

## Governance Problems in Close Corporations\*

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## **Governance Problems in Close Corporations**

### **Abstract**

More than 90 percent of all US firms are close corporations, and these firms account for 51 percent of the private sector output and 52 percent of all private employment. Understanding governance issues and agency problems facing these firms is therefore of considerable importance. The legal and finance literature argues that the main governance problem in close corporations is not so much between the management and the shareholders as between the majority and the minority shareholders. As a solution, this literature recommends that the main shareholder in close firms surrender some control to minority shareholders at the outset. With shared control rights, no shareholder can take unilateral actions for her own benefit at the expense of the firm and other shareholders. We test this hypothesis using two independent novel datasets of close corporations. We find that shared ownership firms report substantially larger return on assets (up to 14 percentage points) and lower expense-to-sales ratios and these findings persist after we control for the endogeneity of ownership structure. We thus provide one of the first evidence on the presence of governance problems among shareholders in close corporations as well as the effectiveness of shared ownership as a solution.

JEL Classification Codes: G32, L20.

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## Governance Problems in Close Corporations

### 1. Introduction

The vast majority of firms in the U.S. are close corporations.<sup>1</sup> Out of almost 4.7 million corporations that filed taxes in 1997, only 8,000 corporations were publicly listed in the NYSE, Nasdaq and Amex combined (Nasdaq fact book). The U.S. Chamber of Commerce indicates that close corporations account for 51 percent of the private sector output and 52 percent of all private employment, and accounted for 80 percent of the job growth in the 1990s. Close corporations are an important part of the business landscape in other countries as well, constituting the private corporation in Britain, the close corporation in Japan, the GmbH firm in Germany, and the SARL firm in France (Hansmann and Kraakman 2004). Consequently, recent accounting studies have begun to focus on close corporations, examining financial reporting, tax, and managerial incentive issues (Ball and Shivkumar 2005; Beatty, Ke, and Petroni 2002; Ke, Petroni, and Saddafine 1999; Ke 2001). This study extends this stream of literature by examining key governance issues in close corporations.

The finance literature argues that firms in general face two types of governance problems: the governance problem between managers and shareholders, and the governance problem between majority and minority shareholders (Shleifer and Vishny 1997). Following Roe (2004), we label these problems vertical and horizontal governance problems, respectively. While both governance problems exist in private firms, legal scholars and practitioners argue that the main governance problem in close corporations is the horizontal one, in particular the squeeze-out of minority shareholders by the controlling shareholder (Clark 1986; O'Neal and Thompson 1985). As a solution, both the legal (O'Neal and Thompson, 1985, chapter 9) and the finance literature (Bennedsen and Wolfenzon 2000; Gomes and Novaes 2000; Pagano and Roell 1998) recommend that the main shareholder surrender some control to

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<sup>1</sup> According to a U.S. court, a close corporation is “typified by (1): a small number of shareholders, (2) no ready market for corporate stock, (3) substantial majority shareholder participation in the management, directions, and operations of the corporation” (Donahue v. Rodd Electrotype Co., 367 Mass 578, 586, 328 NE2d, 505, 511 (1975)).

minority shareholders at the outset. With shared control rights, no shareholder can take unilateral actions for her own benefit at the expense of the firm and other shareholders.

Both the legal and the finance literature (e.g., O'Neal and Thompson 1985; Bennedsen and Wolfenzon 2000) suggest a simple way to achieve shared control: shared ownership (we discuss this issue in detail in Section 2.1). Yet, little empirical evidence exists on the horizontal governance problem in close corporations and the effectiveness of the shared ownership solution.<sup>2</sup>

A key difficulty in studying the horizontal governance problem in close corporations is the lack of data. Although close corporations are an important part of the economy (see the first paragraph of this section), ownership information on close corporations is hard to find. Close corporations, as opposed to publicly held ones, do not have to report this --- or for that matter any other --- information to the public.

We circumvent this issue by using two novel cross-sectional datasets on close corporations. The first dataset is based on a large-scale survey called the National Survey of Small Business Finances (NSSBF) conducted by the Federal Reserve Board to gather information about small businesses as of year-end 1992. This dataset contains approximately 2,700 observations. We also examine a smaller sample of 51 private property-casualty insurers as of year-end 1998. All firms in this industry (including those that are closely held) are required to file ownership and financial information with state regulators. Both datasets have their respective advantages and disadvantages, and thus the results that obtain for both datasets have high credibility.

Our main hypothesis is that shared control limits the horizontal governance problem. We use ownership metrics to measure control dilution. Specifically, we assume that a firm has control dilution if no owner has a greater than or equal to 50% share of the outstanding equity (Dyck and Zingales 2004, Table III). A controlling shareholder can take many actions to benefit herself at the expense of other shareholders (see Table 1). It is difficult to measure the benefits from such expropriations directly (Dyck and Zingales 2004, p. 541). However, because such expropriations are likely to manifest themselves as

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<sup>2</sup> For example, prior studies such as Ang, Cole, and Lin (2000) and Ke, Petroni, and Saddafine (1999) focus on ownership and managerial incentives in close corporations, but not on the benefits of shared control.

lower revenues, higher costs, or unproductive assets, a measurable consequence of private benefit extraction by the controlling shareholder at the expense of the minority shareholders is lower reported performance for the firm as a whole. We therefore measure the existence of governance problems using two sets of performance measures: measures of income and measures of expenses.<sup>3</sup>

Our main results in both our datasets support our main prediction. We find that net income before interest expense, tax expense, and depreciation and amortization (EBITDA) scaled by total assets is significantly and substantially higher for firms with diluted control relative to firms with one controlling shareholder and minority shareholders. The magnitude of this gap is 14 percentage points for the NSSBF sample and 4 percentage points for the insurer sample.

This is an economically significant result. The mean EBITDA for the NSSBF sample is 47 percent of assets, and the 14 percentage point drop is almost one third. In dollar terms, this improvement in performance translates to about \$52,500 per year for the median firm in the NSSBF sample. This may seem like a small figure to a reader familiar with public firm data, but in reality it is a significant dollar amount for close corporations, which are much smaller than public firms.<sup>4</sup> Further note that this is a *one* period effect --- the actual NPV over several periods is of course much larger.

Prior studies also attest to the economic significance of our results. First, Ang, Cole, and Lin (2000) study the vertical agency problem in closely held corporations and estimate an annual improvement of \$65,000 when this agency cost is eliminated (page 92). Our findings are at a similar order of magnitude. More important, understanding risk-return tradeoffs in *private* firms is of considerable interest to economists (see, for example, Heaton and Lucas 2000, Hamilton 2000), but Moskowitz and Vissing-Jorgensen (2002) find little evidence of risk-premia in private firms. Speculating various explanations for their finding, Moskowitz and Vissing-Jorgensen (2002, Section V) argue that

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<sup>3</sup> The standard methodology in the finance literature to measure control benefits of ownership is to use stock price (see Dyck and Zingales 2004 and the references therein). However, public stock prices are not available for close corporations, by definition.

<sup>4</sup> For comparison, the median asset base in the NSSBF sample is \$375,000, whereas the median asset base for COMPUSTAT firms is \$743 million dollars.

private pecuniary benefits of control are a viable explanation only if they are of the order of around 10 percent accounting returns (recall these firms have no stock price). Our finding suggests that this can very well be the case: earnings with one controlling shareholder and minority shareholders (which is where pecuniary control benefits are maximum) are lower by 14 percentage points in the NSSBF sample.

An important alternative explanation for our findings could be that some firms report lower income due to differential tax treatment. For example, C corporations, which are taxed at the corporate level, are more likely to pay owners higher salaries and report lower earnings compared to S corporations, which are not taxed at the corporate level. We conduct an extensive set of analyses to rule out the tax alternative. We first show that our results hold after controlling for corporation type. More important, we then show that there is no difference in reported performance across S and C corporations once we add back owners' salary to our income measure --- the corporation dummy, which was previously significant, now becomes insignificant. Further, our results continue to hold with this new performance measure, with the median firm in the NSSBF sample reporting an annual improvement of \$97,500 from shared control. Also note that our second sample of insurance companies has uniform tax treatment, so tax issues cannot explain our results for that sample. Finally, we also find that alternative performance measures such as operating expenses relative to sales are significantly lower for diluted control firms, with the magnitudes being 4 and 39 percentage points for the NSSBF sample and the insurer sample respectively.

A critical feature of our analyses is the use of cross-sectional regressions to estimate the effect of ownership dilution on performance. This methodology might be subject to the standard endogeneity problem. Demsetz and Lehn (1985) argue that a major distinguishing characteristic of *public* firms is a liquid market for shares. As circumstances change, investors in public firms buy and sell shares, and the resulting ownership structure is a continually adjusting choice variable. Consequently, Demsetz and Lehn (1985) argue that the firm ownership structure in public firms is likely to be at the optimum *on an ongoing basis*, and, in a cross-sectional sample, should have no relation to performance.

However, a key distinguishing feature of *close* corporations is the absence of a market for their shares. As a result of this illiquidity, investors in close corporations have no easy way to adjust the ownership structure as conditions change.<sup>5</sup> This makes ownership an exogenous, predetermined variable, which is sufficient to motivate its use as an independent variable in a performance regression (Smith and Watts 1992, p. 264).

The use of high trading costs to argue for the exogenous and predetermined nature of ownership is not new. In a different setting, Gorton and Schmid (2000) argue that illiquidity of shares in a bank-centered financial system like that of Germany justifies the exogenous nature of ownership. Stiglitz (1994, Chapter 10) argues that ownership structure is an exogenous determinant of firm performance in emerging economies, because the illiquid capital markets in these countries make it difficult for investors to trade and change ownership structure in response to changing circumstances. In a similar vein, Core and Larcker (2002) also argue that a cross-sectional regression of performance on ownership is valid when adjustment costs are high.

Our identification strategy then crucially depends on the fact that adjustment costs are high for close corporations. In addition to relying on the fact that, by definition, there is no market for shares of close corporation, we provide evidence that share turnover is extremely low in our two samples suggesting high adjustment costs. Of the 2,776 firms in the NSSBF sample, only 125 firms had raised new equity from new owners in the past three years prior to the survey (and 22% of the sample had raised new equity, either from existing or new owners). In addition, we can collect ownership data for multiple years for the insurance sample (the NSSBF survey is a one-time cross-sectional survey). We find that the ownership structure was virtually unchanged in these firms across time. By contrast, the annual turnover rate in the NYSE stock exchange is 99 percent ([www.nyse.com](http://www.nyse.com)). While this evidence could mean that

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<sup>5</sup> Barringer (2002) gives the example of Freedom Communications, a close corporation that owns newspapers such as the Orange County Register. Heirs who were minority investors wanted to get out of the firm, but the close nature of the corporation prevented them from doing so. The majority shareholders would neither buy out the minority shareholders, nor would they agree to go public (which would have enabled minority shareholders to sell their stake in the open market).

owners of close corporation desire no changes to their holdings, it is also consistent with extremely illiquid markets for the shares of close corporations.

It can still be argued that, even though there is no active market for shares so that firms cannot adjust ownership on a continuous basis, at least firms optimally choose their *initial* ownership structure. To address this concern we split our NSSBF sample in two by whether firm age was above or below the median. We conjecture that the predetermined nature of ownership should be a more valid assumption for older firms because their initial ownership structures are more likely to have arisen in response to *past* conditions rather than *current* conditions (Hannan 2005, p. 63). Consistent with our conjecture, we find the positive and significant effect of diluted ownership in older firms but not for younger firms.

Finally, one can argue that diluted ownership is more likely when the firm raises more equity from new shareholders. This sort of external financing is more likely to be conducted by well performing firms, which could then explain the association between control dilution and performance. However, this is not a major concern for our setting, given that only 125 firms in the NSSBF sample had attempted to raise additional equity from sources other than existing shareholders in the three years prior to the survey. Dropping these firms (or firms that had raised equity from existing owners in the last three years) did not affect our results.<sup>6</sup>

Our study makes several contributions to the literature. First, close corporations form an important part of the economy, and thus merit systematic research enquiry in their own right. A vast body of legal literature argues that a key governance problem in such firms is the squeeze-out of minority shareholders by majority shareholders (O'Neal and Thompson 1985). Yet little systematic evidence exists on this horizontal governance problem --- prior accounting studies such as Ke, Petroni, and Saddifine (1999) focus on the vertical governance problem of manager-shareholder conflicts. To the best of our knowledge, we are one of the first studies to systematically document the presence of the horizontal governance problem, and the efficacy of shared ownership as a potential solution.

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<sup>6</sup> We are grateful to the referee for raising this point.



Second, our research also has broader implications for the fundamental area of accounting research that examines the incentive role of ownership in mitigating governance or agency problems (Bushman and Smith 2001). The standard incentive argument is that share ownership provides incentives to improve firm performance. However, we find that diluted control firms (where the ownership share of the controlling shareholder is low) have *higher* performance. Prendergast (2002) argues that a major shortcoming of the standard incentive literature is its failure to consider the extent to which the decision-maker in the company has authority to take actions. If the decision maker's authority also changes with his incentive levels, performance is not necessarily monotonic in incentive levels (Morck, Shliefer, and Vishny 1988 also make this point). This is precisely what happens in our setting: shared control curtails the controlling shareholder's action choices, as other shareholders now have control. This limits the ability of the controlling shareholder to misbehave, and improves performance.<sup>7</sup>

Finally, from a methodological perspective, our study complements prior studies that have examined the horizontal governance problem in public firms. These studies typically infer private benefits of control by examining the stock price premium that investors are willing to pay for controlling blocks of shares (see Dyck and Zingales 2004 and the references therein). However, as Dyck and Zingales (2004, pp. 542-543) note, such investors could also pay a premium because they get psychic benefits from control or have better information about future firm prospects --- reasons not directly related to the expropriation of minority shareholders. However, an *ex ante* measure like stock price cannot easily distinguish between these explanations. By contrast, our use of realized *ex post* accounting performance measures suggest that the firm as a whole returns less to shareholders under concentrated control, which is more strongly indicative of squeeze out of minority shareholders.<sup>8</sup>

The remainder of this paper is structured as follows. Section 2 motivates and develops the hypotheses based on prior theoretical and empirical literature and discusses our empirical methods. To

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<sup>7</sup> We concurrently test the incentive effect along with the control dilution effect in this study and find that firm performance, *ceteris paribus*, is higher for firms where one owner has extremely high ownership levels. See Sections 3 and 4 for details.

test our hypotheses, we use two datasets, each with its own relative advantages. Sections 3 and 4 describe the two datasets and the results. Section 5 concludes.

## **2. Hypothesis Development and Empirical Methods**

### *2.1. Hypothesis development*

A fundamental feature of close corporation ownership is that shareholders are typically few in number, knowledgeable about firm operations, and involved in management. The key governance conflict is the abuse of power by the controlling shareholder (i.e., potential conflict among shareholders). Trial evidence suggests that the majority shareholders in close corporations are especially imaginative in their squeeze out techniques. Table 1 includes a list of sample techniques (taken from actual court cases). These techniques include a) eliminating minority shareholders from directorate and excluding them from company employment to force their acquiescence, b) high compensation to majority shareholders, c) siphoning off earnings by having other enterprises perform services for it at high prices or by leases and loans favorable to majority shareholders or by other contractual agreements such as purchase of supplies, land, etc., at high prices, d) failure to enforce contracts for the benefit of the corporation, e) appropriation of corporate assets, contracts or credits for personal use, f) usurping corporate opportunities, whereby the majority shareholder privately enters into a transaction that would have otherwise belonged to the firm, and g) the corporation's purchases of shares from majority shareholders at high prices.

Recent theoretical research on close corporations emphasizes the role of multiple large shareholders in mitigating the expropriation problem (Bennedsen and Wolfenzon, 2000; Gomes and Novaes 2000; Pagano and Roell, 1998). The main intuition behind Pagano and Roell's model is that other large shareholders help mitigate agency costs by monitoring the controlling shareholder. In Gomes and Novaes' model, disagreement among controlling shareholders produces deadlocks that prevent them from taking actions that hurt minority shareholders. In Bennedsen and Wolfenzon (2000) no individual

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<sup>8</sup> The advantages of using ex post accounting measures vis-a-vis ex ante stock price measures have been noted by several accounting researchers (Bernard 1993; Penman 1992; Shevlin 1996).

shareholder has sufficient votes to control the firm individually. Therefore shareholders interact to form a coalition to control the firm. This coalition formation improves firm performance since no individual shareholder is able to take any actions without the consent of other shareholders. Consistent with these theoretical arguments, legal scholars extensively recommend that the main shareholder surrender some control to minority shareholders at the outset in order to improve overall firm performance (O'Neal and Thompson, 1985, Chapter 9).<sup>9</sup>

Shared ownership is clearly not the only feasible solution --- contractual arrangements limiting expropriation is a potential alternative. From an institutional perspective, however, our firms are not looking to go public in the near future, and thus rarely have sophisticated investors such as venture capitalists who can design complex contracts to mitigate expropriation.<sup>10</sup> Legal evidence also suggests little use of shareholder contracts among such firms. Legislatures in all states provide basic protection for minority investors in the form of boilerplate shareholder agreements that firms can choose by electing close corporation status. Electing this status is not particularly onerous for firms.<sup>11</sup> However, empirical evidence indicates that only around five percent of corporations elect to be covered under close corporation statutes, even though around ninety percent of the corporations in the U.S. are eligible.<sup>12</sup> Of course, failure to elect close corporation statutes does not necessarily imply the absence of explicit contracts among shareholders, because they could write special firm-specific contracts. However, as La Porta et al. (1998) point out, the advantages of choosing standard statutes is that lawyers and judges better

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<sup>9</sup> An implicit assumption in this argument is that expropriation is costly --- a dollar expropriated from the company yields less than a dollar to the expropriating owner. Otherwise, any ownership level less than 100% will result in expropriation by the controlling owner. Costly expropriation is a valid assumption in countries such as the United States where effective disclosure, judicial and enforcement practices prevent the controlling owner from expropriating the firm's resources in a cheap manner.

<sup>10</sup> Of the 2,776 firms in the NSSBF sample, only 125 firms had attempted to raise additional equity from sources other than existing shareholders in the past three years.

<sup>11</sup> Companies can tailor these boilerplate agreements by amending them in their by-laws. In fact, O'Neal and Thompson (1985) argue that the main advantage of electing close corporation status is that it provides minority shareholders with a comprehensive checklist of agreements, which they can subsequently adjust for their specific situations.

<sup>12</sup> Surveys of incorporation filings by O'Neal and Thompson (1985, p. 1.19) indicate that Wisconsin has 5,101 *statutory* close corporations out of 98,602 incorporations. This ratio is 5,324 to 155,198 in Alabama, 24,000 to 580,000 in Pennsylvania, 863 to 82,694 in Missouri, 828 to 97,009 in Montana, 742 to 63,172 in Nevada, and 753 to 12,422 in Wyoming.

understand the standard statutes, and minority investors have a better chance of obtaining legal relief in case of oppression by the controlling shareholder.<sup>13</sup>

These considerations lead to the main hypothesis of our paper:

*H1: There should be less squeeze out of minority shareholders in firms with shared control.*

We plan to test this hypothesis by regressing squeeze out on shared control. This regression requires measurement of squeeze out of minority shareholders as well as shared control. As we explain shortly, we use firm performance to proxy for squeeze out of minority shareholders, and the ownership structure to proxy for shared control.

In this performance regression, we are hoping to capture the higher extraction of private benefits when the firm has a majority shareholder relative to a firm in which ownership is diluted. This increased extraction should have a negative effect in the performance measures. There is, however, an immediate countervailing effect of a majority shareholder. Majority shareholders have stronger incentives to increase the size of the pie. This is the classic alignment of interest hypothesis (Jensen and Meckling 1976). The alignment of interest or the incentive hypothesis predicts that shared ownership provides low incentives for all shareholders to create firm value. This explanation is counter to our hypothesis, and thus testable (see Section 2.3.1 for details).

Another potential problem with control dilution among expert shareholders is deadlocks. To the extent deadlocks prevent opportunistic behavior by the controlling shareholder, firm performance improves (Gomes and Novaes 2000). However, deadlocks can also cause the firm to miss valuable investment opportunities. This alternative scenario also predicts a negative association between shared control and firm performance, which is counter to our main hypothesis and thus testable.

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<sup>13</sup> La Porta et al. (2000) argue that investors can protect themselves from expropriation by forcing the firm to disgorge free cash flows as dividends. However, such techniques may not prevent the expropriation techniques mentioned above as they can occur before the accounting system reports the numbers such as free cash flow. La Porta et al. (1998) make a similar point on the ineffectiveness of laws mandating dividend payments.

## 2.2. *Measuring Squeeze Out of Minority Shareholders*

It is difficult for empirical researchers to measure directly what majority shareholders gain from squeezing minority shareholders (Dyck and Zingales 2004). The standard procedure, therefore, is to use some performance measure to infer this gain. Typically, this measure is the stock price premium paid by investors for controlling blocks or some function of the premium on the shares with superior voting rights. However, these measures are not available for close corporations. Further, as Dyck and Zingales (2004, pp. 542-543) note, such premium could reflect psychic benefits from control or information about future firm prospects --- reasons not directly related to the expropriation of minority shareholders.

We use reported accounting measures as our performance measures. Our reasoning is that if squeeze out indeed happens as described in Table 1, the reported performance for the firm as a whole should be low. Since no single accounting measure can capture performance comprehensively, we use several measures.

Our first measure of performance is earnings before taxes, interest, and depreciation, scaled by total assets, denoted EBITDA. Our EBITDA measure is a comprehensive measure that reflects both expropriation in the balance sheet and the income statement. That is, EBITDA will be low if revenues are low, or expenses are high, or if the booked assets are unproductive.

An added advantage of EBITDA is that it is an operational measure that sidesteps issues such as income tax or depreciation choices that could be very different across firms (we discuss tax issues in more detail in Section 2.2.1). However, it is indeed possible that expropriation could be happening in line items excluded from EBITDA (for example, the controlling shareholder may lend to the firm at exorbitant rates, which would show up in financing expenses, not operating expenses). Consequently, as an additional test, we also rerun our tests with reported net income scaled by assets. Finally, we decompose operating income and compute operating expenses to sales, denoted OPEXP. This is our third measure.<sup>14</sup>

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<sup>14</sup> We do not decompose OPEXP even further into components such as costs of goods sold or SG&A expenses because the wide variety of expropriation and shirking mechanisms (see Table 1) suggests that narrower

Individually, each measure has its shortcomings and advantages as a proxy for squeeze out of the minority shareholders. Collectively, however, results that obtain for all these measures increase our confidence in attributing our findings to the association between shared control and squeeze out of minority shareholders.

### 2.2.1 Tax Considerations

One concern is that tax consideration could drive the variation in reported earnings, with some firms reporting low earnings to avoid taxes. Under the U.S. federal income tax system, investment income that shareholders receive from a C-corporation is subject to so-called “double taxation”. As a result, shareholders of C-corporations have higher incentives to increase compensation, interest or rent payments to shareholders to mitigate double taxation. To account for this potential variation due to tax-induced determinants of owner salary, we compute EBITDAS, which is EBITDA *before* owner salary expense, and use that as a dependent variable. Further, we also use an S- or a C- corporation dummy as a control. Since S-corporation income is not subject to double taxation we expect tax avoidance to be less of an issue for S-corporations.

Tax avoidance can take more nefarious forms, which are harder to detect, but still have the effect of reducing reported income. However, little empirical work exists on the nature of this tax evasion. The IRS studies performed under the Tax Compliance Measurement Program (IRS, 1988), the standard empirical reference on tax avoidance, provide little guidance (Moskowitz and Vissing-Jorgenson 2002). It is difficult to control for such tax evasion opportunities. However, our control variable “number of shareholders” provides an indirect control. Our premise is that it is difficult for a larger number of shareholders to collude effectively to reduce net income for tax purposes --- tax spoils have to be shared

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performance measures are much less likely to capture expropriation or shirking. In their study of tunneling in Indian firms, Bertrand, Mehta, and Mullainathan (2002) also find stronger results with overall performance measures compared to narrower ones.

among more people and this is always difficult especially when a dissatisfied shareholder can threaten to go to the authorities.<sup>15</sup>

### *2.3 Measuring control dilution*

From an empirical perspective, a precise measure of control dilution requires a model of the interactions among the shareholders. We use a much simpler approach and identify firms in which the largest shareholder owns less than 50% of the shares as firms with diluted control, since no one shareholder in such firms has absolute control. Clearly, this definition raises several concerns. One concern is that ownership of shares does not imply control, since shares may have differential voting rights. We were able to collect voting rights information, but only for the insurance database. We found that 92% of the sample had a one-share one-vote policy, providing some justification for the use of ownership as a proxy for control rights.

Another concern is that the initial owner can dilute her control by using other mechanisms as an alternative to selling more than 50% of the votes. For example, she can contractually guarantee a seat on the board to minority shareholders, allow the use of cumulative voting, etc. Thus a firm might have a shareholder with, say, 75% of the votes, but still have shared control if an appropriate mechanism is in place. Since we cannot observe the presence of these mechanisms, we would *not* classify this firm as having shared control. However, we believe that this measurement problem does not invalidate our results. It is very clear from the legal literature (e.g., Clark 1986) and the recommendations to practitioners (O'Neal and Thompson, 1985) that whenever these types of mechanisms exist in close corporations, they are in place to dilute control over and above the dilution provided by votes. We have not found any recommendation for a contract or an example of a contract in a court case that gives absolute control to one shareholder despite her not having more than 50% of the votes. This implies that the firms we classify as having diluted control are, in fact, firms with diluted control. But, we cannot rule

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<sup>15</sup> Whistle-blowing, is, in fact, a major source of information for the IRS (Langley 2004).

out the possibility that some of the firms that we classify as having a shareholder with absolute control are, in reality, firms with diluted control. However, such misclassification will only make it *more* difficult to find significant difference across ownership categories.

Even limiting attention to ownership, one can raise the issue of what level of ownership is indicative of control dilution. In public firms, an owner can gain *effective* control with a relatively low ownership stake. The reason is that shareholders are dispersed and collective action problems prevent shareholders from exercising their control rights. For these corporations, theory or the legal rules provide little guidance on the magnitude of this level, and different studies use different cutoffs. For instance, Morck, Shleifer, and Vishny (1988) find the threshold to be 5% ownership, while La Porta, Lopez-di-Silanes, and Shleifer (1999) use 10% to 20% ownership. In contrast, we use a 50% threshold. Our theoretical justification for the use of less than 50% ownership as diluted control is that no individual shareholder has absolute majority in this case. This is a reasonable assumption given that collective action problems are not likely in close corporations due to the small number of owners. In other words, it would be relatively easy for shareholders to collectively block the decisions of any owner who has less than 50% ownership.

Finally, our measure has precedence in the finance literature. Dyck and Zingales (2004, Table III), for example, also use 50% cutoff.<sup>16</sup>

### *2.3.1 Incentive Considerations of Shared Control*

Our main hypothesis is that the performance of firms with shared control is higher than those with concentrated control. In addition to this shared control hypothesis, we also test the alignment of interest hypothesis (Jensen and Meckling 1976): when there is a controlling shareholder, the larger her stake, the

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<sup>16</sup> Our ownership variable is a dummy that is a constant within the diluted category. An alternative is a continuous measure that varies linearly within the diluted category. Theory suggests that performance in shared control firms is not linear in the size of the largest shareholder. For instance, Bennedsen and Wolfenzon (2000) derive that performance is not linear in ownership of the largest shareholder, but depends on a complex way on the stake of each of the owners. Further, for the NSSBF sample, we only have the stake of the largest shareholder, we cannot include a more continuous measure of ownership within the diluted category.



smaller her incentives to engage in (costly) expropriation activities. Since this argument applies only to the range where there is a large controlling shareholder, we test whether firms with a large controlling shareholder perform better than firms with a medium sized controlling shareholder. We separately identify firms with a controlling shareholder with a stake between 75% and 100% as a high concentration owner. We compare these firms to firms where the controlling shareholder stake is medium-sized (from 50% to 75%). Because the 75% cutoff is not grounded in theory (as opposed to the 50% cutoff), we also perform several sensitivity analyses on the choice of the 75% cutoff.

#### *2.4 Control variables*

Diluted ownership is more likely when the firm has more owners. However, prior literature argues that the number of owners has a significant effect on performance, suggesting that we need to control for this variable.

The association between the number of shareholders and performance is complex. One can argue that higher performing firms are more likely to raise additional equity from outsider shareholders, suggesting that performance and the number of shareholders are positively related. However, in an important article, Kaplan and Zingales (1997) argue that this may not be true in equilibrium. While it is indeed the case that outsiders want to lend to good companies, Kaplan and Zingales (1997) argue and show that it is precisely these companies that do not want to borrow from outsiders. That is, in any equilibrium, one has to match the lenders' desire to lend with the managers' desperation to borrow.<sup>17</sup>

Bennedsen and Wolfenzon (2000) provide another explanation for the link between the number of owners and performance. They argue that this association is negative in equilibrium. Their reason is that as ownership rights are distributed among more shareholders, it is easier to form a controlling coalition with low ownership stake. Due to this low ownership stake, such a coalition is more likely to take actions to the detriment of the firm. We therefore include number of owners as a regressor.

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<sup>17</sup> Stiglitz (1994, Table 6.1) also shows a similar pattern.

Furthermore, as discussed in Section 2.2.1, the number of shareholders also partly controls for tax implications.

We include several other measures to control for cross-sectional variation in performance. To control for the vertical governance problem of manager-owner agency effects on firm performance, we include a dummy variable indicating whether the manager of the firm is an owner. Dyck and Zingales (2004, p. 558) argue that extraction of private benefits by majority shareholders can vary across industries. We therefore include industry and firm characteristics such as size and industry dummies as additional controls.

### **3. The NSSBF Sample: Data and Results**

#### *3.1 Sample selection and descriptive statistics*

Our first sample is drawn from the National Survey of Small Business Finances (NSSBF), a cross-sectional survey conducted by the Federal Reserve Board to gather information about small businesses as of year-end 1992. The main advantage of this dataset is that it is very large and representative of small business firms in the US.<sup>18</sup>

The NSSBF survey collected information such as ownership and financial data from 4,637 firms that were broadly representative of the 5 million small non-farm, non-financial businesses in the United States at the end of 1992. This survey has been used in several prior studies (Ang, Cole, and Lin 2000; Petersen and Rajan, 1994, 1995), and is available to the public at large at [www.federalreserve.gov/pubs/oss/oss3/nssbftoc.htm](http://www.federalreserve.gov/pubs/oss/oss3/nssbftoc.htm).

Since the theory is related to corporations, we limit our sample to private S- and C-corporations, excluding all partnerships and proprietorships. This elimination reduces the sample size to 2,776, but it still accounts for approximately 73% of the total assets of all firms in the NSSBF database, with the median annual sales of the firms in the subsample being about \$1 million. Of the 2,776 firms in the

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<sup>18</sup> In addition, Zhou (2001) argues that cross-sectional analyses are more powerful than time-series within-firm analyses to uncover performance effects of ownership structure.

subsample, only 125 firms had attempted to raise additional equity from sources other than existing shareholders in the past three years. To the extent this measure captures the propensity of the firm to go public in the near future, the small number of such firms suggests that the NSSBF dataset comprises primarily of firms that intend to remain private.

The NSSBF survey provides three ownership measures: the ownership share of the primary owner, whether a family owns more than 50% of the firm, and the number of shareholders. Table 2 provides frequency statistics on the number of owners. The majority of the firms have few owners, with firms up to four owners comprising 84% of the sample.<sup>19</sup>

In Table 3, we present the ownership data stratified by number of shareholders. The ownership stake of the largest owner is grouped in three categories. The (0%,50%) category is labeled DILUTE, and represents firms with diluted ownership. The [50%, 75%) category represents those firms where the largest shareholder has control but a medium sized ownership stake. The [75%, 100%] category is labeled HIGHCON, and is the high concentration category.<sup>20</sup>

Table 3 indicates that, for all the firms, concentrated ownership is the dominant ownership structure. However, this result is largely driven by single-owner firms. Two-owner firms are largely in the 50-75 range, and for three and more owners, more than 40% of the firms have diluted ownership (the largest shareholder owning less than 50%), with this figure reaching 67.2% for firms with six or more owners. This evidence indicates that dilution of ownership is common in close corporations. To ensure that one and two owner firms are not driving our results, we make sure our results hold after dropping these firms.

Table 4 provides descriptive statistics on the dependent performance measures and the independent variables used to control for differences in performance. The first observation is that the firms are small. The median asset base is \$375,000 --- the corresponding figure is \$743 million for the

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<sup>19</sup> The skewness of the distribution of the number of owners is significant at the 1% level.

<sup>20</sup> The NSSBF database provides information on the ownership stake of the primary owner. We assume that the primary owner is the largest owner. This assumption appears to be largely valid. For instance, for the two owner

COMPUSTAT database. Another difference from COMPUSTAT firms in Table 4 is that sales are larger than assets (the median COMPUSTAT sales are \$431 million) suggesting that, relative to public firms, the business nature of close corporation is more likely to be service-based that does not require as much capital investments (thus mitigating the need for public financing).

Even though EBITDA is scaled, it has extreme observations in both tails. To prevent these observations from dominating the regressions, we delete 1% of each tail (Chen and Dixon 1972). As another alternative, we reduce the extremity of the dependent variable by making the monotonic transformation from  $y$  to  $\text{sign}(y) \log(1+|y|)$ . Since  $\log(1+y) \approx y$  for small  $y$ , this transformation preserves the observations close to zero, while attenuating extreme observations.

MANAGE is a dummy variable that measures whether the manager is an owner. Table 4 indicates that nearly 75% of the managers are owners. NOWNER is the number of owners capped at 10 owners. It is included in our tests to control for the impact that many owners can have on coalition formation and thus firm performance (Bennedsen and Wolfenzon 2000). However, from a coalition perspective, family members in a firm can behave as one individual shareholder. To control for this effect, we use the NSSBF survey question on family ownership, which inquires whether one family controls more than 50% of the firm. The corresponding dummy variable is called FAMILY. Another dummy we use is SCORP that takes a value of unity if the firm is an S-corporation. Forty percent of the firms in the sample are S-corporations. Finally, SALES is the log of sales.

### *3.2. Effects of control dilution*

We first present the results in a univariate correlation matrix in Table 5. The performance measures are not directly correlated with DILUTE. However, Dyck and Zingales (2004, p. 558) indicate that benefits of control vary across industry, so a multivariate regression is more appropriate setting to test our hypothesis. The magnitudes of the correlations in Table 5 among the independent variables are less

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firms, Table 3 shows that the primary owner is the largest owner in 93% of these firms. Within the remaining seven percent, the primary owner has 38% ownership or more in all but thirteen firms.

than 0.55. This is below the 0.8 cutoff suggested by Kennedy (1992, p. 180), indicating little concern for multicollinearity.<sup>21</sup> Our regressions also include dummy variables to denote industry affiliation by using SIC dummies. However, to reduce the number of such dummies, we use two-digit codes for those industries that comprise 4% or more of the sample, and one-digit otherwise. Table 5 does not report any potential multicollinearity that could arise between the regressors and industry dummies. We therefore report the variance inflation factors (VIF) for all coefficients in our regressions. All our VIF's are far below the standard cutoff of 10 (Kennedy 1992, p.183).

The results of the multivariate regressions are in Tables 6 and 7. Table 6 indicates that the EBITDA of diluted firms is higher than other firms by 14 percentage points. This is a substantial improvement given that the mean EBITDA for the sample is 47% of assets. This result is not driven by outliers because a) we have truncated the extremes of the EBITDA variable, and b) the significance of DILUTE regressor holds in the concave logarithm transformation of the dependent variable. Further, note that DILUTE has a variance inflation factor less than 2, suggesting little concern for multicollinearity.

Table 6 also tests for the for the presence of the alignment effect, which states that, when the ownership level of the controlling shareholder is very high, her incentives are better aligned with those of the minority shareholders. We include the HIGHCON dummy as an additional regressor in Table 6. Note that a firm in the sample can have either DILUTE or HIGHCON coded as one, or neither coded as one. Consequently, the way these regressions are structured, the coefficients on the dummy variables DILUTE and HIGHCON measure the performance of the diluted and highly concentrated firms respectively *relative* to firms that are neither (i.e., are in [50%,75%) ownership category). These firms in the medium category are firms where the largest owner has enough control to expropriate but not enough ownership stake to incur large expropriation costs as an owner. Consequently, we expect expropriation in these firms to be high, causing these firms to under perform relative to both DILUTE and HIGHCON firms.

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<sup>21</sup> In any event, prior accounting studies such as Core and Guay (2001) use multivariate regressions where the correlations among the regressors reach 0.92.

The coefficients on HIGHCON are insignificant in all of the regressions. But importantly, the key result in the paper, namely the positive impact that dilution has on firm performance, continues to hold, with the magnitudes and the significance of the coefficients of DILUTE largely unchanged. We change the category of HIGHCON from [75%, 100%] range of ownership for the largest owner to [70%, 100%] as well as [80%, 100%]. The results are virtually unchanged for both these alternative specifications.<sup>22</sup>

We now turn to tax issues. As stated earlier, C corporations are taxed at both the firm and the shareholder level, while S corporations are taxed only at the shareholder level. This double taxation creates clear incentives for C corporations to engage in strategies such as shifting income to shareholders as salaries, and reporting lower earnings at the corporate level. Our first approach to controlling for the tax effect is to include an SCORP dummy. And indeed the SCORP dummy is significantly positive, but the DILUTE regressor still remains significant. So, at the first blush, our results are robust to tax issues.

However, one can argue that the SCORP dummy is not sufficient enough to control for tax issues; the marginal tax rates of owners, corporations, and the alternative ways in which the corporation can transfer income to shareholders need not be constant across the sample. We therefore create a new dependent variable EBIDTAS, which is EBITDA *before* owner's salaries, because paying higher salaries to owners is a common way for C corporations to distribute income to owners while reducing the corporate tax bill.

We present the results using EBIDTAS in Table 6. Two results are worth noting: DILUTE is still a significant positive predictor. But more important, SCORP now becomes insignificant, suggesting that tax induced differences in performance are ameliorated in the EBIDTAS construct.<sup>23</sup>

The coefficient of MANAGE, a variable indicating whether the firm is run by a manager with an ownership stake, is insignificant, consistent with our claim that the vertical governance agency problem is

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<sup>22</sup> Morck, Shliefer and Vishny (1988, Table 2) also find weak evidence of the high-ownership effect in public firms.

<sup>23</sup> Ke (2001) argues that C-corporations in which the owner is also the manager are more likely to report lower income for tax avoidance purposes. To test this theory, we include an interaction term of MANAGE and SCORP dummies. The interaction term (not reported) is uniformly insignificant.

not an important one. Unlike public corporations, shareholders in private corporations are well informed, take active interest in firm operations, and can therefore directly monitor the external manager. In fact, Ke, Petroni, and Safieddine (1999) find that external managers in close corporations have very limited explicit incentive compensation and argue that this happens because the shareholders directly monitor and dictate the external managers actions.

As discussed in Section 2, the number of owners is also an important feature of ownership in close corporations. Consistent with Kaplan and Zingales (1997) and Bennedsen and Wolfenzon (2000), we find that NOWNER is negatively associated with performance. However, if one believes that NOWNER should have a positive coefficient, then a concern is that the opposite signs on DILUTE and NOWNER could be consequence of multicollinearity between the two regressors.

This concern appears to be unwarranted in our sample, for the association of NOWNER with DILUTE is only 0.55 in Table 5, and the VIF factors on both NOWNERS and DILUTE are small in Table 6. However, there is a more subtle empirical problem with NOWNER and DILUTE. As Table 1 shows, single owner firms are a large component of the sample, and these firms, by definition, are concentrated firms and have NOWNER = 1. Thus, single owner firms could be driving the positive association between NOWNER and DILUTE. Further, our definition of DILUTE assumes that if a shareholder has exactly 50 percent ownership, he has control. While this is a plausible assumption for firms with three or more owners, it may not be when the firm has two owners, both of whom own 50%. We therefore rerun the regression in Table 6 dropping single owner firms and equally owned two-owner firms.

Table 7, column 1 presents the results. DILUTE is still significant, with a coefficient of 0.13. In fact, the univariate correlation between NOWNER and DILUTE is 0.39 in this subsample, further reducing multicollinearity concerns (the VIF factors are also low in Table 7). Finally, Table 7 presents results with two other performance measures, Net Income and Operating Expenses. Because net income includes interest expense, we add an additional capital structure control. Table 7 indicates that shared control firms have significantly higher net income and lower expenses.

In sum, we find that shared control firms outperform other firms on a variety of performance measures --- EBITDA, EBITDAS, NI, and OPEXP. The relatively large DILUTE coefficient, combined with a large fraction of firms choosing *not* to be in the DILUTE category (see Table 3) raises the question as to why so many firms would choose an apparently sub-optimal ownership. We turn to this issue next.

### 3.3. *Endogeneity Analyses*

Any empirical test linking ownership structure to firm performance has to recognize that ownership structure is endogenous. The endogeneity problem arises when ownership is chosen as a function of performance (reverse causality) or as a function of unobserved variables that also affect performance (unobserved heterogeneity). Prior literature has used three broad techniques to deal with this issue.<sup>24</sup> The first one is to fit an explicit structural model. For example, Himmelberg, Hubbard, and Palia (1999) use within firm changes in ownership to deal with unobserved heterogeneity and also use the instrumental variables approach. The second approach is to find an exogenous event that affects ownership of some --- but not all --- firms, split the sample into treatment and control groups, and compare OLS results across these samples (e.g., Cheng, Nagar, and Rajan 2005). The third method is to choose a sample in which ownership is not optimally chosen, or at least not adjusted on an ongoing basis. This is the approach taken by Gorton and Schmid (2000) and Stiglitz (1994).

With regards to the first two approaches, there is a *substantial* literature on the relative merits of structural models relative to treatment effects, and spirited defenses of both approaches can be found in Heckman and Krueger (2003, Ch. 4&5). In sum, the advantages of structural models (such as two stage least squares) are that they explicitly model the choice, but the disadvantage is that the first stage choice model is a difficult one to motivate: what variables should go into the choice equation? What should be exclusionary restrictions so that the two stages can be estimated? Some studies simply build two stage models with little explanation for their exclusionary restrictions (e.g., Keating 1997, Section 4.1), but this is a problem because the results of structural models are sensitive to model specification and exclusionary



restrictions (Angrist and Krueger 2001). Another problem with structural models is the low power in the first stage, which is often a reason these models find no significance. These problems are especially evident in our setting in which individuals forming a close corporation make ownership decision choices based on several personal and business factors such as wealth, expertise, risk aversion, etc. It is hard, if not impossible, for us to create a robust and statistically powerful model of this choice.

On the contrary, the treatment models provide no explicit explanation for the ownership choice, and are thus not easily generalized, but they do have the advantage of high power. More important, their findings are not sensitive to getting the first stage choice model right (Angrist and Krueger 2001). The problem, however, is the need to find an exogenous event that affects ownership in a sub-sample. Unfortunately, we do not have such an event.

The third method uses the fact that when the costs of adjusting ownership are quite high, owners will be reluctant to adjust their stakes. As a result ownership becomes an exogenous predetermined variable. Gorton and Schmid (2000) use the illiquidity of the German stock market to argue for the exogeneity of ownership in their cross-sectional ownership-performance regressions. They argue:

The [cross-sectional regression] assumes that the equity ownership structure...is exogenous or at least partly predetermined with respect to firm performance...By definition, illiquidity is a central feature of a bank-based economy and the exogeneity of ownership structure follows from this fact (page 51)

Stiglitz (1994, Chapter 10) also argues that ownership structure is an exogenous determinant of firm performance in emerging economies, because the illiquid capital markets in these countries make it difficult for investors to trade and change ownership structure in response to changing circumstances. Finally, Core and Larker (2002) explain that cross-sectional regressions of ownership on performance are valid when adjustment costs are high.

We follow this last method because costs of adjusting the ownership structure in close corporations are quite high. By their very nature, there is no liquid market for the shares of close

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<sup>24</sup> Some older papers ignore this issue completely (Morck, Shleifer, and Vishny 1988; McConnell and Servaes 1990).

corporations.<sup>25</sup> This illiquidity makes it difficult for shareholders to adjust their holdings. In fact, the presence of high costs of adjusting ownership is used as a basic assumption in the theoretical literature on close corporations (Pagano and Roell, 1998).

We use a battery of empirical tests to make our case. First, to provide more direct proof of the high adjustment costs for firms in our two samples we analyze ownership turnover. Of the 2,776 firms in the NSSBF sample, only 125 firms had raised new equity from new owners in the past three years (and 22% of the sample had raised new equity, either from existing or new owners). In addition, we can collect ownership data for multiple years for the insurance sample (the NSSBF survey is a one-time cross-sectional survey). We find that the ownership structure was virtually unchanged in these firms across time. By contrast, the annual turnover rate in the NYSE stock exchange is 99 percent ([www.nyse.com](http://www.nyse.com)) suggesting that ownership structure changes considerably in liquid markets. While this evidence could mean that owners of close corporation desire no changes to their holdings due, for example, to a very stable environment, it is also consistent with high adjustment costs.

It can still be argued that, even though there is no active market for shares so that firms cannot adjust ownership on a continuous basis, at least firms can optimally choose their *initial* ownership structure. This is a valid concern. To address it we split our sample by whether firm age is above or below the median. Our conjecture is that, even when shareholders optimally choose the initial ownership structure, as time progresses the illiquidity of ownership in close corporations means that investors cannot quickly change their ownership structure in response to the changing environment. Thus, the predetermined nature of ownership should be a more valid assumption for older firms because their initial ownership structures are more likely to have arisen in response to *past* conditions rather than *current* conditions. As Hannan (2005, p. 63) states:

New organizations have the luxury of choosing designs that fit the current social, cultural and political environments; old organizations find themselves trapped by their origins...If inertial forces are strong, then the prospects of adapting to changing environments are limited, with the result that older cohorts of organizations have lower fitness --- a "liability of obsolescence."

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<sup>25</sup> Presumably, the market for shares of close corporation is even more illiquid than that for shares of German publicly traded firms studied by Gorton and Schmid (2000).

Table 8, Panel A presents the results. Strikingly, younger firms, which are more likely to have the optimal ownership structure, have *no* association between performance and DILUTE --- in fact the overall regression is insignificant. However, older firms have a significant positive association between DILUTE and performance, with the coefficient largely retaining its magnitude from Table 6. This result suggests that our findings are robust to endogeneity considerations.

A skeptic could still argue that stratifying by firm age still does not *directly* address the issue that ownership could be potentially responding to performance, not the other way around. For example, one could argue that well performing firms are more likely to dilute ownership by raising more equity, which would result in a positive association between performance and dilution.

We therefore conduct another test. Specifically, we drop all firms from the sample that had raised new equity from existing or new owners in the past three years (this is a survey item in the NSSBF survey). The results are in Table 8, Panel B. DILUTE continues a significant positive predictor of performance in Table 8, Panel B, with coefficient magnitudes comparable to Table 6. Once again, therefore, our results are robust to endogeneity considerations.

#### **4. Property-Casualty Insurers: Data and Results**

##### *4.1. Sample selection and descriptive statistics*

We next test our hypotheses on a sample of close property-casualty insurers. This sample has many advantages relative to the NSSBF sample. First, the NSSBF does not contain any property-casualty insurers, so this sample allows us to test our hypotheses on a second independent sample. More important, despite our extensive set of controls and tests, the extensive heterogeneity in the NSSBF sample still leaves open the possibility that some uncontrolled variation in the sample such as the firm's ex-ante expropriation technologies or opportunities are driving our findings. This concern would be considerably alleviated in a more homogenous sample.

Our dataset of private-casualty insurance companies form such a sample. Property-casualty insurers have a fairly homogeneous production function and a uniform financing policy (insurance companies cannot issue debt, so there is no capital structure variation).<sup>26</sup> There should also not be any significant tax-related and other incorporation effects because all of our sample insurers are C-corporations and most are domiciled in the same state, Michigan. These common features of the sample firms suggest that the ex ante expropriation opportunity sets are likely to be fairly constant within our sample of property-casualty insurers, thus mitigating the problem of unobservable firm heterogeneity that is present in the more diverse NSSBF sample.<sup>27</sup>

Another advantageous feature of this sample is that we have ownership data at a level of detail not available in the NSSBF dataset. All insurance companies are required to report all owners of the company with greater than 10% ownership in Schedule Y, a regulatory filing. Schedule Y provides owner names, allowing us to consider those with the same last name as one single shareholder. We can also collect ownership data for multiple years, and directly test the stickiness of the ownership structure as Gorton and Schmid (2000, Section 3.7) do to illustrate the illiquidity of the ownership structure in their setting. Also, an important implicit assumption in Section 2 is that firms in the NSSBF sample have a one-share one-vote policy. Under this assumption, ownership is closely linked to control, and we can use the ownership share of the largest shareholder as a measure of his control rights. However, ownership share may not be a good proxy for control rights if firms have dual class shares. A major advantage of the insurance sample is that we have data on dual class shares, and can thus test whether our one-share one-vote assumption is justified. Finally, the performance measures used in the analysis are highly reliable, as they are derived from audited annual statements that follow Statutory Accounting Principles (SAP).

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<sup>26</sup> No firms in our sample issue surplus notes.

<sup>27</sup> One can argue that regulators in this industry have incentives to control the expropriation of minority shareholders. This is not likely to be the case, however, because regulators are concerned more about protecting policyholders than owners. Even if regulation serves to reduce expropriation, the impact of regulation should be fairly constant across our sample since the majority of the firms are all domiciled in the same state (see Petroni and Shackelford, 1995). We, therefore, believe that the impact of regulation may, at most, reduce the power of our tests.

The insurance sample has three important limitations. First, insurers are not required to disclose the total number of owners, rather only those owners with greater than 10% interest. However, as explained later, the data suggest that this shortcoming is not serious. Second, our sample is very small. The vast majority of property-casualty insurers are wholly owned by public holding companies or by mutual insurers. Moreover, the data on ownership structure is not machine readable, and has to be hand-collected at the physical premises of the states' insurance regulators. As a result, our sample is limited to insurers that file annual reports with the State of Michigan or are affiliates of insurers that file annual reports with the State of Michigan. However, we have no reason to believe that Michigan's regulatory laws introduce a significant sample selection bias. Third, our sample excludes those insurers that had incomplete ownership data reported on Schedule Y that could not be completed based on information collected from Best's Insurance Reports or phone inquiries directly with the insurer. It is difficult to assess the impact that this selection bias has on our analysis.

We compiled the sample of close property-casualty insurers from the headquarters of the Michigan Insurance Bureau in Lansing, which maintains annual reports of all insurance companies domiciled in the state or licensed to sell insurance in the state. We examined all of the approximately 790 annual reports for property-casualty insurers for the year ended December 31, 1998 that were available at the Michigan Insurance Bureau Library. We retained all stock insurers that are not 1) publicly traded or 100% owned by a company that was publicly traded; 2) 100% owned by a mutual insurer or other non-profit organization types; or 3) 100% owned by a company located outside of the United States. Unfortunately, not all insurers fully completed the Schedule Y according to the instructions. For the insurers with incomplete data we used the description in Best's Insurance Reports of each insurer to supplement the Schedule Y to the extent possible. Based on the Schedule Y and Best's we identified 49 insurers that met our selection criteria. For 19 of these insurers, neither the Schedule Y nor Best's adequately identifies all shareholders with greater than 10% ownership. Telephone inquiries to these 19 firms yielded 13 more observations, producing a total of 43 close insurers with ownership data that included a list of all owners with greater than 10% interest and their associated ownership percentages.

The Schedule Y's also yielded an additional 16 insurers that meet our sample criteria and for which we could obtain ownership data. These 16 insurers are affiliates of Michigan insurers, but did not have annual reports on file with the Bureau since they do not operate in Michigan. From this list one insurer was excluded because 75% of the firm was owned by an Employee Stock Ownership Plan and the details on the members of the plan were not available. Thus the sample of close insurers with full ownership data includes 58 insurers.

The 1998 annual reports of the 58 insurers were obtained from the 1998 NAIC Property Annual Statement Database.<sup>28</sup> We used these reports based on SAP to measure net premiums earned by line of business, net income, net investment income, total operating expenses (essentially all expenses except income taxes and dividends to policyholders), and assets. Based on these data, seven insurers were deleted because they appeared to have abnormal operations such as non-positive net premiums earned (i.e., non-positive revenue from sales of insurance), negative operating expenses, or net investment income that is greater than one hundred times net premiums earned. This left us with 51 insurers.

Close corporations typically have multiple owners from the same family who behave as one unit. One concern about the NSSBF sample is that we only have data on the largest *individual* shareholder, and not on family. However, in the insurance sample, we have shareholder names, and by combining all the shareholders with the same last name into one owner, we are able to treat members of the same family as one unit.<sup>29</sup> This approach is a more direct control for coalitions (at least among family members) relative to use of the FAMILY dummy in the NSSBF dataset.

Table 9 presents the ownership data, following a categorization of ownership structure similar to that used for the NSSBF sample. DILUTE denotes insurers in which the largest owner owns less than 50% of the firm and HIGHCON denotes insurers in which the largest owner owns at least 75% of the firm. First, note that for the average (median) insurer in our sample 68.9% (88%) of the total ownership

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<sup>28</sup> Data source: National Association of Insurance Commissioners (NAIC), used by permission. The NAIC does not endorse any analysis or conclusions based on the use of these data.

<sup>29</sup> Some of the owners are identified as family trusts. We combine ownership by family trusts with ownership by individual family members.

is made up of owners that own at least 10% of the insurer. This suggests that our data captures most of the owners of the sample insurers. Second, just over half of the insurers have concentrated ownership, i.e., 51% of our sample insurers have one shareholder owning more than 75% of the insurer, which we denote as HIGHCON. Diluted ownership where the largest shareholder holds less than 50% of the insurers comprises 37% of our sample. This is a fairly large percentage, given that our method of combining family members' ownership biases towards concentrated ownership. Thus, as in the NSSBF sample, there is considerable evidence of ownership dilution.

Table 10 reports descriptive statistics on the insurance sample and the variables used in our regressions. Most of the variables are intended to replicate the measures used to analyze the NSSBF sample, while some are unique to the insurance industry. Our mean (median) insurer has total assets, denoted ASSET\$, of \$94.8 (\$54.5) million with the smallest insurer having \$3.3 million in assets and the largest \$646.0 million in assets. NOWNER denotes the number of families with a stake in the firm in excess of 10% for those firms with at least one owner with ownership of greater than 10%. If there is no owner with greater than a 10% stake, NOWNER is equal to ten. The average (median) insurer has 3 (1) owners. MANAGE indicates whether the manager of the firm is an owner, with MANAGE coded as a 2 if a hired manager runs the firm and an 1 otherwise. Approximately two thirds of the insurers are owner-managed.<sup>30</sup>

We consider three performance measures. The first is EBT, which is net income before income taxes scaled by total assets. This measure is similar to EBITDA but because insurance companies are not allowed to issue debt, there are no material interest costs to consider and because depreciation and amortization are not separately identified in the annual report, we are unable to back out these costs. The inclusion, however, of depreciation and amortization, is not likely to be an important factor because these costs are generally not material to insurers' statutory net income. Insurers' assets are primarily investment securities rather than depreciable assets and under SAP many assets that are depreciable under

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<sup>30</sup> Management of insurers is described by name in Best's Insurance Reports, which we match against the Schedule Y.

Generally Accepted Accounting Principles, such as furniture and fixtures and automobiles, are considered non-admitted assets and are expensed as incurred. The mean (median) EBT is 4.9% (4.6%). The second measure is NI, measured as net income scaled by total assets, with a mean (median) of 3.5% (3.3%). The third measure is EXRATIO. This is measured as total operating expenses divided by net premiums earned and is analogous to OPEXP in the NSSBF analysis. The mean (median) EXRATIO is 1.05 (1.00). Reflecting the homogeneity of the insurance industry as well as our sample selection criteria, EBT, NI and EXRATIO are better behaved than in the performance measures in the NSSBF sample with means close to the medians. We therefore do not truncate the sample or make any logarithmic transformations to the dependent variable.

We also consider other firm characteristics that may be affected by our performance measures. We measure SALES as the log of net premiums earned (equivalent to log of sales for the NSSBF sample). Property-casualty insurers offer insurance in various lines of business, and prior studies indicate that profitability varies across these lines of business (Petroni and Shackelford, 1999; Sommer, 1996). It is customary in this industry to measure the types of business written by a firm as net premiums earned (NPE) by line as a percentage of total net premiums earned. To capture the major lines of business in this industry, we define AUTO, AandH, and PERIL as the total NPE in automobile, accident and health, and peril lines of business, respectively, divided by NPE in all lines of business.<sup>31</sup> The variables are analogous to the SIC codes for the NSSBF sample.

Other institutional differences from the NSSBF sample are as follows. Because family ownership issues are already accounted for in the ownership measures, we do not have a family variable. We also do not have a variable analogous to EBITDAS because we don't have salaries paid to the owners of our insurers. Finally, since all the insurance firms are C-corporations, we do not have an incorporation dummy.

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<sup>31</sup> Peril lines include aircraft perils, allied lines, boiler and machinery, burglary and theft, commercial multiple peril, farm owners' multiple peril, fire, homeowners' multiple peril, inland marine, and ocean marine. We also included other line variables such as workers' compensation and malpractice and product liability in our analysis but these amounts did not have explanatory power in the model and had little impact on the coefficients of interest.



#### 4.2. *Effects of control dilution*

Table 11 reports the results of the multivariate performance regressions.<sup>32</sup> In the regression, we include the HIGHCON dummies, similar to Columns 2 in Table 6. All three regressions are explanatory with R<sup>2</sup>s ranging from 23% to 31%.<sup>33</sup> This figure is much higher than the R<sup>2</sup> of the NSSBF regressions, reflecting the small size and the homogeneity of the insurance sample. The coefficient on DILUTE is significantly positive (negative) in the EBT and NI (EXRATIO) regression. The coefficients on DILUTE in the EBT and NI regression are both 0.04 with t-statistics of 1.86 and 2.26, respectively. The coefficient on DILUTE in the EXRATIO regression is -0.39 with a t-statistic of 2.62. Diluted firms' EBT and NI exceed that of firms with one controlling shareholder and minority shareholders by 4 percentage points. These are substantial numbers, given that the average NI is 3.5%.

There is some weak evidence that firms with concentrated ownership have higher performance, consistent with the alignment hypothesis. The coefficient of HIGHCON in the NI regression is significant, with a coefficient of 0.02 (t-static = 1.70). The coefficients on HIGHCON in the EXRATIO and EBT ratio are the expected signs but not significant. As expected and consistent with results on the NSSBF sample, the coefficient on NOWNER is significantly negative (positive) in the EBT and NI (EXRATIO) regressions.

#### 4.3. *One-Share One-Vote Policy and Ownership Changes across Time*

As discussed in Section 2, an important implicit assumption underlying our usage of ownership stake as a measure of control rights is a one-share one-vote policy. While we have no data on this policy for our NSSBF sample, Best's Insurance Reports provide information on dual-class shares. We find that only four insurers in our sample have dual-class shares (e.g., non-voting common stock or voting

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<sup>32</sup> Consistent with the NSSBF sample, all the correlations among the regressors are less than the 0.8 cutoff. The variance inflation factors for each of our regression variables, which are reported in Table 11, are also well below the standard cutoff of 10 (the highest is 4.4).

preferred stock). However, we do not have information on how different classes of these shares are distributed among shareholders. Therefore, we dropped these four firms from the sample. The performance regression is unchanged, suggesting that dual-class share firms are not confounding our results.

Another advantage of this dataset is that we can examine ownership changes across time. Subject to survival bias (which we discuss shortly), we found that none of the firms changed their ownership categories from 1998 to 2000. In absolute magnitudes, there were three changes. The largest change was a 10 percentage point difference, with the largest shareholder dropping from 100% ownership to 90%. The two other changes were from 36% to 30%, and 91% to 87%.

One can argue that low changes in ownership reflect not the exogeneity or the statistically predetermined nature of the ownership structure, but an extremely stable environment. This does not appear to be the case, because not all firms survived. From 1998 to 2000, one firm was in liquidation, two firms were acquired by mutual insurers, and one was merged with another company. This suggests a fairly dynamic environment for the insurance industry. Also recall that this industry is facing considerable deregulatory and competitive forces, so a stable environment is also not institutionally representative of this industry.

In sum, the findings of this study suggest that control dilution is fairly common and is associated with higher performance in close corporations. Although each regression in this study has its shortcomings, the fact that this finding obtains for two different accounting performance measures in two different samples of firms with vastly different characteristics attests to its credibility. These results suggest that control dilution is an effective and a widely used mechanism in close corporations to improve performance.

## **5. Conclusion**

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<sup>33</sup> Given the small sample size, we check for influential observations. There do not appear to be any influential observations (i.e., Cook's (1977) D-statistic is less than 2 for all observations).

Ninety-nine percent of the firms in the United States are close corporations, and account for a substantial amount of employment and GDP - in fact, these corporations form a key part of the President's economic focus.<sup>34</sup> Close corporations are typified by a small number of shareholders, all of whom have substantial ability to participate in the management, directions, and operations of the corporation. Consequently, the main governance problem in these firms is the squeeze out of minority shareholders by the majority shareholders (O'Neal and Thompson, 1985).

Theory suggests that dilution of ownership is a simple and effective mechanism to mitigate expropriation by the controlling shareholders in close corporations (e.g., Bennedsen and Wolfenzon, 2000; Gomes and Novaes, 2000; Pagano and Roell, 1998). Yet there is little empirical evidence on this issue, in part because prior research has been primarily interested in public firms, and also because data on close corporations are hard to find. Using two novel independent cross-sectional data sets on close corporations, we provide one of the first empirical tests on the issue by demonstrating that performance is higher for firms with diluted control.

Our tests raise the question why investors choose suboptimal ownership structures. O'Neal and Thompson (1985, Ch. 9) point out that initial investors may be wealth constrained and may not have enough cash to finance an optimal ownership structure. Alternatively, investors may have limited foresight and inadvertently agree to sub-optimal ownership structures (they may trust their partners too much). Furthermore, even if the initial ownership structure was optimal, investors in close corporations have no easy way to adjust the ownership structure as conditions change, for there is no liquid market for shares. Minority investors may later realize that their investment is a bad one and may want to get out, but cannot. This frustration, as O'Neal and Thompson note, is a major cause for close corporation litigation in the U.S.

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<sup>34</sup> See <http://www.whitehouse.gov/infocus/smallbusiness>.

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**Table 1**  
**Sample Expropriation Techniques by the Majority Shareholders in**  
**Close Corporations in the United States** (Source: *O'Neal and Thompson, 1985*)

Method of Expropriation	Representative Case
Eliminating minority shareholders from directorate and excluding them from company employment to force their acquiescence	<i>Estep v. Werner</i> , 780 SW2nd 604 (Ky 1989)
High compensation to majority shareholders	<i>Orchard v. Covelli</i> , 590 F Supp 1548, 1557 (WDPa1984)
Siphoning off earnings by having other enterprises perform services for it at high prices	<i>Bibo v. Jeffrey's Restaurant</i> , 770 P2nd 290 (Alaska 1989)
Siphoning off earnings by leases and loans favorable to majority shareholders	<i>Wometco Enterprises, Inc. v. Norfolk Coca-Cola Bottling Works, Inc.</i> , 528 F2nd 1128 (CA4 1976)
Siphoning off earnings by other contractual agreements such as purchase of supplies, land, etc., at high prices; failure to enforce contracts for the benefit of the corporation	<i>Ferguson v. Tabah</i> , 288 F2nd 665 (CA2 1961)
Appropriation of corporate assets, contracts or credits for personal use	<i>Brilliant v. Long Island Waste Co.</i> , 23 Misc 2d 788, 192 NYS2d 797 (1959)
Usurping corporate opportunities, whereby the majority shareholder privately enters into a transaction that would have otherwise belonged to the firm	<i>Carrington &amp; McElroy, The Doctrine of Corporate Opportunities as Applied to Officers, Directors, and Stockholders of Corporations</i> , 14 Bus Law 957 (1959) (an exhaustive discussion of the early cases in this area)
Corporation's purchases of shares from majority shareholders at high prices	<i>Donahue v. Rodd Electrotpe Co. of New England, Inc.</i> , 367 Mass 578, 328 NE2nd 505 (1975)
Dilution of minority shareholders' interests through issuance of stock	<i>Henry v. Klein</i> , 15 Conn App 496, 545 A2d 575 (1988)



**Table 2**  
**Distribution of the Number of Owners of NSSBF C- and S-Corporations in 1992**

Number of owners	Number of firms	Number of firms as a % of the total sample
1	850	30.6%
2	919	33.1%
3	359	12.9%
4	211	7.6%
5	114	4.1%
6	72	2.6%
7	35	1.3%
8	28	1.0%
9	12	0.4%
10	22	0.8%
>10	154	5.5%
Total	2,776	100%

Data source: 1992 National Survey of Small Business Finances (NSSBF) conducted by the Federal Reserve Board.

**Table 3**  
**Distribution of Ownership Stakes for NSSBF C- and S- Corporation in 1992**

Number of owners	N	Ownership Stake of the Primary Owner		
		(0%,50%) DILUTE	[50%,75%)	[75%,100%] HIGHCON
All	2,776	20.5%	38%	41.5%
1	850			100%
2	919	6.7%	75.7%	17.5%
3	359	41.5%	38.1%	20.3%
4	211	42.7%	42.2%	15.2%
5	114	45.6%	40.3%	14.0%
>= 6	323	67.2%	26.9%	5.9%

Data source: 1992 National Survey of Small Business Finances (NSSBF) conducted by the Federal Reserve Board.

**Table 4**  
**Descriptive Statistics for NSSBF C- and S-Corporations in 1992**

	N	Mean	Std. Dev	Min	Median	Max
EBITDA	2,248 <sup>#</sup>	0.47	1.13	-3.11	0.19	8.68
Sign(EBITDA)* Ln(1+ EBITDA )	2,292	0.28	0.59	-3.28	0.18	4.18
EBITDA\$	2,292	468,984	1,890,991	-14,882,765	87,865	38,852,187
EBITDAS	2,248 <sup>#</sup>	0.87	1.69	-2.35	0.35	14.16
Sign(EBITDAS)* Ln(1+ EBITDAS )	2,291	0.45	0.66	-3.15	0.30	4.80
EBITDAS\$	2291	636,131	2,021,527	-14,089,914	156,425	39,852,187
NI	2,719 <sup>#</sup>	0.37	1.25	-3.82	0.09	11.54
Sign(NI)* Ln(1 +  NI )	2,774	0.20	0.65	-4.06	0.09	4.08
NI\$	2,774	260,896	1,697,603	-25,610,255	38,869	37,962,187
OPEXP	2,287	0.92	0.38	-0.49	0.93	10
ASSET\$	2,776	2,053,624	4,970,301	0	375,000	79,589,249
MANAGE	2,776	1.25	0.43	1.00	1.00	2.00
FAMILY	2,776	1.76	0.43	1.00	2.00	2.00
NOWNER	2,776	2.92	2.56	1.00	2.00	10.00
SCORP	2,776	0.40	0.49	0.00	0.00	1.00
CAPSTRUC	2,776	0.56	0.31	0.00	0.55	1.00
SALES	2,770	13.95	1.90	6.91	13.91	19.63
SALES\$	2,776	5,325,843	13,712,507	0	1,100,000	335,660,000

EBITDA is earnings before interest, corporate income tax if any, and depreciation and amortization scaled by total assets. EBITDAS is earnings before interest, corporate income tax if any, depreciation and amortization, and owners' salary scaled by total assets. NI is net income scaled by total assets. OPEXP is operating expenses (total expenses less interest, corporate income tax if any, and depreciation and amortization) scaled by sales. ASSETS are total assets. MANAGE is 2 if a hired manager who is not an owner runs the firm, and 1 if an owner runs the firm. FAMILY is 2 if one family controls  $\geq 50\%$  of the firm, 1 otherwise. NOWNER is the number of owners, and is coded 10 if the number of owners exceeds 10. SCORP is unity if the firm is an S-corporation, zero if the firm is a C-corporation. CAPSTRUC is the total liabilities-to-asset ratio. SALES is the log of sales.

#One percent of the observations in each tail of EBITDA, EBITDAS, and NI is deleted due to the presence of extreme observations. Taking logs considerably reduces the extremity of the observations, and, consequently, the log performance measures are not truncated at the tails.

**Table 5**  
**Correlations Among the Measures for NSSBF C- and S-Corporations in 1992**

	EBITDA	Ln(EBITDA)	EBITDAS	Ln(EBITDAS)	NI	Ln(NI)	OPEXP	DILUTE	HIGHCON	NOWNER	FAMILY	SCORP	MANAGE
Ln(EBITDA)	0.939												
p-value	<.0001												
EBITDAS	0.783	0.737											
p-value	<.0001	<.0001											
Ln(EBITDAS)	0.776	0.857	0.909										
p-value	<.0001	<.0001	<.0001										
NI	0.975	0.916	0.772	0.752									
p-value	<.0001	<.0001	<.0001	<.0001									
Ln(NI)	0.916	0.977	0.703	0.822	0.938								
p-value	<.0001	<.0001	<.0001	<.0001	<.0001								
OPEXP	-0.401	-0.511	-0.287	-0.428	-0.409	-0.498							
p-value	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001							
DILUTE	-0.022	-0.022	-0.006	-0.014	-0.030	-0.018	-0.015						
p-value	0.306	0.290	0.765	0.496	0.112	0.355	0.461						
HIGHCON	0.034	0.048	0.054	0.062	0.058	0.042	0.024	-0.428					
p-value	0.110	0.023	0.011	0.003	0.003	0.026	0.253	<.0001					
NOWNER	-0.087	-0.076	-0.095	-0.092	-0.088	-0.073	0.009	0.550	-0.471				
p-value	<.0001	0.000	<.0001	<.0001	<.0001	0.000	0.668	<.0001	<.0001				
FAMILY	0.020	0.031	-0.022	-0.019	0.049	0.042	-0.038	-0.326	0.268	-0.255			
p-value	0.345	0.134	0.307	0.369	0.010	0.026	0.068	<.0001	<.0001	<.0001			
SCORP	0.060	0.071	0.046	0.045	0.033	0.046	-0.026	-0.067	0.000	-0.097	0.054		
p-value	0.005	0.001	0.029	0.031	0.087	0.015	0.215	0.000	0.995	<.0001	0.005		
MANAGE	-0.044	-0.032	-0.019	-0.030	-0.016	-0.021	0.021	0.055	0.061	0.057	-0.041	-0.029	
p-value	0.039	0.131	0.366	0.150	0.410	0.264	0.314	0.004	0.001	0.003	0.029	0.128	
SALES	-0.093	-0.063	-0.158	-0.132	-0.057	-0.027	-0.034	0.199	-0.108	0.332	-0.058	-0.065	0.114
p-value	<.0001	0.003	<.0001	<.0001	0.003	0.163	0.105	<.0001	<.0001	<.0001	0.002	0.001	<.0001

EBITDA is earnings before interest, corporate income tax if any, and depreciation and amortization scaled by total assets. EBITDAS is earnings before interest, corporate income tax if any, depreciation and amortization, and owners' salary scaled by total assets. NI is net income scaled by total assets. OPEXP is operating expenses (total expenses less interest, corporate income tax if any, and depreciation and amortization) scaled by sales.  $\text{Ln}(X) = \text{Sign}(X) * \ln(1+|X|)$ . DILUTE is a dummy variable indicating if the primary owner owns strictly less than 50% of the firm. HIGHCON is a dummy variable indicating if the primary owner owns  $\geq 75\%$  of the firm. If the firm belongs to an SIC two-digit category with more than 4% representation in the sample, SIC is the two-digit code, else the one digit code. MANAGE is 2 if a hired manager who is not an owner runs the firm, and 1 if an owner runs the firm. FAMILY is 2 if one family controls  $\geq 50\%$  of the firm, 1 otherwise. NOWNER is the number of owners, and is coded 10 if the number of owners exceeds 10. SCORP is unity if the firm is an S-corporation, zero if the firm is a C-corporation. SALES is the log of sales.

**Table 6****OLS Regression of Performance Measures on Ownership Structure for NSSBF C- and S-Corporations in 1992**

Dependent Variable ⇒	EBITDA	EBITDA	Ln(EBITDA)	Ln(EBITDA)	EBITDAS	EBITDAS	Ln(EBITDAS)	Ln(EBITDAS)
Independent Variables ↓	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Coefficient (t-statistic in parentheses) Variance Inflation Factor							
INTERCEPT	0.975*** (4.210)	0.974*** (4.200)	0.331*** (2.800)	0.324*** (2.740)	2.704*** (7.950)	2.682*** (7.880)	0.948*** (7.310)	0.937*** (7.210)
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DILUTE	0.140* (1.930)	0.142* (1.910)	0.063* (1.670)	0.071* (1.850)	0.266** (2.480)	0.293*** (2.680)	0.080* (1.930)	0.094** (2.230)
	1.57	1.64	1.58	1.64	1.57	1.63	1.58	1.64
HIGHCON		0.007 (0.110)		0.032 (1.090)		0.107 (1.270)		0.055* (1.700)
		1.43		1.43		1.43		1.43
NOWNER	-0.036*** (-2.960)	-0.036*** (-2.780)	-0.017*** (-2.700)	-0.015** (-2.230)	-0.064*** (-3.540)	-0.056*** (-2.980)	-0.025*** (-3.590)	-0.021*** (-2.890)
	1.62	1.79	1.63	1.80	1.62	1.79	1.63	1.80
FAMILY	0.031 (0.520)	0.030 (0.500)	0.035 (1.150)	0.030 (0.980)	-0.065 (-0.730)	-0.080 (-0.900)	-0.020 (-0.590)	-0.028 (-0.830)
	1.17	1.20	1.17	1.20	1.17	1.20	1.17	1.20
SCORP	0.099** (2.050)	0.099** (2.060)	0.064** (2.570)	0.066*** (2.640)	0.104 (1.470)	0.111 (1.560)	0.039 (1.450)	0.043 (1.570)
	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
MANAGE	-0.072 (-1.280)	-0.073 (-1.290)	-0.025 (-0.870)	-0.029 (-0.980)	-0.033 (-0.400)	-0.045 (-0.540)	-0.033 (-1.040)	-0.039 (-1.220)
	1.05	1.06	1.05	1.06	1.05	1.06	1.05	1.06
SALES	-0.032** (-2.330)	-0.032** (-2.330)	-0.006 (-0.810)	-0.006 (-0.850)	-0.096*** (-4.670)	-0.097*** (-4.730)	-0.024*** (-3.070)	-0.025*** (-3.150)
	1.29	1.29	1.29	1.29	1.28	1.29	1.29	1.29
SIC Code Dummies	Yes***	Yes***	Yes***	Yes***	Yes***	Yes***	Yes***	Yes***
N	2,242	2,242	2,286	2,286	2,242	2,242	2,285	2,285
Adj. R <sup>2</sup>	0.026***	0.026***	0.019***	0.019***	0.054***	0.054***	0.053***	0.053***

EBITDA is earnings before interest, corporate income tax if any, and depreciation and amortization scaled by total assets. EBITDAS is earnings before interest, corporate income tax if any, depreciation and amortization, and owners' salary scaled by total assets. NI is net income scaled by total assets. OPEXP is operating expenses (total expenses less interest, corporate income tax if any, and depreciation and amortization) scaled by sales.  $\text{Ln}(X) = \text{Sign}(X) * \ln(1+|X|)$ . DILUTE is a dummy variable indicating if the primary owner owns strictly less than 50% of the firm. HIGHCON is a dummy variable indicating if the primary owner owns  $\geq 75\%$  of the firm. If the firm belongs to an SIC two-digit category with more than 4% representation in the sample, SIC is the two-digit code, else the one digit code. MANAGE is 2 if a hired manager who is not an owner runs the firm, and 1 if an owner runs the firm. FAMILY is 2 if one family controls  $\geq 50\%$  of the firm, 1 otherwise. NOWNER is the number of owners, and is coded 10 if the number of owners exceeds 10. SCORP is unity if the firm is an S-corporation, zero if the firm is a C-corporation. SALES is the log of sales.

\*, \*\*, \*\*\* represent two-tailed significance at 10%, 5%, 1%.



**Table 7**  
**OLS Regression of Performance Measures on Ownership Structure for NSSF C- and S-Corporations in 1992**

Dependent Variable $\Rightarrow$ Independent Variables $\downarrow$	EBITDA	NI	Ln(NI)	OPEXP
	(1)	(2)	(3)	(6)
	Coefficient (t-statistic in parentheses) Variance Inflation Factor			
	Sample with firms with one owner and firms with two equal owners eliminated	Full sample	Full sample	Full sample
INTERCEPT	1.400*** (4.580)	0.551** (2.310)	0.153 (1.260)	1.177*** (15.250)
DILUTE	0.00 (1.770)	0.00 (1.730)	0.00 (1.990)	0.00 (-1.730)
NOWNER	1.40 -0.033** (-2.550)	1.52 -0.043*** (-3.410)	1.53 -0.022*** (-3.390)	1.58 0.005 (1.250)
FAMILY	1.41 0.031 (0.400)	1.58 0.113* (1.890)	1.59 0.055* (1.790)	1.63 -0.044** (-2.160)
SCORP	1.34 0.108* (1.760)	1.15 0.061 (1.240)	1.15 0.050** (1.970)	1.17 -0.014 (-0.890)
CAPSTRUC	1.06	1.03 -0.068 (-0.880)	1.03 -0.057 (-1.440)	1.04
MANAGE	-0.118* (-1.650)	-0.016 (-0.290)	-0.022 (-0.760)	0.022 (1.180)
SALES	1.07 -0.055*** (-3.080)	1.04 -0.017 (-1.210)	1.04 0.004 (0.530)	1.05 -0.013*** (-2.730)
SIC Code Dummies F-statistic	1.30 Yes***	1.26 Yes***	1.26 Yes***	1.29 Yes***
N	1,208	2,713	2,768	2,287
Adj. R <sup>2</sup>	0.02***	0.016***	0.016***	0.008***

EBITDA is earnings before interest, corporate income tax if any, and depreciation and amortization scaled by total assets. NI is net income scaled by total assets. OPEXP is operating expenses (total expenses less interest, corporate income tax if any, and depreciation and amortization) scaled by sales.  $\text{Ln}(X) = \text{Sign}(X) * \ln(1+|X|)$ . DILUTE is a dummy variable indicating if the primary owner owns strictly less than 50% of the firm. If the firm belongs to an SIC two-digit category with more than 4% representation in the sample, SIC is the two-digit code, else the one digit code. MANAGE is 2 if a hired manager who is not an owner runs the firm, and 1 if an owner runs the firm. FAMILY is 2 if one family controls  $\geq 50\%$  of the firm, 1 otherwise. NOWNER is the number of owners, and is coded 10 if the number of owners exceeds 10. SCORP is unity if the firm is an S-corporation, zero if the firm is a C-corporation. CAPSTRUC is the total liabilities to asset ratio. SALES is the log of sales.

\*, \*\*, \*\*\* represent two-tailed significance at 10%, 5%, 1%.

**Table 8: Panel A****Endogeneity Test I: OLS Regression of Performance Measures on Ownership Structure for NSSBF C- and S-Corporations in 1992**

Dependent Variable ⇒ Independent Variables ↓	EBITDA (1)	EBITDA (2)	Ln(EBITDA) (3)	Ln(EBITDA) (4)	EBITDA (5)	EBITDA (6)	Ln(EBITDA) (7)	Ln(EBITDA) (8)
	Coefficient (t-statistic in parentheses) Variance Inflation Factor							
	Firms younger than the sample median age of 12 years				Firms older than the sample median age of 12 years			
INTERCEPT	0.757** (2.210)	0.729** (2.120)	0.232 (1.350)	0.211 (1.230)	1.258*** (3.840)	1.268*** (3.870)	0.504*** (2.930)	0.504*** (2.930)
DILUTE	0.090 (0.800)	0.110 (0.960)	0.031 (0.540)	0.046 (0.790)	0.187** (2.030)	0.164* (1.740)	0.093* (1.890)	0.093* (1.850)
HIGHCON		0.090 (1.030)		0.071 (1.590)		-0.082 (-1.110)		0.001 (0.030)
NOWNER	-0.048** (-2.270)	-0.041* (-1.820)	-0.019* (-1.720)	-0.013 (-1.110)	-0.026* (-1.860)	-0.031** (-2.110)	-0.015** (-2.050)	-0.015* (-1.940)
FAMILY	0.037 (0.430)	0.023 (0.260)	0.028 (0.620)	0.016 (0.360)	0.025 (0.310)	0.035 (0.430)	0.040 (0.940)	0.040 (0.930)
SCORP	0.052 (0.700)	0.058 (0.770)	0.025 (0.650)	0.029 (0.760)	0.136** (2.140)	0.130** (2.050)	0.104*** (3.100)	0.104*** (3.100)
MANAGE	-0.027 (-0.300)	-0.037 (-0.410)	0.000 (0.010)	-0.007 (-0.150)	-0.106 (-1.550)	-0.098 (-1.410)	-0.045 (-1.250)	-0.045 (-1.240)
SALES	-0.015 (-0.730)	-0.016 (-0.750)	0.003 (0.270)	0.002 (0.220)	-0.053*** (-2.800)	-0.051*** (-2.720)	-0.018* (-1.850)	-0.018* (-1.850)
SIC Code Dummies	Yes	Yes	Yes	Yes	Yes***	Yes***	Yes***	Yes***
N	1,161	1,161	1,187	1,187	1,081	1,081	1,099	1,099
Adj. R <sup>2</sup>	0.005	0.005	0	0	0.04***	0.04***	0.04***	0.04***

**Table 8: Panel B****Endogeneity Test II: OLS Regression of Performance Measures on Ownership Structure for NSSBF C- and S-Corporations in 1992**

Dependent Variable $\Rightarrow$	EBITDA	EBITDA	Ln(EBITDA)	Ln(EBITDA)
Independent Variables $\Downarrow$	(1)	(2)	(3)	(4)
	Coefficient (t-statistic in parentheses) Variance Inflation Factor			
Firms that did not raise new equity either from existing shareholders or new shareholders in the previous three years				
INTERCEPT	1.280*** (4.700)	1.277*** (4.680)	0.592*** (4.340)	0.582*** (4.260)
DILUTE	0.00 (2.060)	0.00 (2.040)	0.00 (2.080)	0.00 (2.300)
HIGHCON		0.011 (0.160)		0.043 (1.280)
NOWNER	-0.037*** (-2.630)	-0.037** (-2.460)	-0.018** (-2.500)	-0.015** (-1.990)
FAMILY	0.082 (1.190)	0.080 (1.150)	0.073** (2.100)	0.065* (1.860)
SCORP	0.128** (2.290)	0.129** (2.290)	0.083*** (2.930)	0.085*** (3.020)
MANAGE	-0.074 (-1.160)	-0.075 (-1.170)	-0.038 (-1.160)	-0.043 (-1.310)
SALES	-0.054*** (-3.300)	-0.054*** (-3.300)	-0.025*** (-2.990)	-0.025*** (-3.000)
SIC Code Dummies	1.29 Yes	1.29 Yes	1.29 Yes	1.29 Yes
N	1,754	1,754	1,788	1,788
Adj. R <sup>2</sup>	0.34***	0.34***	0.31***	0.32***

EBITDA is earnings before interest, corporate income tax if any, and depreciation and amortization scaled by total assets.  $\text{Ln}(X) = \text{Sign}(X) * \ln(1 + |X|)$ . DILUTE is a dummy variable indicating if the primary owner owns strictly less than 50% of the firm. HIGHCON is a dummy variable indicating if the primary owner owns  $\geq 75\%$  of the firm. If the firm belongs to an SIC two-digit category with more than 4% representation in the sample, SIC is the two-digit code, else the one digit code. MANAGE is 2 if a hired manager who is not an owner runs the firm, and 1 if an owner runs the firm. FAMILY is 2 if one family controls  $\geq 50\%$  of the firm, 1 otherwise. NOWNER is the number of owners, and is coded 10 if the number of owners exceeds 10. SCORP is unity if the firm is an S-corporation, zero if the firm is a C-corporation. SALES is the log of sales.

\*, \*\*, \*\*\* represent two-tailed significance at 10%, 5%, 1%.

**Table 9**  
**Distribution of Ownership Stakes for 51 Private Property-Casualty Insurers in 1998**

Number of families with greater than 10% ownership	N	Total ownership by families with greater than 10% ownership Mean (median) [standard deviation]	Ownership Stake of the Largest Owing Family		
			(0%,50%) DILUTE	[50%,75%)	[75%,100%] HIGHCON
All	51	68.9 (88.0) [39.4]	37%	12%	51%
1	33	86.4 (98.0) [22.8]	6.1%	15.1%	78.8%
2	4	74.6 (67.1) [17.2]	50%	50%	
3	2	85.3 (85.3) [20.8]	100%		
4	2	96.5 (96.5) [4.9]	100%		
0	10	0 (0) [0]	100%		

**Table 10**  
**Descriptive Statistics for 51 Property-Casualty Insurers in 1998**

	Mean	Median	Std. Dev.	Min	Max
EBT	0.049	0.046	0.045	-0.045	0.176
EBT\$	4,641,101	2,034,357	7,904,357	-7,974,948	36,370,199
NI	0.035	0.033	0.033	-0.032	0.118
NI\$	3,555,575	1,420,411	6,303,470	-5,795,327	29,192,976
ASSET\$	94,853,602	54,556,940	134,008,763	3,300,749	646,020,951
EXRATIO	1.05	1.00	0.28	0.35	2.09
SALES	17.64	17.81	1.23	15.01	20.29
AUTO	0.22	0.06	0.33	0.00	1.0
AandH	0.01	0.00	0.02	0.00	0.08
PERIL	0.20	0.07	0.28	0.00	1.00
NPE\$	24.5	12.7	31.8	0.19	159.5
NOWNER	3.04	1.00	3.54	1	10
MANAGE	1.33	1.00	0.48	1	2

EBT\$ is net income before income taxes. EBT is net income before income taxes divided by total assets. NI\$ is net income. NI is net income divided by total assets. ASSET\$ is total assets. EXRATIO is total operating expenses divided by net premiums earned. SALES is log of total net premiums earned. AUTO is net premiums earned in automobile lines divided by total net premiums earned. AandH is net premiums earned in accident and health lines divided by total net premiums earned. PERIL is net premiums earned in peril lines divided by total net premiums earned. NOWNER is the number of families with greater than 10% ownership or 10 if no family has greater than 10% ownership. MANAGE is 2 if a hired manager runs the firm, and 1 if an owner runs the firm. NPE is total net premiums earned in millions, and is a proxy for size.

**Table 11**  
**OLS Regression of Performance measures on Ownership Structure**  
**for 51 Property-Casualty Insurers in 1998**

Dependent Variable ⇒ Independent Variables ↓	EBT	NI	EXRATIO
	Coefficient (t-statistic in parentheses) Variance Inflation Factor		
INTERCEPT	-0.12 (-1.35) 0.00	-0.12* (-1.78) 0.00	1.66*** (2.96) 0.00
DILUTE	0.04* (1.86) 4.44	0.04** (2.26) 4.44	-0.39** (2.62) 4.44
HIGHCON	0.03 (1.54) 2.82	0.02* (1.70) 2.82	-0.18 (-1.64) 2.82
SALES	0.01* (1.7) 1.15	0.01* (2.09) 1.15	-0.03 (-0.89) 1.15
AUTO	-0.02 (-1.23) 1.04	-0.02 (-1.54) 1.04	0.18 (1.64) 1.04
AandH	-0.37 (-1.34) 1.15	-0.34 (-1.63) 1.15	0.10 (0.06) 1.15
PERIL	0.04* (1.88) 1.30	0.03** (2.12) 1.30	0.19 (1.38) 1.30
NOWNER	-0.010*** (-3.53) 3.85	-0.008*** (-3.61) 3.85	0.070*** (3.69) 3.85
MANAGE	0.022 (1.39) 2.09	0.021* (1.74) 2.09	-0.147 (-1.41) 2.09
Adj. R <sup>2</sup>	0.31***	0.30***	0.23***

\*, \*\*, and \*\*\* indicate two-tailed significance at 10%, 5%, and 1% respectively.

EBT is net income before income taxes divided by total assets. NI is net income divided by total assets. EXRATIO is total operating expenses divided by net premiums earned. DILUTE is a dummy variable indicating if the primary owner owns (0%,50%) of the firm. HIGHCON is a dummy variable indicating if the primary owner owns >= 75% of the firm. AUTO is net premiums earned in automobile lines divided by total net premiums earned. AandH is net premiums earned in accident and health lines divided by total net premiums earned. PERIL is net premiums earned in peril lines divided by total net premiums earned. NOWNER is the number of



families with greater than 10% ownership or 10 if no owner has greater than 10% ownership. MANAGE is 2 if a hired manager runs the firm, and 1 if an owner runs the firm. SALES is log of total net premiums earned. Since insurers cannot issue debt, there is no analog for CAPSTRUC.