Agency Costs and Ownership Structure

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ABSTRACT

We provide measures of absolute and relative equity agency costs for corporations under different ownership and management structures. Our base case is Jensen and Meckling's (1976) zero agency-cost firm, where the manager is the firm's sole shareholder. We utilize a sample of 1,708 small corporations from the FRB/NSSBF database and find that agency costs (i) are significantly higher when an outsider rather than an insider manages the firm; (ii) are inversely related to the manager's ownership share; (iii) increase with the number of nonmanager shareholders, and (iv) to a lesser extent, are lower with greater monitoring by banks.

THE SOCIAL AND PRIVATE COSTS OF AN AGENT'S ACTIONS due to incomplete alignment of the agent's and owner's interests were brought to attention by the seminal contributions of Jensen and Meckling (1976) on agency costs. Agency theory has also brought the roles of managerial decision rights and various external and internal monitoring and bonding mechanisms to the forefront of theoretical discussions and empirical research. Great strides have been made in demonstrating empirically the role of agency costs in financial decisions, such as in explaining the choices of capital structure, maturity structure, dividend policy, and executive compensation. However, the actual measurement of the principal variable of interest, agency costs, in both absolute and relative terms, has lagged behind.

To measure absolute agency costs, a zero agency-cost base case must be observed to serve as the reference point of comparison for all other cases of ownership and management structures. In the original Jensen and Meckling agency theory, the zero agency-cost base case is, by definition, the firm owned solely by a single owner-manager. When management owns less than 100 percent of the firm's equity, shareholders incur agency costs resulting from management's shirking and perquisite consumption. Because of limitations imposed by personal wealth constraints, exchange regulations on the minimum numbers of shareholders, and other considerations, no publicly traded firm is entirely owned by management. Thus, Jensen and Meckling's zero agency cost base case cannot be found among the usual sample of publicly

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traded firms for which information is readily available. The absence of information about sole owner-manager firms explains why agency costs are often inferred but not directly measured in the empirical finance literature.

No-agency-cost base case firms, however, can be found among non–publicly traded firms. Until recently, data on non–publicly traded firms, which tend to be much smaller than their publicly traded counterparts, have been sparse. In 1997, the Federal Reserve Board released its National Survey of Small Business Finances (NSSBF), which collected data from a nationally representative sample of small businesses. Data from the NSSBF enable us to analyze the relationship between agency costs and ownership structure because the survey provides financial data on a group of firms whose management owns 100 percent of equity. These firms enable us to estimate the expected expense for the no-outside-equity agency-cost base case. Furthermore, the database includes firms with a wide range of ownership and manager/owner structures, including firms owned by two individuals as well as firms managed by outsiders with no equity stake. As a consequence, small firms appear well suited for a study of equity-related agency costs.

We use two alternative measures of agency costs. The first is direct agency costs, calculated as the difference in dollar expenses between a firm with a certain ownership and management structure and the no-agency-cost base case firm. This measure captures excessive expenses including perk consumption. To facilitate cross-sectional comparisons, we standardize expenses by annual sales. Our second measure of agency costs is a proxy for the loss in revenues attributable to inefficient asset utilization, which can result from poor investment decisions (e.g., investing in negative net-present-value assets) or from management's shirking (e.g., exerting too little effort to help generate revenue). This second measure of agency costs is calculated as the ratio of annual sales to total assets, an efficiency ratio. We can then measure agency costs as the difference in the efficiency ratio, or, equivalently, the dollar revenues lost, between a firm whose manager is the sole equity owner and a firm whose manager owns less than 100 percent of equity.

Monitoring of managers' expenditures on perquisites and other personal consumption relies on the vigilance of the nonmanaging shareholders and/or related third parties, such as the company's bankers. The lack of specific operational knowledge on the part of nonmanaging shareholders, and the lack of an external market for shares, however, may offset the presence of dominant shareholders. Additionally, heavy reliance of the non–publicly traded firms on bank financing could give banks a special role in delegated monitoring on behalf of other shareholders. Thus, it would seem that determination of the size of agency costs for these firms is an empirical issue.

Our results provide direct confirmation of the predictions made by Jensen and Meckling (1976). Agency costs are indeed higher among firms that are not 100 percent owned by their managers, and these costs increase as the equity share of the owner-manager declines. Hence, agency costs increase with a reduction in managerial ownership, as predicted by Jensen and Meckling. These results hold true after controlling for differences across indus-

tries, the effects of economies of scale, and differences in capital structure. We also find some evidence that delegated monitoring of small firms by banks reduces agency costs.

The paper is organized as follows. In Section I, we discuss the nature of equity agency costs in various ownership structures and explain the broad outline of our empirical model. In Section II, we provide a description of the data. We present results and analysis in Section III, followed by a summary and conclusions in Section IV.

I. Agency Costs among Small Businesses

When compared to publicly traded firms, small businesses come closest to the type of firms depicted in the stylized theoretical model of agency costs developed by Jensen and Meckling (1976). At one extreme of ownership and management structures are firms whose managers own 100 percent of the firm. These firms, by their definition, have no agency costs. At the other extreme are firms whose managers are paid employees with no equity in the firm. In between are firms where the managers own some, but not all, of their firm's equity.

Agency costs arise when the interests of the firm's managers are not aligned with those of the firm's owner(s), and take the form of preference for on-the-job perks, shirking, and making self-interested and entrenched decisions that reduce shareholder wealth. The magnitude of these costs is limited by how well the owners and delegated third parties, such as banks, monitor the actions of the outside managers.

To illustrate, consider those firms where a single owner controls 100 percent of the stock but hires an outsider to manage the business. On the one hand, agency costs may be small because the sole owner can internalize all monitoring costs and has the right to hire and fire the manager. More specifically, such an owner incurs 100 percent of the monitoring costs and receives 100 percent of the resulting benefits. On the other hand, the sole owner may not be able to monitor perfectly for the same reasons that he or she hired an outside manager, such as lack of time or ability. Owners of small firms typically lack financial sophistication, and may not be capable of performing random audits or fully understanding the operating or financial results. Consequently, these firms incur residual agency costs. If these costs are significant, they must reflect a failure of the owner's monitoring activities. Potential explanations for this failure are lax monitoring by the owners and the lack of an adequate monitoring technology available for the owners. In this case, the separation of the management function (initiation and implementation) versus the control function by nonmanaging owners/shareholders (ratification and monitoring), as suggested by Fama and Jensen (1983a, 1983b), may not be complete or effective. Thus, residual agency costs are still expected in a sole owner firm when the manager is an outsider.

Agency costs attributable to the divergence of interests vary inversely with the manager's ownership stake. As the number of shareholders increases from one, the ownership of the owner/manager falls to α, where $0 \leq \alpha < 1$. Because the manager gains 100 percent of each dollar spent on perks, but only α percent of each dollar in firm profit, the manager who owns less than 100 percent of the firm has the incentive to consume perks rather than to maximize the value of the firm to all shareholders. At the extreme is the manager with zero ownership ($\alpha = 0$), who gains 100 percent of perquisite consumption, but zero percent of firm profits (in the case when salary is independent of firm performance).

Aggregate expenditure on monitoring by the nonmanaging shareholders decreases as their individual ownership shares decline. This is due to the well-known free-rider problem in spending for quasi-public goods, such as monitoring effort. Each monitoring shareholder, with ownership λ_i must incur 100 percent of the monitoring costs, but realizes only λ_i percent of the monitoring benefits (in the form of reduced agency costs). A nonmonitoring shareholder, however, enjoys the full benefits of a monitoring shareholder's activity without incurring any monitoring cost. Thus, as the number of non-manager shareholders increases, aggregate expenditure on monitoring declines, and the magnitude of owner-manager agency-cost problems increases. Offsetting this relationship are concerns among shareholders about an increase in the probability that the firm will be unable to pay off bank debt or secure future financing from the same or new investors, which may produce some restraint in agency behavior. However, as noted by Williams (1987), these countervailing forces to agency behavior are expected to decline in effectiveness when the firm is not in imminent danger of insolvency.

To summarize, against the null hypothesis that agency costs are independent of the ownership and control structure,[1] we postulate the following hypotheses derived from agency theory when compared to the base case: (i) agency costs are higher at firms whose managers own none of the firm's equity, (ii) agency costs are an inverse function of the managers' ownership stake, and (iii) agency costs are an increasing function of the number of nonmanager shareholders.

II. Data

Our empirical approach utilizes two fundamental assumptions about agency costs: (1) A firm managed by a 100 percent owner incurs zero agency costs and, (2) agency costs can be measured as the difference in the efficiency of an imperfectly aligned firm and the efficiency of a perfectly aligned firm. To opera-

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[1] Theoretical support for the null hypothesis is due to Demsetz (1983), who suggests that the sum of amenities for on-the-job consumption and take-home pay for similar quality managers is the same for both high-cost and low-cost monitoring organizations. The proportion paid to the managers, however, differs according to the cost of monitoring. Here, it would seem that total operating expense, which include direct pay to the managers as well as perks and firm level monitoring cost, is the appropriate measure to test the hypothesis.

tionalize this approach for measuring agency costs, we need certain data inputs: (i) data on firm efficiency measures; (ii) data on firm ownership structure, including a set of firms that are 100 percent owned by managers; and (iii) data on control variables, including firm size, characteristics, and monitoring technology.

Of these data requirements, the most demanding in terms of availability is item (ii) because sole-ownership firms typically are not publicly listed, and because financial information on U.S. private firms usually is not available to the public. The Federal Reserve Board's National Survey of Small Business Finances (NSSBF), fortunately, does provide financial information about privately held firms, including their ownership structure, and does include a set of firms entirely owned by managers. Consequently, we use data from the NSSBF to measure agency costs.[2]

The NSSBF is a survey conducted by the Federal Reserve Board to gather information about small businesses, which have largely been ignored in the academic literature because of the limited availability of data. The survey collected detailed information from a sample of 4,637 firms that is broadly representative of approximately 5 million small nonfarm, nonfinancial businesses operating in the United States as of year-end 1992. Cole and Wolken (1995) provide detailed information about the data available from NSSBF.

For this study, we limit our analysis to small C-corporations, collecting information on the governance structure, management alignment, extent of shareholder and external monitoring, size, and financial information. We focus on corporations to minimize problems associated with the financial statements of proprietorships, which typically commingle personal and business funds. We eliminate partnerships and S-corporations because, unlike C-corporations, they are not subject to corporate taxation, and this may lead owner-managers to take compensation in the form of partner distributions or dividends rather than salary expense because there is no double taxation of such earnings at the firm level. By focusing solely on C-corporations, we avoid the complications of comparing operating expenses across organizational forms. This restriction on the NSSBF database yields an analysis sample of 1,708 firms.[3]

A. Agency Costs

To measure agency costs of the firm, we use two alternative efficiency ratios that frequently appear in the accounting and financial economics literature: the expense ratio, which is operating expense scaled by annual

[2] Data from the NSSBF yield significant and interesting results that appear in several recent published papers. See the studies on banking relationships and credit markets by Petersen and Rajan (1994, 1995, 1997), Berger and Udell (1995), and Cole (1998).

[3] The staff at the Federal Reserve Board partially edited the financial statement items for violations of accounting rules, such as when gross profit is not equal to sales less cost of goods sold, and some improbable events such as when accounts receivable are greater than sales, or cost of goods sold equals inventory.

sales,[4] and the asset utilization ratio, which is annual sales divided by total assets. The first ratio is a measure of how effectively the firm's management controls operating costs, including excessive perquisite consumption, and other direct agency costs. More precisely, the difference in the ratios of a firm with a certain ownership and management structure and the no-agency-cost base case firm, multiplied by the assets of the former, gives the excess agency cost related expense in dollars.

The second ratio is a measure of how effectively the firm's management deploys its assets. In contrast to the expense ratio, agency costs are inversely related to the sales-to-asset ratio. A firm whose sales-to-asset ratio is lower than the base case firm experiences positive agency cost. These costs arise because the manager acts in some or all of the following ways: makes poor investment decisions, exerts insufficient effort, resulting in lower revenues; consumes executive perquisites, so that the firm purchases unproductive assets, such as excessively fancy office space, office furnishing, automobiles, and resort properties.

These efficiency ratios are not measured without error. Sources of measurement error include differences in the accounting methods chosen with respect to the recognition and timing of revenues and costs, poor record-keeping typical of small businesses, and the tendency of small-business owners to exercise flexibility with respect to certain cost items. For example, owners may raise/lower expenses, including their own pay, when profits are high/low. Fortunately, these items are sources of random measurement errors that may be reduced with a larger sample across firms in different industries and age.

B. Ownership Structure

The corporate form of organization, with the limited-liability provision that makes it more efficient for risk-sharing than proprietorships or partnerships, allows the firm to expand and raise funds from a large number of investors.[5] Thus, it has a richer set of ownership and management structures. The NSSBF provides four variables that we use to capture various

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[4] Operating expenses are defined as total expenses less cost of goods sold, interest expense, and managerial compensation. Excessive expense on perks and other nonessentials should be reflected in the operating expenses. Strictly speaking, agency costs that are measured by this ratio are those incurred at the firm level (i.e., shirking and perquisite consumption by the managers). This may underestimate total agency costs since this ratio does not fully measure firm-level indirect agency costs, such as the distortion of operating decisions due to agency problems. (See Mello and Parsons (1992) for an attempt to measure such costs in the presence of debt.) Nor does it measure off-income-statement agency costs, such as the private monitoring costs by the nonmanagement shareholders or the private costs of bonding incurred by the manager.

[5] Manne (1967) and Alchian and Demsetz (1972) agree that limited liability is an attractive feature of the corporate form of organization. Jensen and Meckling (1976) point out that although unlimited liability gives more incentive for each shareholder to monitor, in the aggregate it leads to excessive monitoring. Thus, it may be more economical to offer a single high premium to creditors to bear risk of nonpayment and, thus, monitoring in exchange for limited liability.

aspects of the ownership structure of small-business corporations: (i) the ownership share of the primary owner, (ii) an indicator for firms where a single family controls more than 50 percent of the firm's shares, (iii) the number of nonmanager shareholders,[6] and, (iv) an indicator for firms managed by a shareholder rather than an outsider.

According to theory, agency costs should be inversely related to the ownership share of the primary owner. For a primary owner who is also the firm's manager, the incentive to consume perquisites declines as his ownership share rises, because his share of the firm's profits rises with ownership while his benefits from perquisite consumption are constant. For a primary owner who employs an outside manager, the gains from monitoring in the form of reduced agency costs increase with his ownership stake. Here, the primary owner fulfills the monitoring role that large blockholders perform at publicly traded corporations.

Agency costs should be lower at firms where a single family controls more than 50 percent of the firm's equity. At a small, closely held corporation where a single family controls the firm, the controlling family also fulfills the monitoring role that large blockholders perform at publicly traded corporations. Due to more diffused ownership among older businesses with larger families, however, monitoring by family members whose interests may not always be aligned should be less effective than monitoring by a sole owner.

Agency costs should increase with the number of nonmanager shareholders. As the number of shareholders increases, the free-rider problem reduces the incentives for limited-liability shareholders to monitor. With less monitoring, agency costs increase. Hence, we hypothesize that the expense and asset-utilization ratios should be positively and negatively related to the natural logarithm of one plus the number of nonmanaging shareholders, respectively.[7]

Finally, agency costs should be higher at firms managed by an outsider. This relationship follows directly from the agency theory of Jensen and Meckling (1976). As noted above, this is the extreme case where the manager gains 100 percent of perquisite consumption, but little of the firm's profits.

C. External Monitoring by Banks

Banks play a pivotal role in small business financing because they are the major source of external funds for such firms. Cole, Wolken, and Woodburn (1996) report that more than 60 percent of the dollar amount of small business credit outstanding takes the form of bank loans. Petersen and Rajan

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[6] Technically, the survey does not provide a variable for the number of nonmanager shareholders. Rather, we define this variable as the number of shareholders for firms that have an outside manager and as the number of shareholders less one for firms that have an insider manager.

[7] This formulation recognizes the unequal and diminishing role of additional shareholders, and the problem of undefined zero when there is no other shareholder.

(1994), Berger and Udell (1995), and Cole (1998) argue and present evidence that firm-creditor relationships generate valuable information about borrower quality.

Because banks generally require a firm's managers to report results honestly and to run the business efficiently with profit, bank monitoring complements shareholder monitoring of managers, indirectly reducing owner-manager agency costs. That is, by incurring monitoring costs to safeguard their loans, banks lead firms to operate more efficiently by better utilizing assets and moderating perquisite consumption in order to improve the firm's reported financial performance to the bank. Thus, lower priority claimants, such as outside shareholders, should realize a positive externality from bank monitoring, in the form of lower agency costs. Additionally, local bankers' ability to acquire knowledge concerning the firms from various local sources, such as churches, social gatherings, and interactions with the firm's customers and suppliers, makes them especially good monitors. We use two variables to represent bankers' incentive, cost, and ability to monitor: the number of banks used by the firm and the length of the firm's longest banking relationship.[8]

The bank's cost of monitoring is proxied by the number of banks from which the firm obtains financial services. The incentive for each bank to monitor may decrease as the number of banks with which the firm deals increases (Diamond (1984)). Part of the reduced incentive to monitor is due to a form of lenders' free-rider problems, and part is due to the shorter expected length of banking relationships when there is a greater perceived likelihood of the firm switching its banking business between banks.

The bank's ability to monitor is proxied by the length of a firm's relationship with its primary bank. A longer relationship enables the bank to generate information about the firm that is useful in deciding its creditworthiness (Diamond (1984)). Both Petersen and Rajan (1994) and Cole (1998) find that longer relationships improve the availability of credit to small firms while Berger and Udell (1995) find that longer relationships improve the terms of credit available to small firms.

The bank's incentive to monitor is proxied by the firm's debt-to-asset ratio. Because our sample consists entirely of small businesses, virtually all of the firm's debt is private rather than public, and the majority of this debt is in the form of bank loans. As leverage increases, so does the risk of default by the firm, hence the incentive for the lender to monitor the firm. While the primary purpose of this monitoring is to prevent risk-shifting by shareholders to debtholders, increased monitoring should also inhibit excessive perquisite consumption by managers. (Most of the sample firms' nonbank debt

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[8] These are also the same governance variables used by Berger and Udell (1995) and Cole (1998) in their studies of banking relationship. However, none of their variables, except for the corporate form dummy, are found to significantly affect either the loan term or the use of collateral.
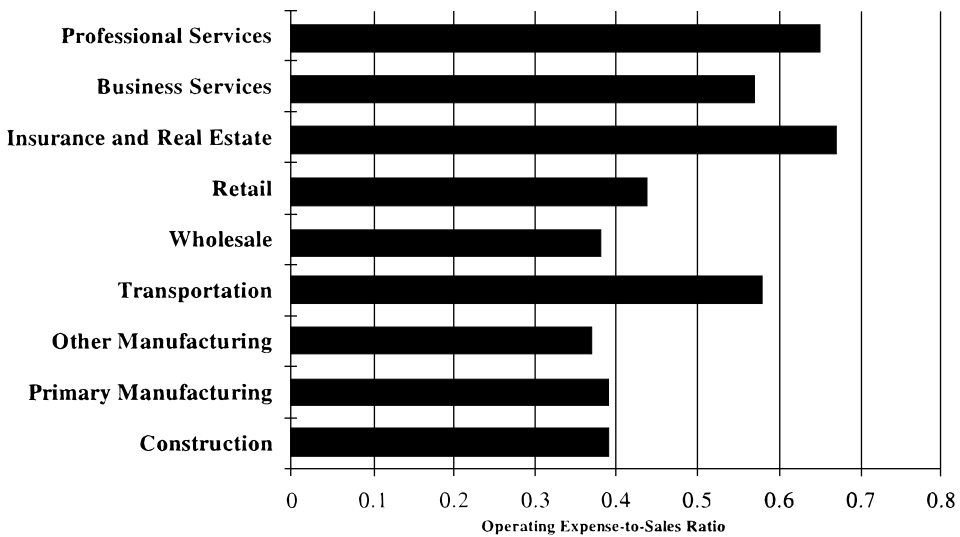
Figure 1. Operating expense-to-sales ratio by one-digit SIC for a sample of 1,708 small corporations.

is in the form of loans from finance companies and other nonbank private lenders, who also have greater incentive to monitor the firm as leverage increases.)

D. Control Variables

We realize that the length of banking relationship variable may be correlated with firm age, which in turn could be related to a firm's efficiency. Due to the effects of learning curve and survival bias, older firms are likely to be more efficient than younger ones and, especially, than start-up firms. Hence, we include firm age as a control variable in all our tests involving the variable measuring the length of the firm's relationship with its primary bank.

Both of our efficiency ratios vary widely across industries because of the varying importance of inventory and fixed assets. Figure 1 shows the ratio of operating expenses to sales by one-digit SIC. These ratios vary from a low of 0.39 for construction and manufacturing to a high of 0.65 for finance and real estate and professional services. Figure 2 shows the ratio of annual sales to total assets by one-digit SIC. This efficiency ratio ranges from 3.6 for manufacturing to 6.2 for professional services. Hence, these figures underscore the importance of controlling for differences across industries in our analysis of agency costs. We do this by including a set of 35 dummy variables, one for each two-digit SIC that accounts for more than one percent of our sample of firms.

Small firms such as those surveyed by the NSSBF seem likely to realize scale economies in operating expenses (e.g.,overhead items). Thus, there is a need to control for firm size. This adjustment is especially important for
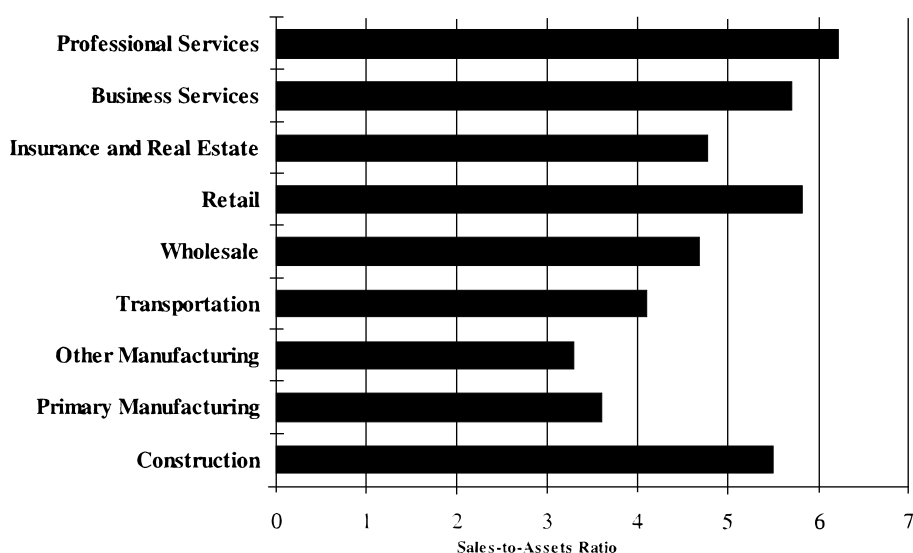
Figure 2. Sales-to-asset ratio by one-digit SIC for a sample of 1,708 small corporations.

comparisons of operating expenses across firms where the difference in average size is of several orders of magnitude, as it is with the small businesses in our sample. Figure 3 confirms this, showing that the operating-expense-to-sales ratio declines monotonically by sales quartile, decreasing from 0.56 for the smallest quartile to 0.38 for the largest quartile. If we regress the expense-to-sales ratio against annual sales, we find a negative relationship that is statistically significant at better than the 1 percent level ($t = -6.9$).

It is not clear, however, that efficiency in scale economies is realized as measured by the ratio of sales to assets, where both the numerator and denominator are popular alternative measures of size. Indeed, Figure 4 shows that the ratio of sales to assets is higher for the two middle sales quartiles than for either the largest or smallest quartile, suggesting, if any, a quadratic relationship. When we regress the sales-to-asset ratio against sales we find a positive but statistically insignificant relationship ($t = 0.18$). Similar results are obtained when the sales-to-asset ratio is regressed against the natural logarithm of sales.

III. Results and Analysis

*A. Some Preliminary Results Regarding the Separation
of Ownership and Control*

We first examine how agency costs vary with the separation of ownership and control—that is, whether the firm's manager is a shareholder or an outsider with no ownership stake. This analysis may offer some insights into
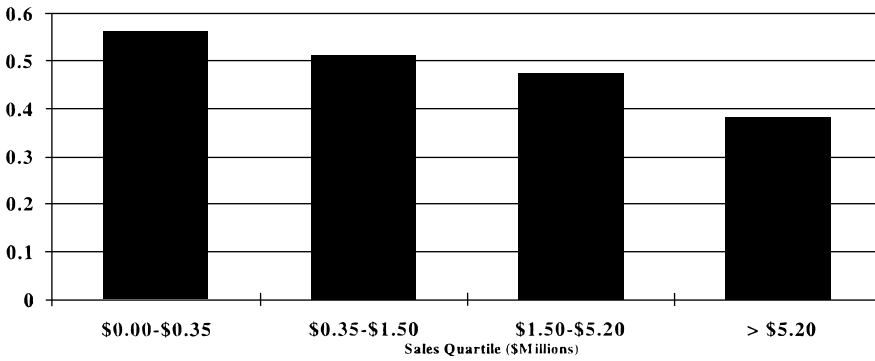
Figure 3. Operating expense-to-sales ratio by sales quartile for a sample of 1,708 small corporations.

the effects of managerial alignment with owners on equity agency costs.[9] Table I compares the agency costs of firms under two types of managers: owners versus outsiders. Panel A shows results when agency costs are measured by the ratio of operating expenses to annual sales; Panel B shows results when agency costs are measured by the ratio of annual sales to total assets. It is important to note here and in all subsequent analyses that the expected signs for the expense ratio and the asset utilization ratio are opposite to each other. Higher sales-to-assets ratios are associated with greater efficiency and lower agency costs, whereas higher expense-to-sales ratios are associated with less efficiency and higher agency costs.

A.1. Agency Costs as Measured by the Ratio of Operating Expenses to Annual Sales

In Panel A of Table I, columns 2 and 3 show the number of observations and the mean (median) ratios of operating expenses (which does not include salary to managers), to sales for firms whose manager is an owner. Columns 4 and 5 show the same information for firms whose manager is an outsider. Consistent with our prior expectations, most small businesses are managed by shareholders rather than by outsiders (1,249, or 73 percent of the 1,708 sample firms). However, there is not an insignificant number of firms that hire outside managers (459, or 27 percent of the sample). Thus, there appear to be a sufficient number of firms in these two groups for making meaningful statistical comparisons of their operating expense ratios.

We find that both the median and average ratios of operating expenses to annual sales are considerably higher for firms managed by outsiders (column 5) than for firms owned by shareholders (column 3). For the full sample

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[9] In Fama and Jensen (1983a), the delegation of decision control management and residual owner (i.e., hiring of outsiders as managers) is related to the decision skill and the accompanying specialized knowledge that are needed to run the firm. Shareholders, however, still have to bear the costs of monitoring.
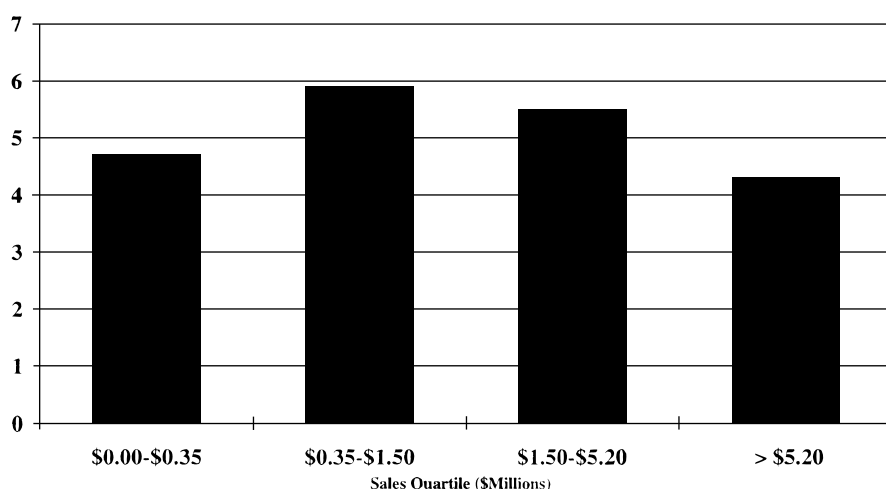
Figure 4. Sales-to-asset ratio by sales quartile for a sample of 1,708 small corporations.

(line 1 of Panel A), the average ratios of operating expenses to assets at insider-managed firms and outsider-managed firms are 46.9 percent and 51.9 percent, respectively; the 5.0 percentage-point difference in these means is statistically significant at the 1 percent level.

Our data enable us to provide a rough estimate of the agency costs per year attributable to the nonalignment of outside managers and shareholders. A back-of-the-envelope calculation shows that, in absolute dollars, a five-percentage-point difference implies that the operating expenses at a firm with median annual sales of $1.3 million are $65,000 per year higher when an outsider rather than a shareholder manages the firm. The present values of these residual equity agency costs are of course several times higher.[10]

Included in the full sample are 515 firms in which the primary owner controls all of the firm's equity. At 368 of these 515 firms, the owner also serves as manager; at 147 firms, the owner employs an outsider as manager. The former group fits the definition of our no-agency-cost base case, where the manager owns 100 percent of the firm and the interests of manager and owner are completely aligned. For the latter group, the interests of owner and manager are completely unaligned. Thus, these groups are of interest because they represent the two ends of the Jensen and Meckling's spectrum of ownership and managerial structures. Line 2 of Panel A in Table I shows that the ratio of operating expenses to sales for the no-agency-cost base case firm, where the manager owns 100 percent of the firm's equity, is 46.4 percent, as compared with 49.8 percent for firms whose owners hold all of the

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[10] As a way of comparison, Dong and Dow (1993) estimate that 10 to 20 percent of total labor hours are attributed to supervision or monitoring in the Chinese collective farms. Dobson (1992) finds that X-inefficiency measures 0.2 percent of sales among large U.S. manufacturing firms.

Table I

Agency Costs, Ownership Structure, and Managerial Alignment with Shareholders

Agency costs are presented for a sample of 1,708 small corporations divided into two groups of firms: those managed by owners (aligned with shareholders) and those managed by an outsider (not aligned with shareholders). Agency costs are proxied alternatively by the ratio of operating expenses to annual sales and the ratio of annual sales to total assets. Separate analyses are presented for each agency cost proxy and for subgroups where the primary owner owns 100 percent of the firm, where the primary owner owns more than half of the firm, where a single family owns more than half of the firm, and where no owner or family owns more than half of the firm. The last column shows the difference between the mean (median) ratios of the outsider-managed firms and the insider-managed firms. Statistical significance of the differences in the mean ratios is based on the *t*-statistic from a parametric test (based on the assumption of unequal variances) of whether the difference in the mean ratios of the two groups of firms is significantly different from zero. Statistical significance of the differences in the median ratios is based on a chi-square statistic from a nonparametric test of whether the two groups are from populations with the same median (Mood (1950)). Data are taken from the Federal Reserve Board's National Survey of Small Business Finances.

| | Type of Manager | | | | |
| | Owner-Manager | | Outsider-Manager | | Difference |
	Number of Firms	Ratio Mean (Median)	Number of Firms	Ratio Mean (Median)	in Means (in Median)
Panel A: Operating Expense-to-Annual Sales Ratio					
All firms	1,249	46.9 (42.0)	459	51.9 (52.2)	5.0*** (10.2)***
Primary owner owns 100 percent of the firm	368	46.4 (41.7)	147	49.8 (47.6)	3.4 (5.9)**
Primary owner owns >50 percent of the firm	743	46.8 (41.5)	258	49.6 (47.7)	2.8 (6.2)**
A single family owns >50 percent of the firm	943	46.2 (41.7)	306	50.1 (49.0)	3.9** (7.3)***
No owner or family owns >50 percent of the firm	220	48.1 (42.7)	116	55.3 (55.6)	7.2** (12.9)***
Panel B: Annual Sales-to-Total Assets Ratio					
All firms	1,249	4.76 (3.18)	459	4.35 (2.88)	−0.41* (−0.30)*
Primary owner owns 100 percent of the firm	368	5.35 (3.54)	147	4.78 (3.33)	−0.57 (−0.21)
Primary owner owns >50 percent of the firm	743	5.08 (3.33)	258	4.49 (3.13)	−0.59* (−0.20)
A single family owns >50 percent of the firm	943	4.74 (3.19)	306	4.41 (3.07)	−0.33 (−0.12)
No owner or family owns >50 percent of the firm	220	4.63 (3.14)	116	3.89 (2.49)	−0.74 (−0.65)**

*, **, *** indicate statistical significance at the 10, 5, and 1 percent levels, respectively.

firms' equity but hire an outside manager. For these two groups of firms, the difference in operating expense ratios is 3.4 percentage points. Although this univariate difference in means is not statistically significant, a multiple regression model that corrects for size and industry effect, shown in Table III later, indicates that firms hiring outside managers have operating expenses that are 5.4 percent greater than those at firms managed by a shareholder.

Also included in the full sample are 1,001 firms in which the primary owner holds a controlling interest of more than half of the firm's equity. As shown in Table I, Panel A, line 3, the ratio of operating expenses to sales for these firms is 2.8 percentage points lower when the owner manages the firm than when the owner hires an outside manager. However, this difference is not statistically significant.

There are also 1,249 firms in which a single family holds a controlling interest of more than half of the firm's equity. As shown in line 4 of Panel A, the average ratio of operating expenses to sales for these firms is 3.9 percentage points higher when the firm is managed by an outsider than when the firm is managed by a shareholder. This difference is statistically significant at the 5 percent level.

One final group of interest is composed of 336 firms in which no person or family holds a controlling interest of more than 50 percent of the firm's equity. As predicted, because of the more diffuse ownership of these firms, the average ratio of operating expenses to sales is indeed much higher: 7.2 percentage points more at firms managed by outsiders than at firms managed by shareholders. This difference is statistically significant at the 5 percent level. To confirm that our finding is robust with respect to sample distributions, we also perform nonparametric tests on the difference between the medians, and find similar results.

A.2. Agency Costs as Measured by the Ratio of Annual Sales to Total Assets

In Panel B of Table I we present results from a similar analysis of agency costs, but here we measure agency costs by the ratio of annual sales to total assets rather than the ratio of operating expenses to annual sales.[11] As predicted, the results show that the sales-to-asset ratios are higher in all categories of shareholder-managed firms versus outsider-managed firms. This is true for the full sample of 1,249 firms (line 1) and for the subsamples where the primary owner holds all of the firm's equity (line 2), where the primary owner holds a controlling interest in the firm (line 3), where a single family holds a controlling interest in the firm (line 4), and where no individual or family owns more than half of the firm (line 5).

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[11] The distribution of the sales-to-asset ratio is highly skewed by the presence of large outliers. Consequently, the ratio is capped at the value found at the 95th percentile, a ratio of 19.0.

For the full sample, displayed in line 1, the average sales-to-asset ratio at insider-managed firms is almost 10 percent higher than at outsider-managed firms at 4.76 and 4.35, respectively. The 0.41 difference in these means is statistically significant at the 10 percent level. This difference implies that the revenues of a median-size firm, which has $438,000 in total assets, are $180,000 per year higher when a shareholder rather than an outsider manages the firm. In each of the remaining four comparisons (lines 2–5 of Panel B), the average ratio of annual sales to total assets also is greater when the firm is managed by a shareholder than when the firm is managed by an outsider. However, this difference is statistically significant at least at the 10 percent level only when the primary owner holds a controlling interest in the firm (line 3).

Overall, the results displayed in Table I suggest that both the ratio of operating expenses to annual sales and the ratio of annual sales to total assets are adequate proxies for small corporations' agency costs. Each provides results consistent with the predictions of agency theory for a wide range of potentially high to low agency cost organizational and management structures.

A.3. Determinants of High- and Low-Agency Cost Firms

Table II presents descriptive statistics for the variables hypothesized to explain agency costs. Statistics are presented both for the entire sample and for two groups of firms constructed by dividing the entire sample in half, based on the sample's median ratios of agency costs. For the entire sample (Panel A), ownership and control is highly concentrated. On average, a shareholder manages the firm 73 percent of the time, the primary owner controls 65 percent of the firm's equity, and a single family owns a controlling interest in the firm 73 percent of the time. The average number of nonmanager shareholders is 3.51, but this statistic is strongly influenced by extreme values, as the median number of nonmanager shareholders is one. The average firm's longest banking relationship is 10.6 years. The average firm maintains relationships with 1.65 banks, reports $5.9 million in annual sales, is 17.6 years old, and has a debt-to-asset ratio of 0.60.

When we split the sample into low-expense and high-expense ratio groups (Panel B), we observe strong differences in the two groups. Based on *t*-tests for significant differences in the means of the two groups, the high-expense firms are less likely to be managed by a shareholder, are less likely to be controlled by one family, have fewer nonmanaging shareholders, have shorter and fewer banking relationships, report lower sales, and are younger than the low-expense firms. Similar results are obtained when the top third and bottom third of the sample are compared.

When we split the sample into low and high asset-utilization groups (Panel C), we also find strong differences in the two groups. Low-efficiency firms are less likely to be managed by a shareholder, have lower percentage

Table II

Descriptive Statistics for Variables Used to Analyze Agency Costs

Selected variables used to study agency costs at a sample of 1,708 small corporations are identified in column 1, the sample means and medians appear in columns 2 and 3. In columns 4 and 5 (columns 7 and 8) are the means for two groups of firms constructed by splitting the sample into two equal-size groups of 854 firms based on the entire sample's median operating expense-to-annual sales ratio (annual sales-to-total asset ratio). Column 6 (column 9) shows the difference in the two groups' means, and the results from a *t*-test for significant differences in the means of the low- and high-ratio groups of firms. Data are from the Federal Reserve Board's National Survey of Small Business Finances.

	Panel A		Panel B			Panel C		
			Operating Expense-to-Sales Ratio Groups			Sales-to-Assets Ratio Groups		
	Mean	Median	Below Median	Above Median	Difference	Below Median	Above Median	Difference
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Ownership variables								
Firm manager is a shareholder	0.73	1	0.78	0.69	0.09***	0.71	0.75	−0.04*
One family owns >50 percent of the firm	0.73	1	0.75	0.71	0.04*	0.72	0.74	−0.02
Ownership share of primary owner	0.65	0.54	0.66	0.64	0.02	0.62	0.68	−0.06***
Number of nonmanager shareholders	3.51	1	3.89	3.14	0.75**	2.35	4.68	−2.33***
External monitoring variables								
Length of the longest banking relationship (years)	10.6	8	11.3	10.0	1.3***	11.5	9.7	1.8***
Number of banking relationships	1.65	1	1.75	1.56	0.19***	1.73	1.58	0.15***
Debt-to-asset ratio	0.60	0.52	0.61	0.58	0.03	0.55	0.64	−0.09***
Control variables								
Annual sales ($millions)	5.9	1.3	8.2	3.6	4.6***	6.1	5.7	0.4
Firm age (years)	17.6	14	18.4	16.8	1.6**	19.0	16.2	2.8***

*, **, *** indicate statistical significance at the 10, 5, and 1 percent levels, respectively.

ownership by the primary owner, have fewer nonmanaging shareholders, have longer and more numerous banking relationships, have lower debt-to-asset ratios, and are older than high-efficiency firms.

B. Multivariate Regression Results Explaining Agency Costs

Tables III and IV present the results obtained from estimating multivariate regressions to explain the determinants of our two proxies for agency costs, the ratio of operating expenses to annual sales and of annual sales to total assets. Each proxy is regressed against the ownership, external monitoring, and control variables introduced and discussed in Section II. These regressions compare the relative, as well as the absolute, agency costs of various ownership structures vis-à-vis the no-agency-cost base case—the 100 percent manager-owned firm.

B.1. Agency Costs as Measured by the Ratio of Operating Expenses to Annual Sales

Table III presents the results from multivariate regressions analyzing agency costs as measured by the ratio of operating expenses to annual sales. Column 1 identifies the explanatory variable and columns 2 through 9 display parameter estimates for eight different model specifications. In columns 2 through 8 we analyze each of the seven ownership structures, external monitoring, and capital structure variables independently. In column 9 we test whether the independent results stand up when all seven variables are included in a single regression. Because of the importance of industry structure and economies of scale, as established in Section II, we include in each regression variables to control for firm size and industry effects. Our measure of size is the logarithm of annual sales, and our controls for industry are 35 two-digit SIC indicator variables, one for each two-digit standard industrial classification that accounts for more than one percent of our sample of firms.

In column 2 of Table III we find that a firm managed by a shareholder has agency costs that are 5.4 percentage points lower than those at firms managed by an outsider. This is very close to the 5.0 percentage point difference reported for all firms in Panel A of Table I. For a firm with the $1.3 million median annual sales, the coefficient in column 2 of Table III implies agency costs of approximately $70,000.

In column 3 of Table III we find that a firm in which one family owns a controlling interest has agency costs that are 3.0 percentage points lower than other firms. For the median-size firm, this implies agency costs of approximately $39,000. In column 4, we find that agency costs decline by 0.082 percentage points for each percentage point increase in the ownership share of the firm's primary owner. This implies that a median-size firm where the primary owner has a 100 percent share has agency costs that are approximately $105,000, or 8.1 percentage points, lower than those at a firm where

Table III

Determinants of Agency Costs at Small Corporations

The dependent variable proxying for agency costs is the ratio of operating expense to annual sales. There are four groups of independent variables: common ownership/managerial alignment variables, external monitoring variables, capital structure variables, and control variables. Sample size is 1,708. Each specification includes a set of 35 dummy variables indicating each two-digit SIC that accounts for more than one percent of the sample of firms. Data are from the Federal Reserve Board's National Survey of Small Business Finances.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Intercept	94.7*** (17.4)	91.7*** (16.9)	74.9*** (17.1)	91.3*** (17.2)	88.3*** (16.9)	87.4*** (16.6)	88.7*** (16.9)	104.5*** (17.3)
Ownership variables								
Manager is a shareholder	−5.4*** (−4.1)							−5.7*** (−4.3)
One family owns >50 percent of the firm		−3.0** (−2.2)						−0.4 (−0.3)
Ownership share of primary owner			−8.2*** (−3.9)					−8.6*** (−2.8)
Log of the number of nonmanager stockholders				1.9*** (2.8)				0.01 (0.1)
External monitoring variables								
Length of the longest banking relationship					−0.22*** (−3.2)			−0.3*** (−3.4)
Number of banking relationships						−1.1* (−1.9)		−1.0* (−1.7)
Debt-to-asset ratio							−0.6 (−0.6)	−0.7 (−0.7)
Control variables								
Two-digit SIC dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Log of annual sales	−2.9*** (−8.8)	−3.1*** (−8.6)	−3.1*** (−9.0)	−3.1*** (−8.8)	−2.6*** (−7.8)	−2.6*** (−7.4)	−2.8*** (−8.3)	−2.9*** (−7.9)
Firm age					0.03 (0.6)			0.02 (0.4)
Regression summary statistics								
Adjusted R^2	0.246	0.241	0.245	0.242	0.244	0.240	0.239	0.259
F-statistic	16.04***	15.63***	16.00***	15.73***	15.50***	15.57***	15.46***	14.57***

*, **, *** indicate statistical significance at the 10, 5, and 1 percent levels, respectively.

Table IV

Determinants of Agency Costs at Small Corporations

The dependent variable proxying for agency costs is the ratio of annual sales to total assets. There are four groups of independent variables: common ownership/managerial alignment variables, external monitoring variables, capital structure variables, and control variables. Sample size is 1,708. Each specification includes a set of 35 dummy variables indicating each two-digit SIC that accounts for more than one percent of the sample of firms. In column 10, the four ownership variables have been orthogonalized. Data are from the Federal Reserve Board's National Survey of Small Business Finances.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Intercept	2.01* (1.9)	2.51** (2.4)	1.27 (1.2)	1.27 (1.2)	2.49** (2.5)	1.95* (1.9)	3.26*** (3.2)	1.34 (1.2)	1.17 (−1.0)
Ownership variables									
Manager is a shareholder	0.51** (2.0)							0.30 (1.2)	0.46* (1.8)
One family owns >50% of the firm		0.087 (0.3)						−0.34 (−1.2)	−0.22 (−0.8)
Ownership share of primary owner			0.012*** (3.0)					−0.011* (−1.8)	0.012*** (3.1)
Log of the number of nonmanager stockholders				−0.82*** (−6.2)				−1.05*** (−5.4)	−1.05*** (−5.4)
External monitoring variables									
Length of the longest banking relationship					−0.025* (−1.7)			−0.01 (−0.4)	−0.01 (−0.4)
Number of banking relationships						−1.09*** (−4.7)		−0.50*** (−4.3)	−0.50*** (−4.3)
Debt-to-asset ratio							1.05*** (5.3)	1.11*** (5.5)	1.11*** (5.5)
Control variables									
Two-digit SIC dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Log of annual sales	0.05 (0.7)	0.03 (0.5)	0.07 (1.1)	0.18*** (2.7)	0.07 (1.1)	0.11* (1.7)	0.02 (0.3)	0.28*** (3.9)	0.28*** (3.9)
Firm age					−0.012 (−1.2)			−0.01 (−0.8)	−0.01 (−0.8)
Regression summary statistics									
Adjusted R^2	0.032	0.030	0.035	0.051	0.035	0.042	0.045	0.080	0.080
F-statistic	2.51***	2.40***	2.65***	3.49***	2.63***	3.02***	3.20***	4.37***	4.37***

*, **, *** indicate statistical significance at the 10, 5, and 1 percent levels, respectively.

the primary owner has only a one percent share. Each of the variables analyzed in columns 2 through 4 is statistically significant at least at the 5 percent level.

In column 5 of Table III we analyze (the natural logarithm of one plus) the number of nonmanager shareholders. We expect a positive relationship between agency costs and this variable, as the returns to monitoring decrease and free-rider problems increase with the number of nonmanager shareholders. We use the natural logarithm rather than the level of this variable because we expect that the relationship is stronger at smaller values of the variable. The estimated coefficient is positive and significant at better than the one percent level, confirming our expectations. For a firm with 30 nonmanager shareholders, the maximum value imposed by our cap at the 95th percentile, the estimated coefficient of 1.9 implies that agency costs are 6.5 percentage points higher, or $85,000 greater, than at a firm with zero nonmanager shareholders.

In columns 6 and 7 of Table III we analyze the two bank monitoring variables: the length of the firm's longest banking relationship and the firm's number of banking relationships. As discussed in Section II, we expect agency costs to vary inversely with the length of the longest banking relationship and directly with the number of banking relationships. To distinguish between the private information generated by bank monitoring and the public information generated by a firm's durability, we also include firm age in the specification analyzing the length of the firm's longest banking relationship.

As shown in column 6 of Table III, agency costs are reduced by a statistically significant 0.22 percent for each additional year in the length of the firm's longest banking relationship. The coefficient on firm age is not significantly different from zero. In column 7, however, a related variable, the number of banking relationships, is negative and statistically significant at better than the 10 percent level. This finding conflicts with our hypothesis in which multiple banking relationships reduce each bank's incentive to monitor, and, therefore, increase agency costs. One possible explanation reconciling the two seemingly contradictory results is that the number of banking relationships may proxy for factors other than the banks' incentive to monitor the firm. The most prominent explanations are the increasing financial sophistication and maturity of the firms and their managers, and regulatory limitations on loans to a single borrower, which may constrain a small bank's ability to supply funds to a larger firm.

In column 8 of Table III we analyze the complex relation between capital structure and ownership on agency costs. As discussed in Section II, we expect an inverse relationship between agency costs and the debt-to-asset ratio. We do, indeed, find a negative relationship, but the coefficient is not significantly different from zero.

In each of the seven specifications displayed in columns 2 through 8 of Table III, observe that our size variable, the natural logarithm of annual sales, is negative and statistically significant at better than the 1 percent level, which is strong evidence of economies of scale. Not shown in Table III

are statistics indicating that at least 20 of the 35 two-digit SIC indicator variables included in each specification are statistically significant at least at the 5 percent level. These findings underscore the critical importance of controlling for differences across industries when examining the operating expense-to-sales ratio. The adjusted R^2 for each of the seven specifications in columns 2 through 8 indicates that the models explain approximately one-quarter of the variability in the ratio of operating expenses to annual sales.

Our final specification appears in column 9 of Table III, where we include each of four of the ownership variables, the two bank-monitoring variables, and the capital structure variable, along with the control variables for firm size, age, and industrial classification. We find that each of the four ownership variables has the predicted sign. However, only two of the four—the indicator variable for shareholder-managed firm and the variable for the ownership share of the primary owner—are statistically significant, but each is significant at better than the 1 percent level. The statistical insignificance of the other two ownership variables may be attributable to the high correlation among the ownership variables. The significant coefficients indicate that agency costs at a firm managed by a shareholder are 5.7 percentage points lower than those at a firm managed by an outsider, and that agency costs are reduced by 0.086 percentage points for each percentage point increase in the primary owner's ownership share. This latter result supports the hypothesis that large shareholders make more effective monitors (Shleifer and Vishny (1986) and Zeckhauser and Pound (1990)).[12]

Both of the external monitoring variables are negative and significant, just as they are in columns 6 and 7. The debt-to-asset ratio is negative but not significantly different from zero, just as it is in column 8. Overall, the results displayed in column 9 generally confirm the findings when the analysis variables are examined independently in columns 2 through 8.

B.2. Agency Costs as Measured by the Ratio of Annual Sales to Total Assets

Table IV displays the results from multivariate regressions analyzing agency costs as measured by the ratio of annual sales to total assets. In interpreting these results, it is important to remember that the sales-to-asset ratio varies inversely with agency costs. As in Table III, column 1 identifies the explanatory variables and columns 2 through 9 display parameter estimates for different specifications of the regression model. In columns 2 through 8, we analyze each of seven ownership structure, exter-

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[12] Fama and Jensen (1983) realize that for shareholders to monitor the firm's management they must hold sufficient ownership; however, the cost of large ownership shares is suboptimal risk-taking, and, possibly, underinvestment. Also, Demsetz (1983) suggests that firms with concentrated ownership have lower monitoring costs.

nal monitoring, and capital structure variables independently. In column 9, we test whether the independent results stand up when all seven are included in a single regression.

Because of the importance of industry structure, established in Section II, we include in each regression a series of 35 two-digit SIC indicator variables, one for each two-digit standard industrial classification that accounts for more than one percent of our sample of firms. We include the natural logarithm of annual sales as a measure of size, because Figure 4 suggests a possible quadratic relationship between sales and the ratio of sales-to-asset ratio.

Column 2 of Table IV shows that a firm managed by a shareholder has a sales-to-asset ratio that is 0.51 greater than that of a firm managed by an outsider, and this coefficient is statistically significant at better than the 5 percent level. This evidence supports the hypothesis that agency costs are higher when an outsider manages the firm. In column 3, we see that the variable indicating those firms in which one family owns a controlling interest has a coefficient that is positive but not significantly different from zero. Column 4 shows that the coefficient on the ownership share of the primary owner is positive and significant at better than the 1 percent level. The coefficient indicates that the sales-to-asset ratio increases by 0.012 for each percentage point increase in the ownership share of the firm's primary owner. This finding supports the hypothesis that agency costs decrease as the ownership becomes more concentrated. Column 5 shows that the coefficient on (the natural logarithm of) the number of nonmanager stockholders is negative and statistically significant at better than the 1 percent level, supporting the hypothesis that agency costs increase as the free-rider problem worsens.

In columns 6 and 7 of Table IV we analyze the two bank monitoring variables: the length of the firm's longest banking relationship and the number of the firm's banking relationships. Once again, to distinguish between the private information generated by bank monitoring and the public information generated by a firm's durability, we also include firm age in the specification analyzing the length of the firm's longest banking relationship. As shown in column 6, the length of the firm's longest banking relationship variable is inversely related to the sales-to-asset ratio, and is statistically significant at better than the 10 percent level. This runs counter to our hypothesis that agency costs are lower when a firm's bank has had more time to develop valuable private information about the firm. However, this variable is not significantly different from zero in the full specification shown in column 9. In column 7 we see that a related variable, number of banking relationships, is negative and statistically significant at better than the 1 percent level. This latter finding supports the hypothesis that the values of a bank's monitoring effort and private information about a firm are dissipated when the firm obtains financial services from multiple sources, but, on the whole, the results regarding the bank monitoring variables are ambiguous.

In column 8 we analyze the effect of capital structure on the sales-to-asset ratio. The results indicate that firms with higher debt ratios have higher sales-to-asset ratios, and that this relationship is statistically significant at better than the 1 percent level. This finding is supportive of a version of the theory put forth by Williams (1987) that additional debt decreases agency costs.

Not shown in Table IV are the results concerning the industry indicator variables. In each specification, at least 20 of the 35 two-digit SIC indicator variables are significant at the 5 percent level. Once again, this finding underscores the critical importance of controlling for differences across industries when comparing agency costs.

Our final specification appears in column 9 of Table IV, where we include each of the four ownership variables, the two monitoring variables, and the capital structure variable, along with the control variables for firm size, age, and industrial classification. We find that only two of the four correlated ownership variables are statistically significant at better than the 10 percent level. The natural logarithm of the number of nonmanager shareholders varies inversely with the sales-to-asset ratio and is significant at better than the 1 percent level. The primary owner's ownership share switches from positive and significant at better than the 1 percent level in column 4 to negative and significant at better than the 10 percent level in column 9. This counterintuitive finding may be attributable to the high correlation of the ownership share variable with the log of number of nonmanager shareholders ($\rho = -0.75$).

Both of the external monitoring variables are inversely related to the sales-to-asset ratio, as they are in columns 6 and 7, when these variables are analyzed independently. However, the length of the longest banking relationship variable no longer even approaches statistical significance ($t = -0.3$), but the number of banking relationships is significant at better than the 1 percent level. The debt-to-asset ratio remains positive and significant at better than the 1 percent level, as it is in column 8. Overall, the results displayed in column 9 tend to confirm the findings previously discussed when the analysis variables are examined one-by-one in columns 2 through 8.

To test whether the correlations among the ownership variables are responsible for this finding, we orthogonalize the four ownership variables and then reestimate the model specification appearing in column 9. The results of this reestimation, which appear in column 10, confirm our suspicions. Three of the four ownership variables are statistically significant at least at the 10 percent level.[13] The log of the number of shareholders re-

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[13] The sales-to-asset ratio is likely subject to additional biases that render it much noisier than the operating expense-to-sales ratio. Note that the adjusted-R^2 statistics appearing at the bottoms of Tables III and IV indicate that we are able to explain about 26 percent of the variability in the latter ratio but only about eight percent of the variability in the former ratio. This led us to investigate additional control variables in the sales-to-asset regression, including the ratio of operating expenses to sales. Results from specifications including the operating

mains negative and significant at better than the 1 percent level, but the primary owner's ownership share switches back from negative to positive and also is significant at better than the 1 percent level. The dummy indicating that the firm is managed by a shareholder also is positive, but is significant at only the 10 percent level. The dummy indicating that a family controls the firm is not significantly different from zero. In sum, the results for the four ownership variables are not qualitatively different from those reported in columns 2 through 5, when each of these variables is examined independently, and provide strong support for the agency-cost theory of Jensen and Meckling (1976).[14]

IV. Summary and Conclusions

In this article, we use data on small businesses to examine how agency costs vary with a firm's ownership structure. Because the managerial ownership of small firms is highly variable, with a range from zero to 100 percent, we are able to estimate a firm's agency costs across a wide variety of management and ownership structures.[15] By comparing the efficiency of firms that are managed by shareholders with the efficiency of firms managed by outsiders, we can calculate the agency costs attributable to the separation of ownership and control.

We also examine the determinants of agency costs in a multivariate regression framework and find that our results support predictions put forth by the theories of Jensen and Meckling (1976) and Fama and Jensen (1983a) about ownership structure, organizational form, and the alignment of managers' and shareholders' interests. First, we find that agency costs are higher when an outsider manages the firm. Second, we find that agency costs vary inversely with the manager's ownership share. Third, we find that agency costs increase with the number of nonmanager shareholders. Fourth, we also find that, to a lesser extent, external monitoring by banks produces a positive externality in the form of lower agency costs.

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expense-to-sales ratio as an additional regressor are not qualitatively different from those in Table IV. In no case was the operating expense-to-sales ratio statistically significant at even the 20 percent level. Because we view the operating expense-to-sales ratio as an endogenous variable, we also tested a specification that included a predicted value of this ratio rather than the actual value. The predicted value was obtained using the model appearing in column 9 of Table III. Again, the results from this robustness check are not qualitatively different from those appearing in Table IV

[14] For the sake of completeness, we also perform the same procedure on the regression equation in column 9 of Table III. We find that orthogonalizing the ownership variables does not qualitatively affect the results. Only the same two ownership variables are statistically significant. Overall, although both measures of agency costs provide qualitatively similar results, the expense ratio regression yields greater explained variations.

[15] There are few empirical studies in related areas of corporate finance that analyze ownership, organizational, and management structures in detail. For example, see a study of executive compensation in Israel by Ang, Hauser, and Lauterbach (1997).

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