties when they are acting in ways that benefit other stakeholders at the expense of shareholders (unless it can be shown that the directors are merely «wasting» corporate assets by their actions – a very high burden).

The arguments above do not imply that the structure of share ownership is not important in the governance of corporations. Clearly, if a single party (such as another corporation) or a small group of investors working together, own enough voting shares in a corporation to force a change in the board, then it will be harder for that board to act as an independent decision-making body[17].

In practice, boards are obviously influenced by a variety of factors. Directors undoubtedly listen to large shareholders who have opinions about how the corporation should be run. They also listen to managers. If they are doing their job right, they should also be listening to employees, suppliers, and customers. In fact, at different times, and in different circumstances, various stakeholders will have varying degrees of influence on a given board.

But the board is the only body that can make the actual decisions about the policies and strategies the corporation will pursue. As long as a firm is organized as a publicly-traded corporation, there must be a board, and it must play this role.

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17. If such a «controlling» shareholder proposes a transaction (such as a buyout of the minority shares) that could benefit the controlling shareholder at the expense of other shareholders, however, corporate law in the Unites States requires that such a transaction be approved by independent directors, or by the minority shareholders, or that the transaction be inherently fair.

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