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Corporate Finance and Corporate Governance

OLIVER E. WILLIAMSON*

ABSTRACT

A combined treatment of corporate finance and corporate governance is herein proposed. Debt and equity are treated not mainly as alternative financial instruments, but rather as alternative governance structures. Debt governance works mainly out of rules, while equity governance allows much greater discretion. A project-financing approach is adopted. I argue that whether a project should be financed by debt or by equity depends principally on the characteristics of the assets. Transaction-cost reasoning supports the use of debt (rules) to finance redeployable assets, while non-redeployable assets are financed by equity (discretion). Experiences with leasing and leveraged buyouts are used to illustrate the argument. The article also compares and contrasts the transaction-cost approach with the agency approach to the study of economic organization.

THIS PAPER EXAMINES CORPORATE finance through the lens of transaction-cost economics. A fundamental tenet of this approach is that the supply of a good or service and its governance need be examined simultaneously. Corporate finance is no exception—whence the combined reference to corporate finance *and* corporate governance in the title.

Agency theory provides an alternative lens to which transaction-cost economics is sometimes compared. The leading similarities and differences between these two approaches are examined in Section I. The core of the paper, Section II, deals with “project financing.” Extensions, qualifications and applications are treated in Section III. Concluding remarks follow.

I. Agency and Transaction-Cost Economics Comparisons

Terminology aside, in what ways do agency theory and transaction-cost economics differ? Although this question has been posed repeatedly in oral discussions and sometimes in writing,¹ only piecemeal responses have hitherto been attempted. A more systematic reply is sketched here. If my answer appears to favor one of these approaches over the other, it will not go unnoticed that I am not a disinterested participant. Be that as it may, my “objective” view is that these two

*The author is Professor of Economics and Transamerica Professor of Corporate Strategy at the University of California, Berkeley. The paper was written while the author was a Visiting Professor at Indiana University in the fall of 1987. As described in footnote 16, below, the “project-financing” approach to corporate finance was first set out in 1986.

¹ Thus Gilson and Mnookin observe that “it is somewhat difficult to understand the relationship between the positive theory of agency, identified with Jensen and Meckling, and transaction cost economics, identified with Oliver Williamson” ([21], p. 333, n. 32). Ross more recently remarks that “many of our theories [of the firm] are now indistinguishable from the transactional approach . . . Agency theory . . . is now the central approach to the theory of managerial behavior” ([49], p. 33).

perspectives are mainly complementary. Both have helped and will continue to inform our understanding of economic organization.

Any effort to answer the above question is complicated by the fact that both agency theory and transaction-cost economics come in two forms. Thus Jensen distinguishes between formal and less formal branches of agency theory. Much of the more formal agency literature is concerned with issues of efficient risk bearing and works out of a “mechanism design” setup. The less formal literature is referred to by Jensen as the “positive theory of agency.” This is concerned with “the technology of monitoring and bonding on the form of . . . contracts and organizations” (Jensen [28], p. 334).

One branch of transaction-cost economics is mainly concerned with issues of measurement while the other emphasizes the governance of contractual relations (Williamson [62], pp. 26–29). Although measurement and governance are not unrelated (Alchian [1]), I am principally concerned here with the latter. The positive theory of agency and the governance branch of transaction-cost economics are what I compare.

The different origins of transaction-cost economics (hereafter, often abbreviated as TCE) and positive agency theory (hereafter, often abbreviated as AT) explain some of the differences between them. The classic transaction-cost problem was posed by Ronald Coase in 1937: When do firms produce to their own needs (integrate backward, forward, or laterally) and when do they procure in the market? He argued that transaction-cost differences between markets and hierarchies were principally responsible for the decision to use markets for some transactions and hierarchical forms of organization for others.

The classical agency-theory problem was posed by Adolf Berle and Gardiner Means in 1932. They observed that ownership and control in the large corporation were often separated and inquired whether this had organizational and public-policy ramifications.

Although both the Coase problem (vertical integration) and the Berle and Means problem (the separation of ownership and control) were subject to repeated public-policy scrutiny during the ensuing 35 years, there was very little conceptual headway. More microanalytic and operational approaches to each awaited developments in the 1970s.

A transaction-cost approach to the economic organization of technologically separable stages of production was successively worked up by Williamson [55, 56, 58] and by Klein, Crawford, and Alchian [38]. The appearance of the “classic capitalist firm” and its financing was explicated by Alchian and Demsetz [12] and Jensen and Meckling [30]. The Jensen and Meckling paper was expressly concerned with the separation of ownership from control and is widely regarded as the entering wedge out of which the positive theory of agency has since developed. Applications of TCE and AT to related contractual issues have been made since and both now deal with many common issues. That TCE traces its origins to vertical integration while AT was originally concerned with corporate control has nevertheless had continuing influence over each and helps to explain some of the differences between them.

I sketch below what I consider to be the main commonalities and leading

differences between these two. Real differences notwithstanding, these have been shrinking as each approach has come to work on issues previously dealt with by the other.

It will facilitate the comparison of TCE and AT to identify the core references. For the purposes of this paper, I will take agency theory to be defined by Jensen and Meckling [30, 31], Fama [16], Fama and Jensen [17, 18], and Jensen [28, 29]. Transaction-cost economics is defined by Williamson [58, 60, 62, 64], Klein, Crawford, and Alchian [38], Klein [36, 37], Klein and Leffler [39], Teece [53], Alchian [1], and Joskow [33, 35].

A. Commonalities

TCE and AT are very similar in that both work out of a managerial-discretion setup. They also adopt an efficient-contracting orientation to economic organization. And both argue that the board of directors in the corporation arises endogenously. Consider these seriatim.

(1) *Managerial Discretion*

Both TCE and AT take exception with the neoclassical theory of the firm whereby the firm is regarded as a production function to which a profit-maximization objective has been ascribed. Rather, TCE regards the firm as a governance structure and AT considers it a nexus of contracts. A more microanalytic study of contracts has resulted.² The behavioral assumptions out of which the theory of the firm (more generally, the theory of contract) works have been restated in the process.

TCE expressly assumes that human agents are subject to bounded rationality and are given to opportunism. Bounded rationality is defined as behavior that is “*intendedly* rational, but only *limitedly* so” (Simon [50], p. xxiv), and opportunism is self-interest seeking with guile. Incomplete contracting is a consequence of the first of these. Added contractual hazards result from the second. These two behavioral assumptions support the following compact statement of the purposes of economic organization: craft governance structures that economize on bounded rationality while simultaneously safeguarding the transactions in question against the hazards of opportunism. A Hobbesian war of “all against all” is *not* implied. Crafting “credible commitments” is more nearly the message.³

Although many economists, including those who work out of AT, are reluctant to use the term bounded rationality (which, in the past, has been thought to

² This is not to suggest that the firm-as-production-function, agency, and governance approaches are opposed. It is more useful to think of them as complements. Thus the “value of the firm” construction in Jensen and Meckling [30] works out of a production-function setup. Also, transaction costs and production costs have been brought together in a combined “neoclassical” framework by Riordan and Williamson [47].

³ H.L.A. Hart’s remarks help to put opportunism in perspective ([25], p. 193; emphasis in original): . . . Neither understanding of long-term interest, nor the strength or goodness of will . . . are shared by all men alike. All are tempted at times to prefer their own immediate interests. . . . ‘Sanctions’ are . . . required not as the normal motive for obedience, but as a *guarantee* that those who would voluntarily obey shall not be sacrificed by those who would not.

imply irrationality or satisficing), the term *as defined above*⁴ has nonetheless become the operative rationality assumption.⁵ Also, AT refers to “moral hazard” and “agency costs” rather than opportunism. But the concerns are the same, whence these are merely terminological differences.

AT and TCE both normally assume risk neutrality rather than impute differential risk aversion to the contracting parties (the latter being associated with the formal agency literature). The upshot is that both TCE and AT work out of substantially identical behavioral assumptions. The opportunity sets to which each refers are substantially identical also.⁶

(2) *Efficient Contracting*

As indicated, TCE examines alternative forms of economic organization with reference to their capacity to economize on bounded rationality while simultaneously safeguarding the transactions in question against the hazards of opportunism. Although AT is more concerned with the latter, an “incomplete contracting in its entirety” orientation is employed by both.

Incomplete contracting in its entirety may appear to be a contradiction in terms. It is not. The first part (incomplete contracting) merely vitiates a mechanism design setup (Grossman and Hart [23], Hart [26]). The second part (contracting in its entirety) means that parties to a contract will be cognizant of prospective distortions and of the needs to (1) realign incentives and (2) craft governance structures that fill gaps, correct errors, and adapt more effectively to unanticipated disturbances. Prospective incentive and governance needs will thus be anticipated and thereafter “folded in.”⁷

Although both AT and TCE are cognizant of both of these contractual design needs, AT examines contract predominantly from an *ex ante* incentive-alignment point of view while TCE is more concerned with crafting *ex post* governance structures within which the integrity of contract is decided. Differences between AT and TCE with respect to their choice of the basic unit of analysis and with

⁴ The intentionality emphasis in this definition of bounded rationality is unambiguous. Those who claim to do bounded-rationality work but who reject intentionality have an obligation to supply their definition. See the exchange between Dow [14] and Williamson [63] on this issue.

⁵ Fama’s argument that managerial discretion is effectively held in check by “ex post settling up” [16] is closer in spirit to the unbounded-rationality tradition. Weaker forms of ex post settling up (Fama and Jensen [17]) are consonant with bounded rationality.

⁶ This was not always so. Thus whereas TCE has always maintained that discretionary distortions will be a function of competition in product, capital, and factor markets, Jensen and Meckling originally maintained that product- and factor-market competition were unrelated to managerial discretion, since “owners of a firm with monopoly power have the same incentives to limit divergences of the manager from value maximization . . . as do the owners of competitive firms” ([30], p. 329). Jensen now holds that the opportunity set to which managers have access is a function of product- and factor-market competition ([29], p. 123).

⁷ Among other things, folding in implies that projected future effects will be priced out. This is the central focus of the original Jensen and Meckling [30] argument. What I have referred to as the “simple contractual schema” (Williamson [62], pp. 32–35) is a TCE illustration of the argument. Note that different governance structures that have different assurance properties and adaptive capacities for dealing with potentially disruptive events (the general nature, but not the particulars, of which are anticipated) will be priced out differently. This is a key feature of incomplete contracting in its entirety.

reference to organization form are largely responsible for these incentive/governance differences (see part *B* below).⁸

(3) *Endogenous Board of Directors*

Both AT and TCE maintain that the board of directors arises endogenously as a control instrument. As originally described by Fama, the board is principally an instrument by which managers control other managers: "If there is competition among the top managers themselves . . . , then perhaps they are the best ones to control the board of directors" ([16], p. 393). Although a board with such a composition and purpose approximates an executive committee, Fama and Jensen [17] subsequently distinguish between decision management and decision control and argue that the latter function is appropriately assigned to the board of directors. Such a board is really different from an executive committee. It is an instrument of the residual claimants.

As discussed elsewhere (Williamson [62], chap. 12) and developed in Section II, below, TCE also regards the board of directors in a manufacturing corporation principally as an instrument for safeguarding equity finance. But it goes further and links equity finance to the characteristics of the assets.⁹

B. Leading Differences

That there are differences between AT and TCE is already apparent from the above. The most important difference is in the choice of the basic unit of analysis. But there are also differences with respect to the cost concern and the main organizational concern of each.

(1) *Unit of Analysis/Dimensionalizing*

TCE follows Commons [10] and regards the transaction as the basic unit of analysis. By contrast, "the individual agent is the elementary unit of analysis" (Jensen [28], p. 327) for AT. Both of these are microanalytic units and both implicate the study of contracting. But whereas identifying the transaction as the basic unit of analysis leads naturally to an examination of the principal dimensions with respect to which transactions differ, use of the individual agent as the elementary unit has given rise to no similar follow-on effort in AT.

Many of the refutable implications of TCE are derived from the following organizational imperative: align transactions (which differ in their attributes) with governance structures (the costs and competencies of which differ) in a discriminating (mainly, transaction-cost economizing) way. Of the several dimensions with respect to which transactions differ, the most important is the condition of asset specificity. This has a relation to the notion of sunk cost, but the organizational ramifications become evident only in an intertemporal, incom-

⁸ The aforementioned difference in their origins is also a contributing factor. AT works out of a financial economics tradition that has continuously invoked incentive-alignment arguments to great advantage. TCE, by contrast, is more concerned with firm and market-structure issues of an industrial organization kind. Governance issues are more congenial to this latter perspective.

⁹ Another (but minor) difference is that Fama and Jensen argue that "outside directors have incentives to develop reputations as experts in decision control" ([17], p. 315). I do not disagree, but would argue that outside directors often have stronger incentives to "go along."

plete-contracting context. As discussed in part *C* below, a condition of bilateral dependency arises when incomplete contracting and asset specificity are joined.

The joining of incomplete contracting with asset specificity is distinctively associated with TCE. This joinder has contractual ramifications both in general¹⁰ and specifically with reference to corporate financing.

(2) Agency Costs/Transactions Costs

Jensen and Meckling define agency costs as the sum of “(1) the monitoring expenditures of the principal, (2) the bonding expenditures by the agent, and (3) the residual loss” ([30], p. 308). This last is the key feature, since the other two are incurred only in the degree to which they yield cost-effective reductions in the residual loss.

Residual loss is the reduction in the value of the firm that obtains when the entrepreneur dilutes his ownership. The shift out of profits and into managerial discretion induced by the dilution of ownership is responsible for this loss. Monitoring expenditures and bonding expenditures can help to restore performance toward pre-dilution levels. The irreducible agency cost is the minimum of the sum of these three factors.

Since all of these features are evident to prospective buyers, those who purchase equity will pay only for the projected performance of the firm after agency costs of these three kinds have been taken into account. Accordingly, “the [entrepreneur] will bear the entire wealth effects of these expected costs so long as the equity market anticipates these effects” (Jensen and Meckling [30], p. 314). The full set of repositioning effects is thus reflected in the *ex ante* incentive alignments.

By contrast, TCE emphasizes *ex post* costs. These include “(1) the maladaptation costs incurred when transactions drift out of alignment in relation to what Masahiko Aoki refers to as the ‘shifting contract curve’, (2) the haggling costs incurred if bilateral efforts are made to correct *ex post* misalignments, (3) the setup and running costs associated with the governance structures (often not the courts) to which disputes are referred, and (4) the bonding costs of effecting secure commitments” (Williamson [62], p. 21). Of these, the maladaptation costs are the key feature. Such costs occur only in an intertemporal, incomplete-contracting context. Reducing these costs through judicious choice of governance structure (market, hierarchy, or hybrid), rather than merely realigning incentives and pricing them out, is the distinctive TCE orientation.

(3) Organizational Concern

The aforementioned *ex ante* and *ex post* differences show up in the relative importance that AT and TCE ascribe to private ordering and in the way that each deals with organization form.

¹⁰ With variation, the very same attributes recur across intermediate product markets, labor markets, regulation, career marriages, and, as discussed below, in financial markets. The “solutions,” moreover, displaying striking regularities. As Friedrich Hayek has put it: “whenever the capacities of recognizing an abstract rule which the arrangement of these attributes follows has been acquired in one field, the same master mould will apply when the signs for those abstract attributes are evoked by altogether different elements. It is the classification of the structure of relationships between these abstract attributes which constitutes the recognition of the patterns as the same or different” ([27],

Whereas AT is little concerned with dispute resolution (which lack of concern is characteristic of all *ex ante* approaches to contract),¹¹ dispute avoidance and the machinery for processing disputes are central to TCE. Rather than assume that disputes are routinely submitted to and efficaciously settled by the courts, TCE maintains that court ordering is a very crude instrument¹² and that most disputes, including many that under current rules could be brought to a court, are resolved by avoidance, self help, and the like (Galanter [20], p. 2). Private ordering rather than court ordering is thus the principal arena. How are gaps to be filled, contractual errors to be corrected, and disputes to be settled when the contract drifts out of alignment? Assessing the comparative efficacy of alternative governance structures for harmonizing *ex post* contractual relations (Commons [10]; Williamson [62]), is the distinctive focus and contribution of TCE. (The availability of the courts to serve as a forum of ultimate appeal nonetheless serves to delimit the range of indeterminacy within which private ordering bargains must be reached. Put differently, access to the courts delimits threat positions.)

Fama and Jensen maintain that “organization forms are distinguished by the characteristics of their residual claims” (Fama and Jensen [18], p. 101). This leads them to separate decision management (which is located in the firm) and decision control (the board of directors). But the details of internal organization otherwise go unremarked. TCE, by contrast, treats hierarchical decomposition and control as part of the organization-form issue. Unitary versus multidivisional structures are thus distinguished and their comparative properties in bounded-rationality and managerial-discretion (goal pursuit) respects are assessed.

C. Other Differences

Two other differences, both of which are related to the above discussion, are the way that each deals with process and with the neutral nexus of contract.

(1) *Process Distinctions*

Both AT and TCE invoke economic natural selection. Although AT assumes that natural selection processes are reliably efficacious (Fama [16]), referring even to “survival of the fittest” (Jensen [28], p. 331), TCE is somewhat more cautious—subscribing, as it does, to weak-form rather than strong-form selection, the distinction being that “in a relative sense, the *fitter* survive, but there is no reason to suppose that they are fittest in any absolute sense” (Simon [51], p. 69; emphasis in original). Rarely, however, does AT or TCE give an account of how the selection process works in particular cases.¹³ Both are frequently criticized for this reason, but critics almost never offer alternative hypotheses and rely on vague “existence” arguments in claiming selection-process breakdowns.¹⁴

p. 50). The TCE effort to dimensionalize transactions is central to, indeed, goes to the very core, of the exercise.

¹¹ See Baiman [4], p. 168.

¹² As Lawrence Friedman observes, relationships are effectively fractured if a dispute reaches litigation ([19], p. 205). Since continuity is thereafter rarely intended, the parties are merely seeking damages.

¹³ For an exception, see the TCE account of takeover.

¹⁴ The issues are elaborated in exchanges between Granovetter [22] and myself [64] and between Dow [14] and myself [63].

A related process argument on which AT once relied is that “ex post settling up” (Fama [16]) will reliably discipline managers. Assessing this requires an examination of when reputation effects work well and when poorly. Awaiting on explication of the detailed mechanisms out of which this process works, ex post settling up plays a less prominent role in AT presently.

TCE invokes two quite different process arguments. The first of these is the Fundamental Transformation; the second deals with the impossibility of “selective intervention.” Both require that *ex post* contractual features be examined in detail.

The Fundamental Transformation has reference to a situation where, by reason of asset specificity, an *ex ante* large-numbers bidding competition is transformed into what, in effect, is a bilateral trading relation thereafter. The details are set out elsewhere (Williamson [58, 59, 61, 62]). Suffice it to observe here that the governance of *ex post* contractual relations is greatly complicated for all transactions that undergo a transformation of this kind. AT makes no express reference to any corresponding process transformation.

The impossibility of selective intervention arises in conjunction with efforts to replicate incentives found to be effective in one contractual/ownership mode upon transferring transactions to another. Such problems would not arise but for contractual incompleteness, since, if contracts were complete, then, asymmetric information notwithstanding, “each party’s obligation [will be] fully specified in all eventualities; and hence it will be possible [to replicate] any rights” associated with one contracting mode in another (Hart [25], p. 5).

TCE maintains that the high-powered incentives found to be effective in market organization give rise to dysfunctional consequences if introduced into the firm. It also argues that control instruments found to be effective within firms are often less effective in the market (between firms). The upshot is that whereas market organization is associated with higher powered incentives and lesser controls, internal organization joins lower powered incentives with greater controls (Williamson [62, 64]). The assignment of transactions to one mode or another necessarily must make allowance for these respective incentive-and-control syndromes. Again, AT makes no provision for these effects.

(2) *Neutral Nexus*

Although the nexus of contract conception of the firm was originally introduced by Alchian and Demsetz [2], the approach has been more fully developed by Jensen and Meckling. As they put it, “Viewing the firm as a nexus of a set of contracting relationships . . . serves to make clear that the . . . *firm is not an individual* . . . [but] is a legal fiction which serves as a focus for a complex process in which the conflicting objectives of individuals (some of which may ‘represent’ other organizations) are brought into equilibrium within a framework of contractual relations” (Jensen and Meckling [30], pp. 311–12). That this has been a productive way to think about contractual behavior in the firm is plain from the record. The firm, according to this conception, is a neutral nexus within which equilibrium relations are worked out.

The neutral-nexus conception is also employed by TCE. As discussed elsewhere, each constituency is processed through the very same “simple contractual

schema" in working out its equilibrium contracting relationship—which entails the simultaneous determination of asset specificity, price, and contractual safeguards—with the firm (Williamson [62], chap. 12). Albeit instructive, this approach to contracts can be disputed in two respects.

First, the contract made with one constituency may affect others. Contractual interdependencies therefore need to be dealt with. So long, however, as the firm is a neutral nexus, this is merely a refinement. The second and more important objection disputes the neutrality of the nexus.

Thus, suppose that some constituencies bear a strategic relation to the firm and can disclose information pertinent to other constituencies selectively. The management of the firm is the obvious constituency to which to ascribe such a strategic informational advantage. Given its centrality in the contracting process (the neutral nexus needs someone to contract on its behalf), the management will sometimes be in a position to realize advantages by striking mutually "inconsistent" contracts with other constituencies. Undisclosed contractual hazards can arise in this way (Williamson [62], pp. 318–19).

To be sure, this last is merely an existence argument. Reputation effects, if they work well, plainly deter such abuses. TCE nevertheless makes express allowance for the possibility that the neutral nexus breaks down. Added contractual safeguards may be warranted as a consequence.¹⁵

D. Recapitulation

Significant commonalities notwithstanding, AT and TCE also differ. The leading differences are these:

	AT	TCE
unit of analysis	individual	transaction
focal dimension	?	asset specificity
focal cost concern	residual loss	maladaptation
contractual focus	<i>ex ante</i>	<i>ex post</i>
	alignment	governance

II. Project Financing¹⁶

The TCE approach to economic organization examines the contractual relation between the firm and each of its constituencies (labor, intermediate product,

¹⁵ For example, placing suppliers or workers on the board of directors so as better to assure information disclosure (but not necessarily voting participation) may be warranted.

¹⁶ The material in this section was originally prepared for and presented at the 50th Anniversary Celebration of the Norwegian School of Economics and Business Administration. The celebration was held in September 1986 in Bergen, Norway. I had earlier discussed the issues at length with Thomas Hartmann-Wendels and later with William Gillespie. I have benefitted from their remarks, those of Roberta Romano, and those received at the above celebration as well as at subsequent presentations of the core argument at the University of Michigan, the University of Arizona, Harvard University, Indiana University, and Purdue University. A rudimentary version appears in Williamson [63].

customers, etc.) mainly with reference to transaction-cost economizing. Assessing contractual needs requires that the attributes of differing transactions be examined. Discriminating matches result.

This same approach is herein applied to corporate finance. Whereas most prior studies of corporate finance have worked out of a composite-capital setup, I argue that investment attributes of different projects need to be distinguished. I furthermore argue that rather than regard debt and equity as “financial instruments,” they are better regarded as different governance structures.¹⁷ This is consonant with a unified approach to the study of contract referred to above. The discriminating use of debt and equity thus turns out to be yet another illustration of the proposition that many apparently disparate phenomena are variations on the very same underlying transaction-cost economizing theme.

As developed below, the parallels between corporate finance and vertical integration are especially striking. Thus the (corporate finance) decision to use debt or equity to support individual investment projects is closely akin to the (vertical integration) decision to make or buy individual components or subassemblies. Not only is the “market mode” (debt; outside procurement) favored if asset specificity is slight, but the costs of the market mode go up relatively as the contractual hazards increase. Also, the disabilities of internal organization (equity; internal supply) turn critically in both instances on the impossibility of “selective intervention.”

I begin with a brief sketch of earlier explanations for the combined use of debt and equity before setting out the rudimentary TCE model of project financing. The proposed model is a reduced form and solves one problem only to pose another: why not invent a new governance structure—called *dequity*—that combines the best properties of debt and equity, thereby to dominate both? Only upon posing and working through the puzzle of *dequity*—which entails comparative institutional analysis of an incomplete contracting kind—does the rationale for the discriminating use of debt and equity fully emerge.

A. Earlier Treatments

Whereas corporate finance had once been the domain of those with practical knowledge of investment banking, the Modigliani and Miller paper in 1958 changed all of that. Upon applying the standard tools of economic analysis to study corporate finance, they demonstrated that the conventional wisdom on the uses of debt and equity in the corporate capital structure was fallacious. The main ingredients of the new learning were these: the firm was characterized as a production function; investments were distinguished with respect to risk class but were otherwise treated as undifferentiated (composite) capital; and equilibrium arguments were brought effectively to bear. The main Modigliani-Miller

¹⁷ Some contend that they have been so regarded all along. So what else is new? I submit, however, that the governance-structure attributes of debt and equity have been underdeveloped and undervalued. As discussed below, prior attention has focused on the tax, signalling, incentive, and bonding differences between debt and equity. Only this last comes close to a governance-structure treatment, and even here the governance-structure differences are obscured by (1) working out of a composite-capital setup and (2) failure to treat the differential bureaucratic costs of these two forms of finance.

theorem, which revolutionized corporate finance, was this: “*the average cost of capital to any firm is completely independent of its capital structure and is equal to the capitalization rate of a pure equity stream of its class*” (Modigliani and Miller [44], pp. 268–69; emphasis in original).¹⁸

Financial economists have since developed a series of qualifications to this basic result, the leading ones being (1) taxes and bankruptcy, (2) signaling, (3) resource constraints, and (4) bonding. The tax argument is the most obvious and will hereafter be suppressed by assuming that debt and equity are taxed identically. The early bankruptcy argument was also a rather narrow, technical construction.¹⁹ Information asymmetries between managers and investors play a major role in the signaling, resource constraints, and bonding arguments.

(1) *Signaling*

Ross [48] used a signaling model to explain the use of debt. Thus assume that two firms have objectively different prospects and that these are known by the management but are not discerned by investors. Debt, in these circumstances, can be used to signal differential prospects. Specifically, the firm with better prospects can issue more debt than the firm with lesser prospects. This signaling equilibrium comes about because the issue of debt by the firm whose prospects are poor will result in a high probability of bankruptcy, which is assumed to be a costly outcome to the management.

(2) *Resource Constraints*

Stiglitz [52] and Jensen and Meckling [30] begin with a firm that is wholly owned by an entrepreneur. An investment opportunity then arises which, if it is to be realized, requires an investment of funds that exceeds the entrepreneur’s resources. How should it be financed?

One possibility is to sell equity. This, however, will dilute the entrepreneur’s incentives. Inasmuch as monitoring is costly, the entrepreneur whose incentives have been diluted can and will partake of greater on-the-job consumption. An obvious way to avoid this sacrifice of incentive intensity is to use debt rather than equity to finance the expansion.

But then why not finance the firm with debt up to the hilt—say one hundred percent less epsilon? Jensen and Meckling contend that the answer to this question turns on “(1) the incentive effects associated with highly levered firms, (2) the monitoring costs these incentive effects engender, and (3) bankruptcy costs” ([30], p. 334). Thus large debt could induce equity to take very large ex

¹⁸ Upon examining the opportunities for investors to adjust portfolios by borrowing on personal account, Modigliani and Miller showed that the market value of levered and unlevered firms that had identical expected returns could not differ. “It is this possibility of undoing leverage which prevents the value of levered firms from being consistently less than those of unlevered firms, or more generally prevents the average cost of capital . . . from being systematically higher for levered than for nonlevered companies in the same class” (Modigliani and Miller [44], p. 270).

It is now widely believed that “there is no difference between debt and equity claims from an economic perspective” (Easterbrook and Fischel [15], p. 274, n. 8).

¹⁹ Grossman and Hart summarize the original bankruptcy rationale for debt as follows: “if the probability of bankruptcy is positive, then, as long as investors cannot borrow on the same terms as the firm, i.e., go bankrupt in the same states of the world, then, by issuing debt, the firm is issuing a new security, and this will increase its market value” ([23], p. 130).

post risks—knowing that the penalties would accrue to debtholders in the event of failure and would be captured by equity should the project succeed. Since perceptive lenders will see through this risk and demand a premium (Jensen and Meckling [30], pp. 336–37), debt will become available on progressively worse terms. The optimal mix of debt and equity (in entrepreneurial firms where the resources of the entrepreneur are limited) will obtain when the effects of incentive dilution (from issuing new equity) and risk distortions (from issuing debt) are equalized at the margin.²⁰

Inasmuch as the entrepreneurial firms to which the argument applies are rather special, additional analysis is evidently needed to deal with the modern corporation in which there is no single owner-manager and where the equity ownership of management in the aggregate is small. The bonding approach is responsive.²¹

(3) *Bonding*

Grossman and Hart [23] and Jensen [29] treat debt as a means by which to bond the management. The main Grossman and Hart model assumes that management has negligible ownership of equity, whence “a switch from debt finance to equity finance does not change management’s marginal benefit from an increase in profit directly” ([23], p. 131). Instead, the incentive effect in their main model comes from the desire to avoid bankruptcy (Grossman and Hart [23], pp. 116, 127, 131).²²

Whereas the managers in Ross’s model are given to profit maximization and differ with respect to their objective opportunities, the Grossman and Hart model assumes that managers are given to managerial discretion. Debt serves both as a signal and as a check against managerial discretion. Thus if issuing debt (which is easy to observe) will permit the market to make inferences about the quality of the firm’s investments (which is difficult to observe), which inferences are thereafter reflected in market-valuation differences, then debt may be used so as

²⁰ Debt will “be utilized if the ability to exploit potentially profitable investment opportunities is limited by the resources of the owner . . . [and] the marginal wealth increments from the new investment projects are greater than the marginal agency costs of debt, and these agency costs are in turn less than those caused by the sale of additional equity” (Jensen and Meckling [30], p. 343).

²¹ Jensen and Smith summarize the current agency view on the use of equity in terms of bonding and risk aversion ([32], pp. 99–100):

Activities of large, open, nonfinancial corporations are typically complicated. They involve contractually specified payoffs to many agents in the production process. Contracting costs with these agents increase if there is significant variation through time in the probability of contract default. . . . Concentrating much of this risk on a specific group of claimants can create efficiencies. . . . However, specialized risk bearing by common stockholders is effective only if they bond their contractual risk-bearing obligation. This is accomplished by having the stockholders put up wealth used to purchase assets to bond payments promised to other agents. . . .

In addition, the common stock of open corporations allows more efficient risk sharing. . . . Since employees and managers develop firm-specific human capital, risk aversion generally causes them to charge more for the risk they bear compared to that charged by common shareholders. A curiosity with this formulation is that while risk sharing and bonding roles are ascribed to equity, there is no apparent reason to use debt in the modern corporation where equity ownership is very diffuse.

²² They subsequently argue that debt can also be used for bonding purposes to deter takeover (Grossman and Hart [23], pp. 128–29).

to persuade the market that the management “will pursue profits rather than perquisites” (Grossman and Hart [23], p. 109). By issuing debt the “management (the agent) deliberately changes its incentives in such a way as to bring them into line with those of the shareholders (the principal)—because of the resulting effect on market value. In other words, . . . the management bonds itself to act in the shareholders’ interests” ([23], p. 109).

Note with respect to each of these arguments that debt is used only for special purposes. It signals better opportunities (Ross); it avoids dilution (Stiglitz, Jensen and Meckling); it compels managers to behave in a fashion more consonant with the stockholders’ interests (Grossman and Hart, Jensen). Capital being of an undifferentiated (composite) kind, there is no suggestion that debt is better suited for some projects and equity for others.

B. The TCE Rationale

The TCE approach to corporate finance examines individual investment projects and distinguishes among them in terms of their asset-specificity characteristics. It also regards debt and equity principally as governance structures rather than as financial instruments. Earlier approaches, by contrast, work out of a more aggregative, composite-capital setup in which the differential governance features of debt and equity are underdeveloped (or treated not at all).²³

It will simplify the argument to assume that there are only two forms of finance and that projects must be financed entirely by debt or by equity but not both. To motivate the argument, assume initially that there is only one form of finance, debt, and that projects are arrayed, from least to most, in terms of their asset specificity. Thus suppose that a firm is seeking to finance the following: general-purpose, mobile equipment; a general-purpose office building located in a population center; a general-purpose plant located in a manufacturing center; distribution facilities located somewhat more remotely; special-purpose equipment; market and product development expenses; and the like.

Suppose further that debt is a governance structure that works almost entirely out of rules. Specifically, assume that debt financing requires the debtor to observe the following: (1) stipulated interest payments will be made at regular intervals, (2) the business will continuously meet certain liquidity tests, (3)

²³ Myers’ interesting treatment of corporate uses of debt financing begins with the observation that the theory should not merely explain why the tax advantages of debt “do not lead firms to borrow as much as possible . . . [but it] should explain why some firms borrow more than others, why some borrow with short-, and others with long-maturity instruments, and so on” ([45], p. 147). He further observes that “the most fundamental distinction is . . . between (1) assets that can be regarded as call options, in the sense that their ultimate values depend, at least in part, on further discretionary investment by the firm and (2) assets whose ultimate value does not depend on further discretionary investment” ([45], p. 155)—where discretionary investment takes the form of maintenance, marketing, and, more generally “all variable costs” ([45], p. 155). But rather than focus on the ways by which “lenders often protect themselves by obtaining security in the form of specific assets for which secondary markets exist,” he regards that as “an attempt to avoid the problems analyzed in this paper. . . . The heart of the matter is that the existence of debt” sets up *ex post* strain between stockholders and debtholders. This *ex post* strain between debt and equity occupies much of the finance literature of the past decade. It is *not* my interest here.

sinking funds will be set up and principal repaid at the loan-expiration date, and (4), in the event of default, the debt-holders will exercise pre-emptive claims against the assets in question. If everything goes well, interest and principal will be paid on schedule. But debt is unforgiving if things go poorly. Failure to make scheduled payments thus results in liquidation.²⁴ The various debt-holders will then realize differential recovery in the degree to which the assets in question are redeployable.

Since the value of a pre-emptive claim declines as the degree of asset specificity deepens, the terms of debt financing will be adjusted adversely. Confronted with the prospect that specialized investments will be financed on adverse terms, the firm might respond by sacrificing some of the specialized investment features in favor of greater redeployability. But this entails tradeoffs: production costs may increase or quality decrease as a result. Might it be possible to avoid these by inventing a new governance structure to which suppliers of finance would attach added confidence? In the degree to which this is feasible, value-enhancing investments in specific assets could thereby be preserved.

Suppose *arguendo*, that a financial instrument called equity is invented and assume that equity has the following governance properties: (1) it bears a residual-claimant status to the firm in both earnings and asset-liquidation respects; (2) it contracts for the duration of the life of the firm; and (3) a board of directors is created and awarded to equity that (a) is elected by the pro-rata votes of those who hold tradeable shares, (b) has the power to replace the management, (c) decides on management compensation, (d) has access to internal performance measures on a timely basis, (e) can authorize audits in depth for special follow-up purposes, (f) is apprised of important investment and operating proposals before they are implemented, and (g) in other respects bears a decision-review and monitoring relation to the firm's management (Fama and Jensen [17]).

The board of directors thus "evolves" as a way by which to reduce the cost of capital for projects that involve limited redeployability. Not only do the added controls to which equity has access have better assurance properties, but equity is more forgiving than debt. Efforts are therefore made to work things out and preserve the values of a going concern when maladaptation occurs. Thus whereas the governance structure associated with debt is of a very market-like kind, that associated with equity is much more intrusive and is akin to administration. The correspondence to which I referred earlier between outside procurement/debt and vertical integration/equity therefore obtains.

Let k be an index of asset specificity and let the cost of debt and equity capital, expressed as a function of asset specificity, be $D(k)$ and $E(k)$, respectively. A switchover will obtain as asset specificity increases if $D(0) < E(0)$ but $D' > E' > 0$.

That $D(0) < E(0)$ is because debt is a comparatively simple governance structure. Being a rule-governed relation, the setup costs of debt are relatively low. By contrast, equity finance, which is a much more complex governance relation that contemplates intrusive involvement in the oversight of a project,

²⁴ More generally, such failures place limits on discretion in favor of rule-bound behavior.

has higher setup costs. Allowing, as it does, greater discretion, it compromises incentive intensity and invites politicking.²⁵

Although the costs of both debt and equity finance increase as asset specificity deepens, debt financing rises more rapidly. This is because a rule-governed regime will sometimes force liquidation or otherwise cause the firm to compromise value-enhancing decisions that a more adaptable regime (into which added controls have been introduced), of which equity governance is one, could implement. Accordingly, $D' > E' > 0$.

The upshot is that whereas highly redeployable assets will be financed with debt, equity is favored as assets become highly nonredeployable. Let \bar{k} be the value of k for which $E(k) = D(k)$. The optimal choice of all-or-none finance thus is to use debt finance for all projects for which $k < \bar{k}$ and equity finance for all $k > \bar{k}$. Equity finance is thus reserved for projects where the needs for nuanced governance are great.

By contrast with the earlier literature, which began with an equity-financed firm and sought a special rationale for debt, the TCE approach postulates that debt (the market form) is the natural financial instrument. Equity (the administrative form) appears as the financial instrument of *last resort*.

C. Dequity

The discriminating use of debt and equity is thus predicted by the foregoing. Debt is a governance structure that works out of rules and is well-suited to projects where the assets are highly redeployable. Equity is a governance structure that allows discretion and is used for projects where assets are less redeployable.

A chronic puzzle is nevertheless posed in *all* systems for which rules versus discretion are being compared: Why doesn't discretion strictly dominate rules? Thus suppose that the discretionary system is advised to replicate rules across all activities for which rules work well and intervene only on those occasions where expected net gains can be projected. The discretionary system will then everywhere do as well as and will sometimes do better than rules. I have discussed this issue elsewhere as the puzzle of "selective intervention" (Williamson [62], chap. 6; 1988).

Expressed in terms of debt and equity, the puzzle can be examined by creating a new financial instrument/governance structure called dequity. Let this instrument include all of the constraining features of debt to which benefits (on average) are ascribed. When, however, these constraints get in the way of value-maximizing activities, the board of directors (or some similar high-level oversight unit) can temporarily suspend the constraints, thereby to permit the corporation to implement a value-maximizing plan. The constraints are thus the norm from which selective relief is permitted.

Let the cost of dequity capital be given by $\delta(k)$. If dequity operates as described then it will have the property that $\delta(0) = D(0)$ and $\delta' = E'$. The first of these

²⁵ For a related discussion in the context of vertical integration, see Williamson [62] (chap. 5; 1988). Also see Section II, part C, below.

reflects the fact that debt is not burdened by the bureaucratic costs of equity, and since selective relief from the rules is permitted, debt mimics equity in facilitating adjustment to unanticipated disturbances. Combining, as it does, the best properties of each, debt supplants both equity and equity.²⁶

Whether or not debt will operate as described turns on the feasibility of selective intervention. If selective intervention is a fiction—in that it predictably breaks down—then this condition must be acknowledged and the added cost consequences factored in.

The central problem with all promises to “behave responsibly” during contract execution and at project-renewal intervals is that such promises, without more, lack credibility. Here as elsewhere, those who enjoy discretion can be expected to exercise it in their favor.

Thus although sometimes management’s decision to waive the rules, thereby to implement an adaptive response to unanticipated disturbances, will serve value-enhancing purposes, at other times (especially in conjunction with project extension and renewals) managerial subgoal pursuit²⁷ will intrude. Such subgoal pursuit arises because the circumstances under which the rules can be waived are manipulable (if the criteria were clearly defined and if state realizations were common knowledge, then the appropriate waivers could and presumably would be incorporated in the debt agreement). Accordingly, selective intervention will be subject to errors of both commission (discretion will sometimes be exercised when it suits the purpose of the management) and of omission (the rules will sometimes be observed when they should not).²⁸ The hypothesized gain without cost that results from introducing judgment into a rules regime will not therefore obtain. Debt should therefore be regarded as an intermediate form of financing (akin to preferred stock) rather than as a superior form that dominates both equity and equity over the full range of parameter values.

Put differently, the admonition to “follow the rules with discretion” is too facile. Since to combine rules with discretion will never realize the hypothetical ideal but will always entail compromise, debt can be expected to have the following properties: $D(0) < \delta(0) < E(0)$; and $D' > \delta' > E' > 0$.

III. Extensions, Qualifications, Applications

A. *The Modern Corporation*

Project financing simplifies and thereby helps to disclose key features of the finance decision. But does it inform the study of finance in the modern corporation—which, after all, is the real object of the exercise?

²⁶ Although it oversimplifies, debt, if it works as described, mimics equity at project-approval and project-renewal intervals, when partisan political input for equity-financed projects is especially severe, and it reverts to equity during the project-execution interval whenever the exacting observance of debt covenants prospectively leads to suboptimization.

²⁷ Subgoals include growth, easy-life preferences, perquisites, and the like. Logrolling and internal politicking among members are commonly involved.

²⁸ One of the reasons why rules will sometimes be observed when they should not is that holders of debt will suspect managers of waiving the rules opportunistically. If, therefore, an occasion for legitimate rule relief arises that, if exercised, has the appearance of opportunism, managers may forego discretion.

There are two main research strategies for studying the modern corporation. One is to posit that the firm is large, complex, and diffusely owned and inquire into the consequences.²⁹ The second is to work out of microfoundations. Although the latter has obvious appeal, and is employed here, does the argument scale up? Put differently, is it the case that the corporation is merely the sum of its individual projects?

Transaction-cost economics is not uniquely culpable in its use of a simple model to investigate what is plainly a very complex phenomenon. To the contrary, this is a time-honored research tradition. Consider the following: (1) the neoclassical theory of the firm works out of a firm-as-production-function setup. Although the hierarchical features of the firm and a comparison of transaction costs (between firms and markets) are both suppressed by this construction, public policy toward business was nevertheless long informed by this “applied price theory” approach (Coase [8], p. 61). (2) The Alchian and Demsetz [2] treatment of the classical capitalist firm turns critically on the existence of technological nonseparabilities. Although such nonseparabilities explain recourse to unified ownership and hierarchical controls in relatively small units, both Alchian and Demsetz and others nevertheless treated the modern corporation “as if” the nonseparabilities observed among small groups of workers (such as those engaged in manual freight loading) apply equally to enterprise sizes of 10,000 and even 100,000 workers (to include even firms that are diversified and divisionalized).³⁰ (3) The Jensen and Meckling [30] treatment examines the consequences of diluting a one hundred percent equity position in an entrepreneurial firm. Their real interest is in the diffusely owned modern corporation, but the basis for moving from the one to the other is not described.³¹ (4) The Grossman and Hart treatment [24] of vertical integration assumes that the manager of each stage is also the owner. This is a simplification, one consequence of which is that incentive intensity is assumed to be unaffected by vertical integration. The application of the argument to the case where the manager of each stage has a negligible ownership position is not developed. More generally, the logic that connects tractable micro models and the composite uses to which they are put is often asserted but is rarely fully worked out.

Although it is possible, perhaps even plausible, to think of the modern corporation as a series of separately financed investment projects, such a conception can be disputed in at least five respects. First, the approach set out here misses

²⁹ The earlier managerial-discretion literature (Baumol [5]; Marris [42]; Williamson [56]) and recent variants thereof (Fama [16]; Grossman and Hart [23]; Jensen [29]) take it as given that the modern corporation is a large and diffusely owned entity.

³⁰ Note that Alchian and Demsetz specifically eschewed appeal to contractual considerations in their initial explanation for the firm ([2], pp. 777–78). Both have since qualified this position (Alchian [1]; Demsetz [12]).

The possibility that very large administrative entities arise in support of contractual relations between technologically separable, but *bilaterally dependent*, trading entities is the TCE way of motivating the large corporation.

³¹ They expressly acknowledge this condition: “One of the most serious limitations of this analysis is that as it stands we have not worked out in this paper its application to the very large modern corporation whose managers own little or no equity. We believe our approach can be applied to this case but . . . [these issues] remain to be worked out in detail and will be included in a future paper” (Jensen and Meckling [30], p. 356).

interaction effects among projects. Second, the all-or-none finance assumption—either debt or equity, but not both—ought to be relaxed. Third, the corporation as a going concern sometimes possesses important team features, on which account the whole is more than the sum of the parts. Fourth, only a few large and discrete projects are apt to be financed individually. And finally, additional financing instruments—leasing, preferred stocks, etc.—need to be introduced.³²

Leasing is briefly discussed in part *B* (1), below, and preliminary headway has been made with combining debt and equity for single projects.³³ But project aggregation issues have not been addressed. Also, the influence of uncertainty ought to be made more explicit.

An important question, with respect to this last, is how does the value of \bar{k} vary as uncertainty changes. If, as seems plausible, $D(k)$ and $E(k)$ are both twisted up by a parametric increase in uncertainty, $D(k)$ more than $E(k)$, then the value of \bar{k} will be reduced. The reasons for the differential shift are that (1) added uncertainty pushes the firm into a maladapted state more often and/or more consequentially, and (2) rule-governed systems, as compared with discretionary systems, are placed under greater stress by such circumstances. Accordingly, the differential shift described above obtains and greater use of equity financing is favored, *ceteris paribus*. (Explicating the decision process that lies behind each of the reduced-form expressions is needed, however, to prove this conjecture. An even more microanalytic level of analysis is therefore implicated.)

B. Applications

The foregoing limitations notwithstanding, applications of three kinds are sketched here: leasing; the pecking-order theory of finance; and leveraged buy-outs.

(1) *Leasing*

Assume that standby access to an asset is required and that market procurement of the services supplied by this asset is believed to be defective. Does it follow that the firm should own the asset in question?

Consider, in particular, durable, general-purpose assets on wheels and assume that such assets are resistant to user abuse (and/or that the costs of inspection and attributing abuse are low). The possibility of procuring the services of these assets by leasing deserves consideration.

General-purpose assets on wheels satisfy the $k = 0$ condition in superlative degree. Given, moreover, that measurement problems are assumed to be negligible, there is no need to combine owner and user for user-cost reasons. Since an outside owner that is specialized to this type of equipment (e.g., truck leasing; airplane leasing) can repossess and productively redeploy these assets more effectively than could a more specialized debt-holder, leasing is arguably the least-cost form of finance for such assets. Recourse to leasing to finance assets on wheels is thus merely a special case of the general TCE asset-based approach to project finance set out earlier.

³² The discussion of dequity in Section II, part *C* above, can be thought of as a move in the direction of preferred-stock financing.

³³ Thomas Hartmann-Wendels and I have made preliminary headway with this.

(2) *Pecking-Order Finance*

Myers attributes the “pecking-order” theory of finance to Donaldson [13] and summarizes it as follows: “(1) firms prefer internal finance. (2) They adapt their target dividend payment ratios to their investment requirements. . . . (3) If external finance is required, firms issue the safest security first. That is, they start with debt, then possibly hybrid securities such as convertible bonds, then equity” (Myers [44], pp. 348–49). Myers goes on to observe that while he used to ignore pecking-order theory, “recent work based on asymmetric information, problems of adverse selection, moral hazard, and signaling” gives him more confidence ([46], p. 349).

The approach to project financing set out here is similar in some respects but different in others. For one thing, the pecking-order theory makes no reference to the characteristics of the assets. Also, the use of retained earnings in preference to debt lacks a TCE justification. If such projects are appropriately financed by debt in the comparison of debt with equity, then the use of retained earnings to support such projects (because it is a “safer security”) reflects behavioral rather than transaction-cost economizing purposes. It is nonetheless interesting that both the behavioral approach (Donaldson) and the comparative governance approach employed here conclude that equity is the financial instrument of last resort, albeit for different reasons.

(3) *Leveraged Buyouts*

Leveraged buyouts are a relatively recent development. Jensen [29] advances what he calls a “free cash flow” explanation for this condition. Free cash flow is essentially a managerial-discretion argument: unless somehow constrained, managers will dissipate free cash flows to support growth and related activities that favor managerial objectives.³⁴ Jensen concludes that the data are broadly corroborative.

I am also concerned with the possibility that leveraged buyouts are used as a way by which to curb managerial discretion. But I examine the problem from the standpoint of assets rather than cash flows. In fact, these two explanations are not mutually exclusive.

Suppose, as an evolutionary matter, that a firm is originally financed along lines that are consistent with the debt and equity financing principles set out above. Suppose further that the firm is successful and grows through retained earnings. The initial debt-equity ratio thus progressively falls. And suppose finally that many of the assets in this now-expanded enterprise are of a kind that could have been financed by debt.

Added value, in such a firm, can be realized by substituting debt for equity. This argument applies, however, selectively. It only applies to firms where the efficient mix of debt and equity has gotten seriously out of alignment. These will be firms that combine (1) a very high ratio of equity to debt with (2) a very high ratio of redeployable to nonredeployable assets.

Interestingly, many of the large leveraged buyouts in the 1980s displayed

³⁴ Free cash flow is defined as “cash flow in excess of that required to fund all projects that have positive net present values when discounted at the relevant cost of capital” (Jensen [29], p. 323).

precisely these qualities.³⁵ Thus Colman's examination of leveraged buyouts disclosed that "only an existing firm with a small amount of debt is able to support" a leveraged buyout and that a "frequent characteristic of the leveraged buyout company is that the firm has a high proportion of its total assets in tangible property" ([9], p. 531). Although the tangible-intangible distinction is not identical to the redeployability test that I employ, there is plainly a correlation. Lowenstein's observation that many of these firms are in "prosaic businesses—retailing, textiles and soft drink bottling" ([41], p. 749) and related observations about "mundane product lines" by Wallner and Greve [55] (p. 78–79) are also consonant with the view that many of the assets in question have a stable, long-term value and hence would afford redeployable security.

Colman furthermore observes that leveraged buyouts are put together with a view toward providing managers with added incentives. This may or may not involve equity investment by the management, but it always involves a significant contingent-compensation arrangement (Colman [9], pp. 532, 537, 539). The management, moreover, is usually on a tight leash. It ordinarily owns a minority (often less than fifteen percent) of the equity, the remainder being concentrated in the hands of the banks, insurance companies, and the investment bankers who package the deal (Mason [43]). According to Wallner, "The management never gets more than 50 percent of the equity unless the secured lenders are the only other participants in the deal" ([54], p. 20), in which event those outsiders who supply finance are little concerned over inept management because their pre-emptive claims against redeployable assets provide them with adequate protection.

As earlier remarked, the most interesting feature of leveraged buyouts is the substitution of debt for equity. The following points are pertinent:

(1) The major lenders are finance companies and banks and insurance companies. The finance companies specialize in shorter term inventory and receivable financing, where they have an advantage over the banks in policing the collateral, and will lend up to eighty-five percent of the liquidation value. Banks and insurance companies specialize in intermediate and longer term financing, usually at a lower lending percentage of liquidation value (Colman [9], p. 539).

(2) The cash flow and asset-based financing approaches are distinguished by the fact that under "the conventional approach, the lender wanted protection primarily via cash flow" whereas under "the asset-based approach . . . the lender ties all or at least part of his loan to the liquid value of the borrower's assets . . . , [and realizes protection by] taking a security interest in the assets . . . , [establishing] a lending formula on the basis of the liquid value, and . . .

³⁵ One that does not is the Mushroom King leveraged buyout for which Citicorp was the principal source of funds. That Mushroom King was a poor candidate is suggested by the following (Cowan [11], p. 1): "In a leveraged buyout, investors buy a company almost entirely with borrowed money, using the company's cash flow and sales of the company's assets, to reduce the debt. The best candidates, therefore, are companies that have a predictable stream of earnings and hard assets that can be sold for good prices. Investors also look for companies in low-tech fields, so that a venture is not overly dependent on any one or two managers. . . . Mushroom King broke all the rules, and its collapse illustrates what can happen when a good idea is yanked so far that it snaps."

[obtaining] periodic information on the nature and size of those assets” (Colman [9], p. 542).

Plainly, the shift from cash flow to asset-based financing lines up rather closely with the transaction-cost economics rationale for secure transactions.

Note, moreover, that there is no necessary inconsistency in initially taking a corporation private (in the above-described way) and subsequently going public. Two factors support such a two-stage program.

For one thing, those who take the corporation private can be presumed to have deep knowledge of the merits of the transaction. Outsiders, by contrast, may need to have a performance record to be convinced of the merits. Public ownership, on terms that reflect full valuation, thus awaits an examination of the data.

Secondly, the prospect that added rewards will be realized at the going public stage if the company performs well in the period between going private and its return to (albeit reconfigured) public status is a source of added incentive to the management. Harnessing incentive intensity is a leading purpose of the transaction.³⁶

The transaction-cost approach to economic organization also has ramifications for whether the incumbent management will participate extensively in a buyout refinancing (thereafter to hold a substantial equity position in the restructured organization) or should be displaced instead. The argument is this: since employment continuity is the source of added value wherever firm-specific human capital is great, a management buyout is favored by high human-asset specificity, *ceteris paribus*. Thus whereas a substitution of debt for equity is warranted in any firm where redeployable physical assets are equity financed, an informed choice between continuing and removing incumbent managers requires that the human assets of the managers be assessed. The buyout transaction is therefore influenced by the condition of *both* physical and human-asset specificity.³⁷

C. Institutional Finance

Financial economics, like general equilibrium theory more generally, is essentially noninstitutional (or, as Tjalling Koopmans once put it, “preinstitutional”). The scientific aspiration was to work out of an “institution-free core.”³⁸ The substantial accomplishments of this research tradition notwithstanding, there is growing agreement that institutions matter in ways not hitherto acknowledged or even imagined.

A “New Institutional Economics” has been appearing in response. This “New Institutional Economics movement . . . [does] not consist primarily of giving new answers to the traditional questions of economics—resource allocation and degree

³⁶ The foregoing is not meant to suggest that all leveraged buyouts are unproblematic. Rather, the argument is that neither unremitting hostility to nor unqualified support for leveraged buyouts is warranted. Sorting the wheat from the chaff requires that the underlying logic be worked out.

³⁷ It should not go unnoticed that the argument is not working entirely out of a project-financing framework. If the object is to find assets that have good redeployability in the aggregate, then firms that are operating in mature (but not declining), competitively organized industries would appear to be good candidates. Something akin to composite-asset considerations thus appears.

³⁸ The phrase originates with Vernon Smith.

of utilization. Rather it consists of answering new questions, why economic institutions have emerged the way they did and not otherwise; it merges into economic history, but brings sharper nanoeconomic . . . ('nano' is an extreme version of 'micro') reasoning to bear than has been customary" (Arrow [3], p. 734).

Financial economics has not been immune to these developments. The possibility of supplanting composite capital by a richer theory of investment is an obvious candidate. The recent Long and Malitz [40] distinction between tangible and intangible investments (advertising and R & D) is an illustration.

My treatment of project financing in terms of asset specificity also breaks with the composite-capital tradition. Albeit similar to Long and Malitz, their tangible/intangible breakdown is a very incomplete measure of asset specificity. Thus although intangible investments in R & D and advertising have poor redeployability properties, this is also true of many tangible assets. If differential redeployability goes to core issues, then a general theory that features this (rather than an ad hoc approach that employs proxy measures that can be gleaned from accounting statements) is really needed.

Also note that whereas earlier treatments of the corporation begin with stock financing and inquire whether a justification for debt can be discovered, TCE reverses this order. It therefore posits that debt (rule-based governance) is the original form of finance and introduces equity (discretionary governance) only when the cost of debt financing becomes prohibitive. Regarding debt and equity as alternative governance structures, rather than merely financial instruments with different tax implications, is central to the TCE exercise.

Finally, the TCE approach to corporate finance and corporate governance has numerous empirical ramifications. These include the study of leasing, rank-order finance, and the use of leveraged buyouts—all from an asset-specificity point of view.

Corporate finance being an enormously complicated subject, TCE brings another (different but nonetheless complementary) lens to bear.

IV. Concluding Remarks

The transaction-cost approach to economic organization focuses on the governance needs of exchange relations. Governance structures that mitigate hazards and facilitate adaptation plainly have much to commend them. A compelling economic rationale for a large number of otherwise anomalous institutional structures is "revealed" only when these hitherto neglected contractual purposes become the object of analysis.

The transaction is made the basic unit of analysis, the most important dimension of which is asset specificity. Aligning transactions—be they for intermediate product, labor, finance, final product, etc.—with governance structures in a discriminating way is the central TCE exercise. Transactions differ in their attributes; governance structures differ in their costs and competencies. The object is to effect an economizing match.

In general, simple governance structures (often rule based, such as debt) are able to cope effectively with the needs of simple transactions. Simple governance

structures experience stress, however, as the contractual hazards ramify. A switch to more complex and costly governance structures that supplant rules in favor of discretion can be and often is the source of added value in such circumstances.

The TCE approach maintains that some projects are easy to finance by debt and *ought to be financed by debt*. These are projects for which physical asset specificity is low to moderate. As asset specificity becomes great, however, the preemptive claims of the bondholders against the investment afford limited protection—because the assets in question have limited redeployability. Not only does the cost of debt financing therefore increase, but the benefits of closer oversight also grow. The upshot is that equity finance, which affords more intrusive oversight and involvement through the board of directors (and, in publicly held firms, permits share ownership to be concentrated), is the preferred financial instrument for projects where asset specificity is great.

By contrast with the formal modeling apparatus associated with much of the financial economics literature, the transaction-cost economics approach to corporate governance and corporate finance is of a relatively preformal kind. Inasmuch as subsequent formalization would appear to be feasible, that condition is not necessarily objectionable. Indeed, since the relevant reduced forms are unlikely to be discerned without first explicating the underlying microanalytics, omitting this step is to proceed parlously. Some problems, of which corporate finance is arguably one, are so complex that they first need to be dealt with “on their own terms.” Focus is nevertheless required. Transaction-cost economics offers one focused perspective.

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