The Structure of Corporate Ownership: Causes and Consequences

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This paper argues that the structure of corporate ownership varies systematically in ways that are consistent with value maximization. Among the variables that are empirically significant in explaining the variation in ownership structure for 511 U.S. corporations are firm size, instability of profit rate, whether or not the firm is a regulated utility or financial institution, and whether or not the firm is in the mass media or sports industry. Doubt is cast on the Berle-Means thesis, as no significant relationship is found between ownership concentration and accounting profit rates for this set of firms.

Large publicly traded corporations are frequently characterized as having highly diffuse ownership structures that effectively separate ownership of residual claims from control of corporate decisions. This alleged separation of ownership and control figures prominently both in the economic theory of organization and in the ongoing debate concerning the social significance of the modern corporation, a debate that we join later in this paper.[1] Our primary concern, however, is to explore some of the broad forces that influence the structure of corporate ownership. Our conjectures about the determinants of ownership structure are examined empirically.

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[1] Recent literature that has examined the separation of ownership and control includes Jensen and Meckling (1976) and Fama and Jensen (1983a, 1983b). The debate concerning the social implications of diffuse ownership of corporate equity had its genesis in Berle and Means (1933).

Inspection of ownership data reveals that the concentration of equity ownership in U.S. corporations varies widely. For a sample of 511 large U.S. corporations, table 1 lists the distribution of three measures of ownership concentration: the percentage of a firm's outstanding common equity owned by the five largest shareholders (A5), the percentage of shares owned by the 20 largest shareholders (A20), and an approximation of a Herfindahl measure of ownership concentration (AH). This sample and these data will be described more fully later in the paper. We simply note here the variation in ownership concentration. The value of A5 ranges from 1.27 to 87.14 around a mean value of 24.81. Similar variation is found in the values of A20 and AH: A20 ranges from 1.27 to 91.54 and AH ranges from 0.69 to 4,952.38. The corresponding average values of these two variables are 37.66 and 402.75, respectively.

We approach the task of explaining the variation in these data by considering the advantages and disadvantages to the firm's shareholders of greater diffuseness in ownership structure. The most obvious disadvantage is the greater incentive for shirking by *owners* that results. The benefit derived by a shirking owner is his ability to use his time and energies on other tasks and indulgences; this benefit accrues entirely to him. The cost of his shirking, presumably the poorer performance of the firm, is shared by all owners in proportion to the number of shares of stock they own. The more concentrated is ownership, the greater the degree to which benefits and costs are borne by the same owner. In a firm owned entirely by one individual, all benefits and costs of owner shirking are borne by the sole owner. In this case, no "externalities" confound his decision about attending to the tasks of ownership. In a very diffusely owned firm, the divergence between benefit and costs would be much larger for the typical owner, and he can be expected to respond by neglecting some tasks of ownership.

The inefficiency implied by such externalities, of itself, dictates against diffuse ownership structures, and we would observe no diffuse ownership structures in a "rational" world unless counterbalancing advantages exist. Since these advantages do exist, a decision to alter a firm's ownership structure in favor of greater diffuseness presumably is guided by the goal of value maximization. A theory of ownership structure is based largely on an understanding of what makes these advantages vary in strength from firm to firm.

Determinants of Ownership Structure

Of the possible general forces affecting ownership structure, three seem important enough to merit investigation. One of these, the

TABLE 1

A. FREQUENCY DISTRIBUTION OF A5, A20, AND AH FOR 511 FIRMS IN SAMPLE

	A5		A20		AH		
RANGE	Frequency	Cumulative Percentage	Frequency	Cumulative Percentage	RANGE	Frequency	Cumulative Percentage
0–4.99	16	3.13	11	2.15	0–19.99	28	5.48
5–9.99	50	12.92	13	4.70	20–39.99	46	14.48
10–14.99	86	29.75	13	7.24	40–59.99	70	22.70
15–19.99	98	48.92	32	13.50	60–79.99	44	31.31
20–24.99	72	63.01	41	21.53	80–99.99	42	39.53
25–29.99	45	71.82	67	34.64	100–119.99	38	46.97
30–34.99	37	79.06	59	46.18	120–139.99	28	52.45
35–39.99	27	84.34	66	59.10	140–159.99	22	56.75
40–44.99	19	88.06	57	70.25	160–179.99	16	59.88
45–49.99	18	91.59	39	77.89	180–199.99	11	62.04
50–54.99	9	93.35	34	84.54	200–219.99	14	64.78
55–59.99	10	95.30	22	88.85	220–239.99	9	66.54
60–64.99	10	97.26	21	92.96	240–289.99	17	69.86
65–69.99	7	98.63	19	96.67	290–369.99	21	73.97
70–74.99	4	99.41	9	98.43	370–479.99	24	78.67
75–79.99	1	99.61	2	98.83	480–539.99	22	82.98
80–84.99	0	99.61	3	99.41	540–779.99	21	87.08
85–89.99	2	100.00	1	99.61	780–1,219.99	25	91.98
90–94.99	0	100.00	2	100.00	1,220–2,279.99	20	95.89
95–100.00	0	100.00	0	100.00	2,280–4,959.99	21	100.00

B. SUMMARY STATISTICS OF A5, A20, AND AH FOR 511 FIRMS IN SAMPLE

Variable	N	Mean	Standard Deviation	Minimum	Maximum
A5	511	24.81	15.77	1.27	87.14
A20	511	37.66	16.73	1.27	91.54
AH	511	402.75	722.99	.69	4,952.38

value-maximizing size of the firm, is not surprising. The second, more subtle and difficult to measure, is the profit potential from exercising more effective control, to which we ascribe the name *control potential.* The third is *systematic regulation*, the general purpose of which is to impose, in one form or another, constraints on the scope and impact of shareholder decisions. In addition to these, we consider the *amenity potential* of firms, about which more will be said below.

Value-maximizing Size

The size of firms that compete successfully in product and input markets varies within and among industries. The larger is the competitively viable size, ceteris paribus, the larger is the firm's capital resources and, generally, the greater is the market value of a given fraction of ownership. The higher price of a given fraction of the firm should, in itself, reduce the degree to which ownership is concentrated. Moreover, a given degree of control generally requires a smaller share of the firm the larger is the firm. Both these effects of size imply greater diffuseness of ownership the larger is a firm. This may be termed the risk-neutral effect of size on ownership.

Risk aversion should reinforce the risk-neutral effect. An attempt to preserve effective and concentrated ownership in the face of larger capital needs requires a small group of owners to commit more wealth to a single enterprise. Normal risk aversion implies that they will purchase additional shares only at lower, risk-compensating prices. This increased cost of capital discourages owners of larger firms from attempting to maintain highly concentrated ownership.

As the value-maximizing size of the firm grows, both the risk-neutral and risk-aversion effects of larger size ultimately should weigh more heavily than the shirking cost that may be expected to accompany a more diffuse ownership structure, so that an inverse relationship between firm size and concentration of ownership is to be expected. Larger firms realize a lower *overall* cost with a more diffuse ownership structure than do small firms. The choice by owners of a diffuse ownership structure, therefore, is consistent with stockholder wealth- (or utility-) maximizing behavior.

Control Potential

Control potential is the wealth gain achievable through more effective monitoring of managerial performance by a firm's owners. If the market for corporate control and the managerial labor market perfectly aligned the interests of managers and shareholders, then control potential would play no role in explaining corporate ownership

structure (although it might then explain the degree to which ownership by professional management is concentrated). We assume, however, that neither of these markets operates costlessly. In addition to the transaction and information costs associated with the acquisition and maintenance of corporate control, Jarrell and Bradley (1980) have shown that there are significant regulatory costs associated with control transactions. These nontrivial costs act effectively as a tax on corporate control transactions. Although we are unaware of similar empirical studies of transaction costs associated with the managerial labor market, we assume that this market also imperfectly disciplines corporate managers who work contrary to the wishes of shareholders. Our view is that these transaction costs impose a specific identity and control potential on firms. Alterations in the structure of corporate ownership, in part, can be understood as a response to these costs.

We seek to uncover elements of a firm's environment that are pervasive and persistent in their effect on control potential. Firm-specific uncertainty is one such factor. Firms that transact in markets characterized by stable prices, stable technology, stable market shares, and so forth are firms in which managerial performance can be monitored at relatively low cost. In less predictable environments, however, managerial behavior simultaneously figures more prominently in a firm's fortunes and becomes more difficult to monitor. Frequent changes in relative prices, technology, and market shares require timely managerial decisions concerning redeployment of corporate assets and personnel. Disentangling the effects of managerial behavior on firm performance from the corresponding effects of these other, largely exogenous factors is costly, however.[2] Accordingly, we believe that a firm's control potential is directly associated with the noisiness of the environment in which it operates. The noisier a firm's environment, the greater the payoff to owners in maintaining tighter control. Hence, noisier environments should give rise to more concentrated ownership structures.[3]

Clearly, we take the view that owners *believe* they can influence the success of their firms and that all outcomes are neither completely random nor completely foreseeable. This belief constitutes an assertion of the existence of risks, opportunities, and managerial shirking that are in some degree controllable by owners for the profit of own-

[2] The effect of imperfect information on monitoring costs is developed formally in Holmström (1979, 1982).

[3] An interesting variant of the hypothesis that corporate ownership structure is, in part, dependent on the stability of a firm's environment is found in Smith (1937, pp. 713–14): "The only trades which it seems possible for a joint stock company to carry on successfully, without an exclusive privilege, are those, of which all the operations are capable of being reduced to what is called a routine, or to such a uniformity of method as admits of little or no variation."

ers. The profit potential from exercising a given degree of owner control is, we believe, correlated with instability in the firm's environment.

This instability may be measured in many ways, by fluctuations in product and input prices of relevance to a firm, for example, or by variations in a firm's market share. We rely on instability of a firm's profit rate, measured by variation in both stock returns and accounting returns. Profit data are readily available, and profit variability offers a global measure of the impact of the various subcomponents of instability in its environment; profit also is the "bottom line" that so interests stockholders.

The three measures of instability examined here are (1) firm-specific risk (SE), as measured by the standard error of estimate calculated from fitting the "market model," (2) the standard deviation of monthly stock market rates of return (STD_s), and (3) the standard deviation of annual accounting profit rates (STD_a). Our intuition favors firm-specific risk as the factor most strongly associated with the type of instability for which control is most useful. The exercise of control should be particularly important to those operations of a firm that can be influenced and responded to most easily. These would seem to include the inner functioning of the firm and its operations in the markets in which it purchases and sells. These are proximate and specific to the firm. In contrast to these sources of instability, economywide events such as the rate of growth of money supply or fluctuations in government tax-expenditure flows are beyond a firm's control and, at best, can be reacted to intelligently. Because of these reactive possibilities, even this more distant and less firm-specific instability is likely to call forth more concentrated ownership, but greater control potential is offered by instability that is more specific to the firm.

We include instability in accounting rates of return among our measures, though we recognize many defects of accounting data. One of these defects is purely statistical: whereas we have collected monthly stock return data, our accounting data are annual data. For any time period, then, there are 12 times as many observations with which to calculate a stock return variance as there are for calculating an accounting return variance. Accounting profits, however, may reflect year-to-year fluctuations in underlying business conditions better than stock market rates of return, since stock market rates of return reflect expected future developments that may cloak contemporary fluctuations in business conditions. We say "may" because today's accounting rate of return is influenced by past investment expenditures (and other carryover accounting entries), and this also attenuates the impact of "today's" instabilities. It is not clear on a priori grounds which measure is better suited to measure day-to-day or year-to-year variability in the firm's environment.

Regulation

Systematic regulation restricts the options available to owners, thus reducing control potential in ways that may not be reflected fully in profit instability. Regulation also provides some subsidized monitoring and disciplining of the management of regulated firms. A bank whose balance sheet looks too risky to regulators will find itself under considerable pressure to replace its management. These "primary" effects of regulation should reduce ownership concentration to a greater degree than would be predicted simply on the basis of profit instability.

We expect the net impact of regulation to be dominated by these primary effects, which call for greater diffuseness of ownership in regulated industries. There are also well-known problems of amenity consumption by management in a regulated setting. These should be more important than in nonregulated firms because cost-plus price-setting regulation reduces the incentive to hold down cost while it dulls competition. Greater control of management by owners would seem to be called for and, hence, greater concentration of ownership. However, owner incentives to reduce managerial amenity consumption are also dulled by the tendency of commissions to adjust prices toward levels that leave the profit rate unchanged, and this counteracts the desire for greater control of management.

Amenity Potential of a Firm's Output

Those who own large fractions of the outstanding shares of a firm either manage the firm themselves or are positioned to see to it that management serves their interests. Maximizing the value of the firm generally serves these interests well, for this provides the largest possible budget for a shareholder to spend as a "household." The advantage of maximizing profit through the firm and then consuming in the household is based on the implicit assumption that specialization in consumption is productive of maximum utility. However, when owners can obtain their consumption goals better through the firm's business than through household expenditures, they will strive to control that firm more closely to obtain these goals. Just as the potential for higher profit creates a demand for closer monitoring of management by owners, so does the potential for firm-specific amenity consumption.

We refer here to the utility consequences of being able to influence the type of goods produced by the firm, not to the utility derived from providing general leadership to the firm. We believe that there is nonpecuniary income associated with the provision of general leadership and with the ability to deploy resources to suit one's personal

preferences, but we are not now prepared to assert how this varies across firms or different ownership structures.[4] However, we do believe that two industries are likely to call forth tight control in order to indulge such personal preferences. These are professional sports clubs and mass media firms. Winning the World Series or believing that one is systematically influencing public opinion plausibly provides utility to some owners even if profit is reduced from levels otherwise achievable. These consumption goals arise from the particular tastes of owners, so their achievement requires owners to be in a position to influence managerial decisions. Hence, ownership should be more concentrated in firms for which this type of amenity potential is greater. Unfortunately, other than a shared perception that the sports and media industries are especially laden with amenity potential for owners, we have no systematic way of tracking amenity potential. On balance, we consider amenity potential a more speculative explanation of ownership concentration in these special industries than are size, control potential, and regulation.

Data and Measurements

This study uses ownership data obtained from three directories published by Corporate Data Exchange (CDE): *CDE Stock Ownership Directory: Energy* (1980), *Banking and Finance* (1980), and *Fortune 500* (1981). The sample consists of 511 firms from major sectors of the U.S. economy, including regulated utilities and financial institutions. These firms represent all firms for which we were able to obtain ownership data, accounting data (from the COMPUSTAT tape), and security price data (from the Center for Research on Security Prices [CRSP] tape). We also examine a manufacturing and mining subsample composed of 406 firms.

The ownership data consist of a ranking of all publicly identifiable stockholders who exercised investment power over 0.2 percent or more of the company's common equity. The CDE used the same

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[4] Ad hoc examples of the power of dominant owner-managers can be given. The share prices of Disney, Gulf and Western, and Chock Full O'Nuts all rose dramatically on the deaths of their dominant owners. Allegedly the prices of these stocks had been depressed by the policies of Walt Disney to keep a considerable library of Disney films from television, of Charles Bluhdorn to use Gulf and Western to hold a large portfolio of stocks in other companies, and of Charles Black to use Chock Full O'Nuts to maintain large real estate investments. All three policies are associated by the financial community with the personal preferences of the then dominant owner-managers of these companies. Shortly after the deaths of Disney, Bluhdorn, and Black, share prices rose, respectively, 25 percent, 42 percent, and 22 percent. We have no systematic procedure for determining when dominant owners are more likely to exercise their personal preferences in "non-profit-maximizing ways" except for our belief in the amenity potential of mass media and sports industries.

definition of investment power used by the Securities and Exchange Commission (SEC) in application of 13(f) regulations. Specifically, this definition includes all shares over which the stockholder has the power to buy or sell.

The CDE used various SEC forms to secure data, including forms 3, 4, 13f, 14d-1, and 144, and, in addition, it examined corporate proxy statements, secondary offering and merger prospectuses, public pension plan portfolios, employee stock ownership plan reports, and foundation and educational endowment portfolios. Where institutional investors held shares in a management capacity (e.g., investment advisory agreements or trust agreements), the party for whom they managed the shares is identified as the holder with investment power. Similarly, when nominees held stock, the party for whom they held the stock is identified as the holder with investment power. Holdings by diversified financial holding companies, investment banks, brokerage firms, and investment company managers are listed in the "street name" of the firms when the firms are not holding the shares in a management capacity.

Our statistical work relies heavily on the percentage of shares owned by the most important shareholders, A5 and A20, and the approximation of the Herfindahl index, AH. Different notation is introduced when we discuss institutional and noninstitutional shareholders.

In our regression equations we measure the percentage of shares owned by the top five and top 20 shareholders by applying a logistic transformation to these percentages, using the formula

$$\log \frac{\text{percentage concentration}}{100 - \text{percentage concentration}}.$$

The transformation is made to convert an otherwise bounded dependent variable into an unbounded one. A logarithmic transformation is applied to the Herfindahl measure of ownership concentration.[5] We designate the transformed variable by prefixing L, as in LA5, LA20, and LAH.

A glance at a simple correlation matrix for A5, A20, and AH indicates that we can expect similar empirical results from using these alternative measures. The correlation between A20 and AH is weakest, but it is still .71. For purposes of constructing an index of ownership concentration, the 20 largest ownership interests establish a workable outer limit. Beyond 20, it is difficult to interpret the measure as a meaningful index of ownership concentration.

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[5] Our empirical results remain significant when the equations are estimated using nontransformed ownership variables.

CORRELATION OF OWNERSHIP MEASURES FOR 511
REGULATED AND NONREGULATED FIRMS

	A5	A20
A20	.92	...
AH	.86	.71

Our measure of firm size (EQUITY) is the average annual market value of the firm's common equity during the period 1976–80, with units in thousands of dollars. We have experimented with other size measures (e.g., book value of assets), but the general nature of the statistical result is unaffected by this choice. Since our ownership data pertain to the ownership of common equity, we prefer to proxy size with a measure of the value of common equity. Our measures of instability of a firm's environment (SE and STD_s) are based on stock market rates of return as determined by 60 monthly stock market returns during the 5-year period 1976–80.[6] Instability measured by the standard deviation in accounting profit rates (STD_a) is based on five annual profit rates over the period 1976–80. Dummy variables take a value of one if the firm is a regulated utility (UTIL), regulated financial institution (FIN), or media firm (MEDIA), and zero otherwise.

The second part of our empirical work tests the Berle-Means thesis, which implies that diffuse ownership structures adversely affect corporate performance. We test this by assessing the impact of ownership structure on accounting profit rate ($RETURN_a$). In doing so, it is necessary to control for other factors that may affect accounting profit rate. These other factors include the size of the firm as measured by the book value of assets averaged over 1976–80 (ASSET) and a set of variables that seek to standardize for accounting artifacts. These variables are ratios to sales of capital expenditures (CAP), advertising (ADV), and R & D expenses (RD), all measured as averages from the 1976–80 time period.

Table 2 gives summary definitions of all variables used in this paper. Summary statistics for these variables for the 511 firms in our sample are shown in table 3.

Statistical Analysis of Ownership Concentration

Ordinary least squares (OLS) regression estimates of LA5 on three alternative measures of profit instability and four other variables are

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[6] We calculated SE by regressing the firm's monthly returns on the returns to a value-weighted market portfolio.

TABLE 2

DESCRIPTION OF VARIABLES

A5	Percentage of shares controlled by top five shareholders; sources: *CDE Stock Ownership Directories: Banking and Finance* (1980), *Energy* (1980), and *Fortune 500* (1981)
A20	Percentage of shares controlled by top 20 shareholders; sources: same as A5
AH	Herfindahl index of ownership concentration. Calculated by summing the squared percentage of shares controlled by each shareholder; sources: same as A5
F5	Percentage of shares controlled by top five families and individuals; sources: same as A5
I5	Percentage of shares controlled by institutional investors; sources: same as A5
UTIL	One if firm is electric utility, natural gas pipeline, or natural gas distributor; zero otherwise; source: COMPUSTAT
FIN	One if firm is bank, saving and loan institution, insurance company, or securities firm; zero otherwise; source: COMPUSTAT
MEDIA	One if firm is newspaper publisher, book publisher, magazine publisher, or broadcaster; zero otherwise; source: COMPUSTAT
EQUITY	Market value of common equity in thousands of dollars (annual average, 1976–80); source: CRSP
$RETURN_s$	Stock market rate of return (average monthly return, 1976–80); source: CRSP
$RETURN_a$	Accounting rate of return (annual average of net income to book value of shareholders' equity, 1976–80); source: COMPUSTAT
SE	Standard error of estimate from market model in which firm's average monthly return (1976–80) is regressed on the average monthly return on value-weighted market portfolio (1976–80); source: CRSP
STD_s	Standard deviation of monthly stock market rates of return, 1976–80; source: CRSP
STD_a	Standard deviation of annual accounting rates of return, 1976–80; source: COMPUSTAT
CAP	Ratio of capital expenditures (annual average, 1976–80) to total sales; source: COMPUSTAT
ADV	Ratio of advertising expenditures (annual average, 1976–80) to total sales; source: COMPUSTAT
RD	Ratio of research and development expenditures (annual average, 1976–80) to total sales; source: COMPUSTAT
ASSET	Value of total assets in millions of dollars (annual average, 1976–80); source: COMPUSTAT

shown in table 4. All three measures of instability are significantly and positively related to ownership concentration. In addition to linearly estimating ownership concentration as a function of instability, we also estimated this relationship in nonlinear form by including the squared value of the instability measure. The squared values of these variables are negatively related to ownership concentration, indicating that at higher values of these variables the increase in concentration of ownership associated with given increases in instability diminishes. Of the three instability measures, the standard error of

TABLE 3

Summary Statistics of Variables for 511 Firms in Sample

Variable	Mean	Standard Deviation	Minimum	Maximum
A5	24.81	15.77	1.27	87.14
A20	37.66	16.73	1.27	91.54
AH	402.75	722.99	.69	4,952.38
F5	9.08	13.03	0	69.39
I5	18.39	11.52	.75	87.14
UTIL	.10	.30	0	1
FIN	.11	.31	0	1
MEDIA	.03	.16	0	1
EQUITY	$1,221,754	$2,698,140	$22,341	$40,587,203
$RETURN_s$	.017	.012	−.013	.074
$RETURN_a$	.238	.105	−.077	.824
SE	.067	.025	.031	.398
STD_s	.084	.029	.034	.412
STD_a	.055	.050	.002	.320
CAP	.089	.103	0	.841
ADV	.011	.023	0	.200
RD	.012	.020	0	.200
ASSET	$3,505	$8,114	$48	$94,162

TABLE 4

OLS Estimates of LA5

Intercept	−1.53	−2.10	−1.53	−2.02	−1.20	−1.29
	(13.6)	(11.9)	(12.3)	(10.1)	(20.3)	(15.8)
UTIL	−1.31	−1.20	−1.27	−1.15	−1.36	−1.33
	(11.1)	(10.0)	(10.4)	(9.0)	(11.6)	(11.3)
FIN	−.47	−.47	−.45	−.44	−.45	−.45
	(4.2)	(4.3)	(4.1)	(3.9)	(4.0)	(4.0)
MEDIA	.67	.70	.67	.68	.63	.62
	(3.2)	(3.4)	(3.2)	(3.3)	(3.0)	(3.0)
EQUITY*	−4.50	−3.51	−4.64	−3.99	−5.94	−5.70
	(3.5)	(2.7)	(3.6)	(3.1)	(4.6)	(4.5)
SE	6.86	17.94	. . .	. . .	. . .	. . .
	(4.8)	(5.9)				
SE^2	. . .	−39.38	. . .	. . .	. . .	. . .
		(4.1)				
STD_s	. . .	. . .	5.44	13.77	. . .	. . .
			(4.2)	(4.7)		
STD_s^2	. . .	. . .	. . .	−28.59	. . .	. . .
				(3.1)		
STD_a	. . .	. . .	. . .	. . .	2.84	5.49
					(4.1)	(2.9)
STD_a^2	. . .	. . .	. . .	. . .	. . .	−11.78
						(1.5)
N	511	511	511	511	511	511
R^2	.31	.33	.30	.32	.30	.30
F	45.0	41.5	43.6	38.6	43.3	36.5

Note.—t-statistics are in parentheses.
* All coefficient estimates on EQUITY should be multiplied by 10^{-8}.

estimate from the market model enters most significantly, and the standard deviation in accounting profit rates enters least significantly.[7]

All other variables take the expected signs, and all of the estimated coefficients are statistically significant at the .95 level. Size of firm, as measured by the market value of equity, is negatively related to ownership concentration.[8] The dummy for systematic regulation indicates that the average concentration of ownership for the regulated firms is significantly less than for other firms. The ownership structure of utility firms is affected more by regulation than is that of financial firms. Media firms exhibit significantly more ownership concentration, on average, than other firms, a finding that is consistent with the notion that tighter control is required to achieve the amenity potential offered by the unique output of these firms.

The variation in LA5 explained by these equations is at least 30 percent. When firm-specific risk is the instability measure, 33 percent of the variation is explained. The coefficients of all other variables

[7] Two additional specifications of the ownership equation deserve comment. As an alternative proxy for control potential, we included the intraindustry variability (using four-digit SIC codes) in average accounting profit rates (1976–80) as an independent variable. Plausibly, greater differences in profit rates among firms in the same industry provide an index of the difference in performance that can be wrought by superior control decisions. However, no significant relationship exists between this new index of control potential and ownership concentration. When it is entered as the sole control potential variable, the intraindustry variability of profit rate enters with a positive but statistically insignificant coefficient, and it does not significantly affect the other regression coefficients. When this variable is added to the regression equations in which SE proxies for control potential, it enters with a positive and statistically insignificant coefficient, and it again leaves all other coefficient estimates essentially unaffected. The simple correlation of the intraindustry variability of profit rate with SE, STD_s, and STD_a never exceeds .10. High values of the intraindustry variability of profit rate may correlate with poor census definitions of industries, or they may reflect accounting artifacts that increase the divergence between profit rates within industries, but there is no positive evidence of a linkage to control potential. This absence receives confirmation from a statistical study that regresses ownership concentration on equity, SE, SE^2, and 41 dummy variables, one for each two-digit industry containing our sample firms. The coefficients of only four industries exhibited statistical significance, and these were either mass media or regulated industries. Industry characteristics other than these bear no relationship to ownership concentration. This absence of significance is puzzling to us, but its implication may be important to industrial organization studies. What the data seem to be saying is that firms are significantly different, even within traditional industry classifications, and that many individual firms may constitute quasi industries in and of themselves in regard to ownership concentration.

[8] We also estimated a regression equation in which we entered the logarithm of EQUITY as an independent variable. This variable entered with a negative and statistically significant coefficient, and its inclusion did not significantly affect the other coefficients. Similarly, we included the squared value of EQUITY in addition to EQUITY and the other independent variables. EQUITY continued to enter with a significant, negative coefficient, and its squared value entered with a positive but insignificant coefficient. The other coefficient estimates remained unaffected in this equation.

and their significance are largely unaffected by the measure of insta-
bility chosen. Most altered is the coefficient on the market value of
equity, which varies from -3.51(E-08) for the nonlinear firm-specific
risk equation to -5.94(E-08) for the linear equation that includes the
standard deviation of accounting profit rate.

Different measures of ownership concentration are regressed on
identical sets of explanatory variables for two samples of firms in table
5. The left side of the table continues our investigation of the full
sample of regulated and nonregulated firms. The right side of the
table uses a smaller sample that systematically excludes regulated
firms. Logistically transformed values of the percentage of shares
owned by the five and by the 20 largest stockholding interests and the
Herfindahl index are used as alternative measures of ownership con-
centration. We note the large impact of regulation on R^2.

In table 6 we measure ownership concentration separately for all
investors (A5), family and individual investors (F5), and institutional
investors (I5). The percentage of shares owned by the five largest
shareholding interests (not logistically transformed) of each share-
holder class is the dependent variable in these regressions.[9] We exam-
ined these classifications of owners to discover whether the sig-
nificance of the coefficient on the media variable is attributable to the
behavior of family and individual owners or to institutional owners.
Since the assumption of amenity potential is strongly governed by
personal tastes, we do not expect ownership concentration to be
significantly higher for institutional owners if the firm is a media firm.

Table 6 reveals that the greater ownership concentration in media
firms is attributed almost exclusively to greater family and individual
holdings. The coefficient estimate on MEDIA is the identical value,
13.30, and it is statistically significant in the equations in which A5
and F5 are the dependent variables. When I5 is the dependent vari-
able, the coefficient estimate on MEDIA drops to 1.40, and it is not
statistically significant. These results are consistent with the interpre-
tation we have given to the amenity potential associated with control
of media firms.[10]

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[9] The variables F5 and I5 occasionally take a value of zero, at which point the logistic
transformation is undefined. For purposes of estimating these equations, we do not
transform the ownership variables.

[10] "Softer" evidence reinforces the amenity explanation of ownership concentration
in the media industry. In 1984, Dow Jones & Company, 56 percent owned by the
Bancroft family, attempted to issue a stock dividend in the form of a new class of stock
that would have 10 votes per share compared with the one vote per share of the firm's
original common equity. The Dow Jones chairman described the rationale behind this
decision: "The purpose . . . is to try to assure the long term future operation of *The Wall
Street Journal* and Dow Jones' other publications and services under the same quasi
public trust philosophy that Clarence Barron and his descendants have followed during

TABLE 5

OLS Estimates of Ownership Concentration

Measurement of Ownership Concentration	Full Sample (N = 511)			Nonregulated Sample (N = 406)		
	LA5	LA20	LAH	LA5	LA20	LAH
Intercept	-2.10	-1.01	3.83	-1.92	-.68	4.21
	(11.9)	(6.0)	(13.5)	(9.7)	(4.0)	(13.8)
UTIL	-1.20	-1.44	-2.07	...	...	...
	(10.0)	(12.6)	(10.8)			
FIN	-.47	-.49	-.78	...	...	...
	(4.3)	(4.7)	(4.4)			
MEDIA	.70	.75	.94	.68	.72	.91
	(3.4)	(3.8)	(2.8)	(3.3)	(4.0)	(2.8)
EQUITY*	-3.51	-2.98	-4.25	-3.90	-3.82	-5.09
	(2.7)	(2.4)	(2.0)	(2.9)	(3.3)	(2.5)
SE	17.94	11.14	26.46	14.83	5.60	20.11
	(5.9)	(3.9)	(5.4)	(4.4)	(1.9)	(3.9)
SE²	-39.38	-25.26	-59.70	-31.98	-12.14	-44.49
	(4.1)	(2.8)	(3.9)	(3.2)	(1.4)	(2.9)
N	511	511	511	406	406	406
R²	.33	.36	.33	.12	.09	.09
F	41.5	46.5	41.2	13.4	9.3	10.0

Note.—t-statistics are in parentheses.
* All coefficient estimates on EQUITY should be multiplied by 10^{-8}.

TABLE 6

Ownership Concentration by Type of Owner

	Dependent Variable A5	Dependent Variable F5	Dependent Variable I5
Intercept	9.98	1.74	10.66
	(3.0)	(.6)	(4.3)
UTIL	−14.21	−6.86	−9.64
	(6.4)	(3.5)	(5.7)
FIN	−7.32	−3.26	−5.48
	(3.6)	(1.8)	(3.5)
MEDIA	13.30	13.30	1.40
	(3.5)	(3.9)	(.5)
EQUITY*	−5.00	−3.64	−2.88
	(2.1)	(1.7)	(.16)
SE	306.47	154.63	165.85
	(5.4)	(3.1)	(3.9)
SE^2	−607.14	−388.16	−315.53
	(3.8)	(2.5)	(2.3)
N	511	511	511
R^2	.23	.10	.16
F	24.7	9.7	15.5

Note.—t-statistics are in parentheses.
* All coefficient estimates on EQUITY should be multiplied by 10^{-7}.

Additional evidence that suggests the amenity potential explana-tion of ownership structure is found by examining ownership data for professional sports clubs. Although we lack systematic ownership, profit, and size data for individual clubs, we show in table 7 aggregate ownership data for 121 clubs in five major sports. These clubs are much more tightly controlled than the 511 firms in our sample. Among the 121 sports clubs, there are 238 owners, an average of 1.97 per club, who either are general partners or control at least 10 per-cent of the club's stock. Among the 511 firms in our sample, the corresponding numbers are 218 owners and an average of 0.43 own-ers per firm. Admittedly, sports clubs are smaller than the 511 firms in our sample, which in part explains the increased ownership con-

the company's history. The Bancroft family always has zealously guarded the integrity and independence of the Journal and Dow Jones' other publications. This has been crucial to their growth and financial success. The family . . . also has encouraged management always to take a long term view, investing heavily for the purpose of building future strength and investment values. The family and the board, acting unanimously and with management's enthusiastic support, are seeking to protect and build Dow Jones' publications in the same manner in the years ahead through con-tinued family control" ("Dow Jones Votes" 1984, p. 5). Similarly, DeAngelo and DeAngelo (1983), in a study of 45 firms that have dual classes of common stock, found that both the New York Times and the Washington Post have dual classes of common stock that trade with different voting rights.

TABLE 7

Ownership Data on 121 Sports Firms and 511 Nonsports Firms

Sample	Number of Firms	Number of Shareholders Owning 10 Percent or More of the Firm's Shares	Number of Shareholders Owning 10 Percent or More of the Firm's Shares per Firm
Sports clubs:			
Major league baseball	26	54	2.1
North American Soccer League	24	54	2.3
National Basketball Association	22	52	2.4
National Football League	28	38	1.4
National Hockey League	21	40	1.9
All sports clubs	121	238	1.97
Demsetz-Lehn sample	511	218	.43

Source.—For sports data, North American Soccer League (NASL) v. NFL, no. 78, Civ. 4560-CSH. U.S. District Court, S.D. New York, February 21, 1979.

centration in the sports industry, and they may operate in less stable environments, although we do not know this to be a fact. Nonetheless, these data are consistent with the amenity explanation of ownership structure.

The impact of regulation on ownership concentration is examined from another perspective in table 8. Salomon Brothers rates the regulatory climates in which electric utility firms operate, assigning letter grades based on such factors as the allowed rate of return, the rate base test period used, the cost items allowed in the rate base, and the time taken by commissions to decide rate appeals. The 1979 rating we use is an average of regulatory jurisdictions, calculated by using revenue weighting for utilities operating in more than one jurisdiction. We divide the electric utilities in our sample into two groups: those that operate in regulatory climates that are less "stringent" than the median (i.e., "more favorable" for investment purposes) and all other electric utilities. The dummy variable, REGULATORY CLIMATE, takes the value of one if the utility is in the former group and zero otherwise.

We expect that this index of regulatory climate is positively related to ownership concentration, less stringent regulation offering owners more control potential through fewer restrictions and less commis-

TABLE 8
OLS Estimates of LA5 for 37 Electric Utilities

	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	−3.94	−8.28	−3.79	10.45	1.18	.29
	(7.4)	(5.4)	(5.3)	(5.2)	(1.9)	(.3)
EQUITY	6.03*	1.10†	6.59*	2.07†	1.72†	2.33†
	(.3)	(.7)	(.3)	(1.0)	(.5)	(.6)
REGULATORY CLIMATE	.44	.13	.68	.27	.92	.81
	(2.1)	(.6)	(2.5)	(1.0)	(2.2)	(1.9)
SE	22.78	178.21	...	...	...	...
	(2.3)	(3.4)				
SE²	...	−1,202.00	...	...	...	...
		(3.0)				
STD_s	...	...	28.63	244.71	...	...
			(2.3)	(3.9)		
STD_s^2	...	...	...	−1,594.26	...	...
				(3.5)		
STD_a	...	...	...	...	54.85	156.69
					(2.5)	(2.1)
STD_a^2	...	...	...	...	...	−2,374.75
						(1.4)
N	37	37	37	37	37	37
R^2	.27	.43	.30	.49	.28	.32
F	4.0	6.0	4.8	7.8	4.3	3.8

Note.—t-statistics are in parentheses.
* Coefficient estimates are multiplied by 10^{-8}.
† Coefficient estimates are multiplied by 10^{-7}.

sion monitoring of management. In all three equations where the instability measure enters linearly and in the equation where STD_a enters nonlinearly, REGULATORY CLIMATE enters with a significant and positive estimated coefficient. When SE and STD_x enter in nonlinear form, the estimated coefficient on REGULATORY CLIMATE remains positive but is not significant. The firm size variable, contrary to expectations, is not significantly related to ownership concentration. All three of the instability measures are significantly related to ownership concentration in the anticipated direction.

The Separation Issue

The discussion to this point has focused on the *determinants* of ownership structure. We now empirically examine the alleged *consequence* of diffuse ownership structures for the separation of ownership and control. Berle and Means brought the issue to center stage in 1933 with the publication of *The Modern Corporation and Private Property*. Their interpretation of the issue has remained the focus of debate for more than half a century. Diffuseness in ownership structure, by modifying the link between ownership and control, is seen by them as undermining the role of profit maximization as a guide to resource allocation. Diffuseness of ownership is said to render owners of shares powerless to constrain professional management. Since the interests of management need not, and in general do not, naturally coincide perfectly with those of owners, this would seem to imply that corporate resources are not used entirely in the pursuit of shareholder profit. Although Berle and Means make no great effort to describe how corporate resources are allocated, later discussions of the corporation dwell on management's consumption of amenities at the expense of owner profits.

   Berle and Means's work was anticipated by Thorstein Veblen's (1924) volume, *The Engineers and the Price System*. Veblen believed that he was witnessing the transfer of control from capitalistic owners to engineer-managers and that the consequences of this transfer were to become more pronounced as diffusely owned corporations grew in economic importance. In the wake of this transfer of power, Veblen saw the end of the type of profit seeking he associated with capitalists, for he believed that capitalistic owners sought neither efficiency nor increased output so much as monopolistic restrictions to raise prices. The engineers, trained and acculturated to seek technological efficiency, would see to it that the production from the firms they now controlled would rise to higher and socially more desirable levels. The profits of monopoly would be sacrificed on the altar of efficiency.

   One of Veblen's famous disciples, John Kenneth Galbraith, shared

his teacher's assessment of the change in control but evaluated the outcome differently. In *The New Industrial State* (1967) he argued that the technocrats who had gained control of the diffusely owned modern corporation would sacrifice owner profit to increased output beyond levels that served the real interests of consumers. Enticed to purchase these large output rates by powerful advertising campaigns, consumers would cause the private sector to grow too rapidly and at the expense of the public sector.[11]

Although the three views discussed above concerning the consequences of diffuse ownership structures offer somewhat different evaluations, they unanimously imply a positive correlation between ownership concentration and profit rate. If diffuseness in control allows managers to serve their needs rather than tend to the profits of owners, then more concentrated ownership, by establishing a stronger link between managerial behavior and owner interests, ought to yield higher profit rates.

We expect no such relationship. A decision by shareholders to alter the ownership structure of their firm from concentrated to diffuse should be a decision made in awareness of its consequences for loosening control over professional management. The higher cost and reduced profit that would be associated with this loosening in owner control should be offset by lower capital acquisition cost or other profit-enhancing aspects of diffuse ownership if shareholders choose to broaden ownership. Standardizing on other determinants of profit, Demsetz (1983) has argued that ownership concentration and profit rate should be unrelated.

Table 9 reports recursive estimates for coefficients of a profit rate equation in which the key independent variables are alternative predicted measures of ownership concentration: LA5, LA20, and LAH.[12] The dependent variable is the mean value of annual accounting profit after taxes, as a percentage of the book value of equity. The mean is calculated for the 5-year period 1976–80. Stock market rates of return presumably adjust for any divergences between the interests

[11] The entire discussion of the separation thesis presumes that diffuseness of ownership is a pervasive phenomenon. Our data cast doubt on this presumption. Our sample is heavily weighted by Fortune 500 firms, precisely the firms that are supposed to suffer from diffuse ownership structures. Yet the mean values of A5 and A20, respectively, are 24.8 percent and 37.7 percent.

[12] The predicted measures of LA5, LA20, and LAH were estimated from an OLS equation that included the following independent variables: UTIL, FIN, MEDIA, EQUITY, SE, and SE^2. The results reported in table 9 do not change significantly when the ownership equations are estimated using alternative specifications that were previously reported.

TABLE 9

RECURSIVE ESTIMATES OF MEAN ACCOUNTING PROFIT RATE

Intercept	.24	.27	.35
	(6.2)	(11.7)	(4.2)
UTIL	−.13	−.10	−.13
	(3.4)	(2.4)	(3.1)
FIN	−.07	−.06	−.07
	(3.6)	(3.3)	(3.5)
CAP	.04	.05	.04
	(.7)	(.8)	(.7)
ADV	.42	.47	.42
	(1.9)	(2.3)	(1.9)
RD	−.11	−.07	−.11
	(.4)	(.3)	(.4)
ASSET*	5.70	8.14	5.97
	(.8)	(1.2)	(.9)
SE	−.29	−.43	−.29
	(1.1)	(2.0)	(1.1)
LA5	−.02	. . .	. . .
	(.9)		
LA20	. . .	−.004	. . .
		(.2)	
LAH	. . .	. . .	−.02
			(.9)
N	511	511	511
R^2	.10	.10	.10
F	7.2	7.2	7.1

NOTE.—t-statistics are in parentheses.
* Coefficient estimates on ASSET are multiplied by 10^{-7}.

of professional management and owners, so we rely on accounting rates of return to reveal such divergences.

In addition to ownership concentration, we include several other independent variables in this equation. The utilities and financial dummies isolate the impact of systematic regulation. The coefficient on the financial dummy may be explained by accounting procedures, which for these firms include outstanding loans in the asset base. The potential upward bias in asset measurement that results is likely to depress the measured accounting profit rate. Capital, advertising, and R & D expenditures, all as a percentage of sales, standardize for accounting artifacts associated with the decision to expense some of these investments but to depreciate others. The size of the firm is measured by the book value of assets.

The general explanatory power of the profit rate equation is quite low, but regulation does seem to have a negative impact on accounting profit rate. Table 9 shows no significant relationship between ownership concentration and accounting profit rate, and especially no

significant positive relationship.[13] The data simply lend no support to the Berle-Means thesis.[14]

We have suggested above that certain industries may be characterized as offering greater amenity potential and that this would lead to more concentrated ownership. This does not assert that the more concentrated is ownership, the greater the tendency to cater to amenity potential. If we were to make such an assertion it would imply a negative correlation between profit rate and ownership concentration, and this would tend to hide the opposite correlation suggested by Berle and Means. But, then, this would constitute no evidence more favorable to the Berle-Means hypothesis. Catering to amenity potential *is* maximizing owner *utility* if not owner profit. Such maximization hardly constitutes evidence of a separation between ownership and control.

Concluding Comments

We have argued, both conceptually and empirically, that the structure of corporate ownership varies systematically in ways that are consistent with value maximization. Understanding some of the forces that determine corporate ownership structure is valuable in its own right, but we also think that our results are germane to a more general theory of property rights. For example, can the land enclosure movement in England be explained in part by the enhanced control potential of landownership during periods of population growth and rising prices of farm and ranch products? Similarly, does greater predictability of an industry's environment make industry regulation politically more tolerable because collectivization of control is likely to be less damaging in such cases? Our analysis suggests a framework for new studies that may shed some light on these broader questions.

[13] Not reported here is a replication of table 9 in which the profit rate equation is estimated using the actual, not predicted, value of the ownership variable. No changes in conclusions are called for by this replication. We also replicated table 9 on a set of firms for which we were able to obtain the industry four-firm concentration ratio. The concentration ratio enters the profit rate equation with a negative and statistically significant sign, but the coefficient estimates on all three ownership variables remain not significant. Earlier studies of the profit-concentration relationship show a weakening of the usual positive correlation during periods of rising price levels. The negative relationship revealed in our work may, therefore, reflect the inflationary tenor of the late 1970s. The estimated ownership equation for this subset of firms performs weaker than it does when estimated for the entire sample.

[14] Our results are consistent with those of Stigler and Friedland (1983). They reject the separation thesis by demonstrating that management salaries are no higher in "management-controlled" than in "owner-controlled" industries.

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