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OWNERSHIP AND PERFORMANCE IN CLOSE CORPORATIONS:
A NATURAL EXPERIMENT IN EXOGENOUS OWNERSHIP STRUCTURE

Venky Nagar
Kathy Petroni
Daniel Wolfenzon

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**Ownership and Performance in Close Corporations:
A Natural Experiment in Exogenous Ownership Structure ***

Venky Nagar

venky@umich.edu

*University of Michigan Business School
University of Michigan
Ann Arbor, MI 48109*

Kathy Petroni

petroni@msu.edu

*Eli Broad School of Business
Michigan State University
East Lansing, MI 48824*

Daniel Wolfenzon

dwolfenz@stern.nyu.edu

*Stern School of Business
New York University
New York, NY 10012*

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Abstract

Close corporations account for 51 percent of the private sector output and 52 percent of all private employment in the US. Understanding governance issues facing these firms is therefore of considerable importance. Legal scholars extensively recommend that the main shareholder in close firms surrender some control to minority shareholders at the outset in order to improve overall firm performance. With shared control rights, no shareholder can take unilateral actions for her own benefit at the expense of the firm and other shareholders. In two independent samples of close corporations, we find this to be the case, with shared ownership firms reporting substantially larger return on assets (by 4 to 12 percentage points) and lower expense-to-sales ratios. An important reason why this result establishes the role of ownership in firm performance is the absence of a ready market for shares in close corporations. This illiquidity makes the ownership structure a historical, statistically *predetermined* measure, allowing us to sidestep the ownership endogeneity problem confronting ownership-performance studies of public firms.

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I. Introduction

The vast majority of firms in the U.S. are close corporations. 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. Understanding governance issues facing these firms is therefore of considerable importance. 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). With shared control rights, no shareholder can take unilateral actions for her own benefit at the expense of the firm and other shareholders.

The legal literature recommends shared ownership as a simple and effective way to achieve shared control (we discuss this issue in detail later). Yet, little empirical evidence exists on whether shared ownership is associated with higher performance in close corporations. Prior research extensively examines the empirical relation between ownership structure and firm performance in *publicly traded* firms, but several institutional factors confound the interpretation of the evidence. Taking the ownership structure as given, several studies find a relation between ownership and firm performance (Morck, Shleifer, and Vishny 1988; McConell and Servaes 1990; Faccio, Lang, and Young 2001; Claessens et al. 2002). However, Demsetz and Lehn (1985) challenge this argument, noting that a major distinguishing characteristic of public firms is the 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 is likely to be at the optimum, and, in a cross-sectional sample, should have no relation to performance. However, accounting for the endogeneity of ownership structure has proved to be difficult (Himmelberg, Hubbard, and Palia

1999), and low statistical power remains a compelling alternative explanation for why studies that control for endogeneity find no relation between ownership and firm performance (Zhou 2001).

We largely sidestep this problem in close corporations. Unlike public firms, it is costly to transfer ownership in close corporations. First, by definition, there is no market for shares of close corporations. In a pioneering decision, the court defined a close corporation as “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 Electrottype Co., 367 Mass 578, 586, 328 NE2d, 505, 511 (1975)). Second, participants of close corporations frequently enter agreements to restrict their own ability to transfers shares in order to control the identity of new shareholders and preserve the existing balance of power (Clark 1986, p. 762). Third, the one case in which ownership structure in close corporations must change is after the death of an owner. Short of a murder attempt by a business partner (e.g., People v. Hirschfeld, 282 A.D.2d 337; 726 N.Y.S.2d 3; 2001 NY), this is an infrequent exogenous event unrelated to firm performance. Bequests upon death are overwhelmingly evenly distributed among heirs (Bernheim and Severinov 2002), suggesting that the number of heirs is the driver of such ownership changes, rather than firm performance.

Therefore, while ownership is a choice variable when the firm is set up, high costs of adjustment makes ownership structure a historical, statistically *predetermined* measure and less of an endogenous choice variable a few years after the firm has been set up. Consequently, an analysis of close corporations can potentially be a more fruitful setting than publicly traded firms to test for an association between ownership structure and firm performance.¹

Endogeneity considerations aside, outside owners in public firms may also not have the necessary technical expertise in firm operations to monitor managers effectively (Morck, Shleifer, and Vishny 1988, p. 307) and therefore impact firm performance. Aghion and Tirole (1997), Burkart, Gromb and Panunzi (1997) and Tirole (2000) formalize this idea by showing that outsiders’ formal authority due to their

ownership does not automatically imply that outsiders have real authority to prohibit the manager's expropriation activities and improve firm performance. Consistent with this argument, Holderness and Sheehan (1988) find that outsider ownership patterns have little effect on firm performance for public firms. Instead, in a close corporation, shareholders are usually employed by the corporation (Clark 1986) and actively participate in operational decisions (see the *Donahue v. Rodd Electrotype Co.* definition above). The substantial expertise of all shareholders in running the corporation implies that formal authority confers real authority in closely held firms, and ownership structure can have a substantial impact on firm performance.

We assess the relation between control dilution and firm performance on two datasets of close corporations. Data on close corporations are hard to find since these corporations, as opposed to publicly held ones, do not have to report this --or for that matter any other-- information to the public. The first dataset is based on a large-scale survey (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 in Michigan 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.

In both datasets, we use ownership metrics to measure control dilution, and accounting performance metrics to measure performance. We assume that a firm has control dilution if no owner has a greater than or equal to 50% share of the outstanding equity. To measure performance, we first compute net income scaled by total assets. Actions that benefit controlling shareholders at the expense of the firm manifest themselves as lower revenues, higher costs, or unproductive assets, and should lead to lower net income relative to assets after controlling for other factors (e.g., number of owners, whether the

¹ In a similar vein, 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

firm is owner managed, firm size, capital structure, type of business, etc.). We find that, for both datasets, net income scaled by total assets is significantly and substantially higher by 4 to 12 percentage points for firms with diluted control relative to firms with one controlling shareholder and minority shareholders. We then compute a second performance measure --- expenses scaled by revenue --- and find that expenses relative to sales are significant lower by 4 to 39 percentage points for diluted control firms.

We also conduct several sensitivity analyses to further explore the ownership exogeneity issue. Ownership structure is more likely to be exogenous for older firms because the initial ownership structures in these firms are more likely to have arisen in response to *past* conditions rather than *current* conditions. We find that the control dilution-performance link holds in older firms. Ownership structure is also more likely to be exogenous for firms with a few shareholders, because the market for shares among few owners is a thin market. Once again, we find that our results hold in firms with fewer owners. We can directly test the stability of ownership structure for the insurance firms, because we can collect ownership data for multiple years (the NSSBF survey is a one-time cross-sectional survey). We find that the ownership structure was virtually unchanged in these firms across time, consistent with an illiquid market for shares. Finally, one can argue that some firms report low performance to avoid taxes, which has little to do with the controlling shareholder's misbehavior. We include controls in our tests for variation in the likelihood that a firm is reporting low performance for tax avoidance purposes and conclude that it is difficult to attribute our results to tax avoidance.

These findings have several implications for prior studies. Several studies examine risk-return tradeoffs in private firms (Heaton and Lucas 2000, Hamilton 2000). Moskowitz and Vissing-Jorgensen (2002) find little evidence of risk-premia in private firms. Speculating various reasons for their finding, Moskowitz and Vissing-Jorgensen (2002, Section V) argue that private pecuniary benefits of control are a viable explanation only if they are of the order of around 10 percent returns. Our finding suggests that this can very well be the case: net income scaled by total assets for firms with one controlling shareholder

investors to trade and change ownership structure in response to changing circumstances.

and minority shareholders (which is where pecuniary control benefits are maximum) is lower by 4 to 12 percentage points.

Our study also adds to the burgeoning literature on the agency problems in closely held corporations and on the available mechanisms to mitigate them. Ang et al (2000) analyze the conflict between management and ownership in close corporations, but do not focus on the impact of control dilution. Other work examines the role of venture capitalists in controlling managerial behavior either through sophisticated contracts (Kaplan and Stromberg, 2000) or through incentive schemes (Baker and Gompers 2000). The vast majority of our sample firms --- and close corporations in general --- do not have sophisticated investors such as venture capitalists who can design complex contracts or incentive schemes. As discussed later, prior legal evidence also suggests that closely held firms like those in our sample seldom use explicit contracts to mitigate expropriation. Therefore our evidence on techniques for controlling agency costs without the use of explicit complex contracts is relevant for the vast majority of close corporations.

Finally, our results also speak to the standard incentive argument that high (low) ownership provides high (low) incentives. In stark contrast to this argument, 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 manager has authority to take actions. If the manager'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.²

² 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.

The remainder of this paper is structured as follows. Section II motivates and develops the hypotheses based on prior theoretical and empirical literature. To test our hypotheses, we use two datasets, each with its own relative advantages. Sections III and IV describe the two datasets and the results. Section V concludes.

II. Theoretical Background and Hypothesis Development

2.1 Performance benefits of control dilution

A fundamental feature of close corporation ownership is that shareholders are typically few in number, knowledgeable about firm operations, and involved in management. The traditional owner-manager conflict therefore takes the form of abuse of power by the controlling shareholder (i.e., potential conflict among shareholders). Recent theoretical research on close corporations emphasizes the role of multiple large shareholders in mitigating this conflict (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 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).³

³ 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.

An implicit assumption of these models is that contracts are incomplete so that it is impossible to contractually specify the actions that the controlling shareholders will take. If these contracts were feasible, they would essentially eliminate expropriation and there would be no need to rely on the mechanisms described above. However, the assumption of incomplete contracts (Grossman and Hart, 1986) seems to be particularly relevant in this situation. Trial evidence suggests that the majority shareholders in close corporations are especially imaginative in their squeeze out techniques making it difficult for minority shareholders to anticipate these techniques and control for them using explicit contracts. Table 1 includes a list of sample techniques (taken from actual court cases). These techniques include eliminating minority shareholders from directorate and excluding them from company employment to force their acquiescence, high compensation to majority shareholders, 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, failure to enforce contracts for the benefit of the corporation, appropriation of corporate assets, contracts or credits for personal use, usurping corporate opportunities, whereby the majority shareholder privately enters into a transaction that would have otherwise belonged to the firm, and the corporation's purchases of shares from majority shareholders at high prices.⁴ In addition, even if complete contracts restricting the actions of the board of directors could be written, it would be difficult to enforce them. As Clark (1986) explains, courts are, in general, reluctant to enforce contracts that alienate the powers of the board of directors. In this setting where complete contracts cannot be written, shared control rights provide shareholders with the ex-post power to oppose actions that might not have been foreseen.

From an institutional perspective, 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.

⁴ La Porta et al (2000a) argue that investors can protect themselves from expropriation by forcing the firm to disgorge free cash flows as dividends. However, the above expropriation techniques 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.

Legal evidence also suggests little use of shareholder contracts. 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.⁵ 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.⁶ 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 understand the standard statutes, and minority investors have a better chance of obtaining legal relief in case of oppression by the controlling shareholder.

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, there is also the alignment of interest hypothesis (Jensen and Meckling 1976): when there is a controlling shareholder, the larger her stake, the stronger her incentives to improve firm value, and the smaller her incentives to engage in (costly) expropriation activities because she would be essentially diverting from herself. On the other hand, the alignment of interest or the incentive hypothesis predicts that low ownership provides low incentives to the controlling shareholder to create firm value. This is opposite to our prediction.

Prendergast (2002) challenges this incentive argument. His view is that the low ownership-low performance incentive hypothesis rests on two assumptions. First, low ownership incentives are too weak to motivate an effort-averse manager to improve firm value. More importantly, the second assumption is that the low ownership manager has the *authority* to consume perquisites, either in the *ex ante* form of not

⁵ 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.

⁶ 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.

doing anything in the first place, i.e., slacking and choosing projects carelessly, or in the *ex post* form of initially working hard and then expropriating all the returns for personal use. It is this second assumption that Prendergast (2002) challenges. He argues that a low ownership manager may not have such room to maneuver or misbehave. His point is especially relevant in close corporations where all shareholders have extensive experience in the firm. Shareholders in a shared control setting therefore have sufficient expertise to use their formal authority to take superior operational decisions, and can prevent the controlling shareholder from choosing projects carelessly with little effort and/or expropriating any subsequent returns for private use.⁷

To the extent the low incentive effects of shared control dominate other shareholders' ability to control the managing shareholder's *ex ante* shirking, i.e., slacking and choosing projects carelessly, or *ex post* expropriating all the returns for personal use, we should find a negative association between performance and shared control. This is a testable alternative hypothesis.

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 predicts a negative association between shared control and firm performance, which is counter to our main hypothesis and thus testable.

2.2 Endogeneity of ownership structure

Our tests regress performance measures on ownership structure and several control measures. The variation in the firm performance dependent variables could proxy for the firm's ex-ante

⁷ This aspect of close corporations also mitigates Tirole's (2000) and Aghion and Tirole's (1997) concerns that outside ownership may not be a powerful deterrent against expropriation because outsiders may not have the expertise and real authority to prohibit the manager's expropriation activities.

expropriation technologies or opportunities. In that case, the causality in our regression could be reversed, with our dependent performance variable being a determinant of the ownership structure.⁸

This endogeneity problem plagues studies of the relation between ownership and performance of publicly traded firms. Because of an active market for the firm's shares, ownership structure of a public firm is a flexible choice variable that can continuously respond to changes in the firm's environment and thus, in a cross-section, should bear no relation to firm performance (Demsetz and Lehn, 1985). In contrast, a close corporation does not have a liquid market for its shares, and participants of close corporations typically enter agreements to restrict their own ability to transfers shares.⁹ For these reasons, it becomes costly to adjust the ownership structure in a closely held firm once it has been established. Therefore, as the environment changes, ownership of closely held corporations stays unchanged. As a result, ownership structure can be viewed as an historical, statistically predetermined variable.¹⁰

In addition, in our sample of property casualty insurers, even the initial choice of ownership structure might not be related to the extent to which the controlling shareholder can benefit herself at the expense of the firm. The firms' production functions and investment opportunity sets are likely to be fairly constant within our sample of property casualty insurers, especially in light of regulatory constraints. For example, the types of investments that they can hold are fairly similar across all insurers. In this case, variation in ownership structure is largely determined by other factors such as the initial wealth of the founder and the wealth of the shareholders she had access to at the time of setting up the

⁸ As an example of how expropriation opportunities can determine ownership consider a businesses that mostly deals in cash transactions, such as a bar. Since the manager/owner would have more opportunities for expropriation than other businesses, investors would not be willing to buy shares in this business and, as a result, ownership would be concentrated. In a similar vein, La Porta et al (2000b) argue that expropriation technology is also a function of legal regime and show that ownership concentration varies systematically with these expropriation possibilities (investor protection). Since all our firms are US firms, this factor is automatically controlled for.

⁹ According to Clark 1986 (p. 762) shareholders enter these agreements, among other reasons, to control the identity of new shareholders and to preserve the existing balance of power.

¹⁰ For one of our samples we were able to collect ownership information for multiple years and found that ownership structure was virtually unchanged.

firm. We therefore, believe, that replicating the finding on the property casualty insurance sample helps to alleviate concerns over endogeneity.¹¹

2.3 Measuring Performance

To measure performance, Morck, Shleifer, and Vishny (1988), among others, use some variant of the market value of the firm's equity. We do not have market value of equity for close corporations (by definition), however, so we use underlying fundamentals. Accounting research finds that accounting measures such as net income are fundamental measures that investors use to value the firm (e.g., Dechow 1993). Our first measure of performance is therefore net income scaled by total assets, denoted NI. This variable is a comprehensive measure of performance capturing both ex-ante effort provision and ex-post expropriation of returns or consumption or perquisites. Higher effort provision by owners leads to higher values of NI. Actions that benefit the controlling shareholder at the expense of the firm affect current revenues and expenses, and others affect the asset base (e.g., the purchase of unproductive physical assets such as cars, office buildings --- see Table 1). Our NI measure reflects both expropriation in the balance sheet and the income statement. That is, NI will be low if revenues are low, or expenses are high, or if the booked assets are unproductive. Thus, tests using this measure are likely to be very powerful. However, as an additional test, we use as a second measure the ratio of total expenses to sales, denoted EXRATIO. Since this measure does not capture expropriation due to investments in unproductive capitalized assets, tests are likely to be less powerful. In any event, supporting empirical evidence with both these measures increases our confidence in the results.

We do not use more specific accounting measures such as dividends or costs of goods sold or SG&A expenses as the dependent variables, for several reasons. First, the use of *overall* performance measures (such as the investor valuation of equity) has overwhelming precedence (Morck, Shleifer, and

¹¹ 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

Vishny 1988; Himmelberg, Hubbard, and Palia 1999; Claessens et al. 2002). Second, the wide variety of expropriation and shirking mechanisms (see Table 1) suggests that narrower 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 more narrower ones.

Finally, 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. 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).

We use three variables to control for tax-related variation in earnings. Our first measure is an S- or a C- corporation dummy. Since S-corporation income is not subject to double taxation we expect tax avoidance to be less of an issue for S-corporations. Second, we use the number of shareholders, because 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 among more people and this is always difficult especially when a dissatisfied shareholder can threaten to go to the authorities. Third, we include whether the manager is an owner because this increases the likelihood that compensation can be used for tax avoidance purposes.

2.4 Measuring control dilution

From an empirical perspective, a precise measure of control dilution requires a model of the interactions between 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

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.

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.^{12 13}

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, 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 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

¹² Consistent with our empirical findings, Bennedsen and Wolfenzon (2000) also endogenously derive the optimality of one-share one-vote policy in close corporations. Grossman and Hart (1988) derive the optimality of one-share one-vote policy for public corporations as well, and La Porta et al (1999) present supporting empirical evidence. However, Kaplan and Stromberg (2000) find a considerable deviation from one-share-one-vote in their sample of venture-backed firms.

¹³ For this reason, we use the terms dilution of ownership and dilution of control interchangeably.

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 et al (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 most close corporations have few owners, who can collectively block the decisions of any owner who has less than 50% ownership, and courts are likely to defer to the blockage due to the majority rule.

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 smaller her incentives to engage in (costly) expropriation activities. Since this argument applies only to the range where there is a large 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.

2.5 Other factors influencing performance

In addition to the distribution of ownership among shareholders, another important and related aspect of ownership structure in close corporations that affects performance is the number of shareholders. In Bennedsen and Wolfenzon's (2000) the number of owners is negatively related to performance. The 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. Furthermore, as discussed in Section 2.3, the number of shareholders also partly controls for tax implications.

Since lenders have an incentive to monitor the firm, debt can also influence performance. However, as Rajan and Winton (1995) point out, the monitoring function of the lender is an *endogenous* activity that depends on the nature of the lending contract. Debt can be a mechanism by which the controlling shareholder subjects herself to the disciplining role of a monitor (such as a bank). Alternatively, debt can be the means by which the controlling shareholder expropriates. An obvious and much used example of this feature is for the majority shareholder to become a lender *himself* and charge the corporation high interest rates. For example, see *Beisenbach v. Guenther*, 446 F Supp 98,99 (ED Pa 1978), *affd* 588 F2d 400 (CA3 1978) where the captive board of directors increased the interest rate on a majority shareholder loan to the corporation. Given these considerations, it is not immediately clear if and how debt affects firm performance.¹⁴ However, we include measures of debt as a control. Furthermore, to the extent the variation in net income is driven by variation in the interest expense, the use of debt levels as a regressor controls for this effect.¹⁵

Finally, we include several other measures as controls. We include whether the manager of the firm is an owner to control for manger-owner agency effects on firm performance (Jensen and Meckling 1976) as well as tax incentives. We include industry and firm characteristics such as size and industry dummies to control for differences in underlying economic returns or differences in the controlling shareholder's misbehavior opportunities.

III. The NSSBF Sample: Data and Results

Our first sample is drawn from the National Survey of Small Business Finances (NSSBF), a survey conducted by the Federal Reserve Board to gather information about small businesses as of year-

¹⁴ Empirical evidence also indicates that the monitoring function of debt is very context dependent (e.g., Harvey et al. 2001).

¹⁵ Note that our insurers cannot issue debt. This should settle several concerns about debt driving our results.

end 1992. The main advantage of this dataset is that it is very large and representative of small business firms in the US.

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 et al., 2000, Petersen and Rajan, 1994, 1995), and is available to the public at large at 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 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.

3.1 Descriptive statistics

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.¹⁶

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 as discussed in Section I, represents firms with diluted ownership. The [50%, 75%) category represents

¹⁶ The skewness of the distribution of the number of owners is significant at the 1% level.

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.¹⁷

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 fifty-fifty, 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.

Table 4 provides descriptive statistics on the dependent performance measures and the independent variables used to control for differences in performance. Even though NI is scaled, it has extreme observations in both tails. To prevent these observations from dominating the regressions, we delete 1% of each tail (see Chen and Dixon, 1972). Nevertheless, the mean NI is 37%, much larger than the more reasonable median of 9%. Apart from truncating the sample size, another alternative to reduce the extremity of the observations is to make the monotonic transformation from x to $\text{sign}(x) \log(1+|x|)$. Since $\log(1+x) \approx x$ for small x , this transformation preserves the observations close to zero, while attenuating extreme observations. The expense ratio is relatively well behaved, with both mean and median being 97%.

MANAGE is a dummy variable that measures whether the manager is an owner. Table 4 indicates that nearly 75% of the managers are owners. Combined with the fact that 84% of the sample has four or less owners (Table 2), this result suggests that managers are likely to be substantive owners of the firm, and thus the governance problem is going to be one of shareholder conflicts. 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 performance. To control for the fact that family members in a firm can behave as one individual shareholder, we use the NSSBF survey question on family ownership, which inquires whether

¹⁷ 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 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.

one family controls more than 50% of the firm. The corresponding dummy variable is called FAMILY. The median number of owners is two. In firms with two or less owners, one owner has the majority, and therefore it is not surprising that 75% of the firms have majority family ownership.¹⁸

SCORP takes a value of unity if the firm is an S-corporation. Forty percent of the firms in the sample are S-corporations. We identify S-corporations in our tests because S- and C-corporations have different tax regimes. Since C-corporations are taxed at both the corporate and the personal level, individual shareholders can reduce taxes by receiving cash through salaries and other firm expenses rather than dividends. Thus, C-corporations are likely to have a lower NI. Finally, CAPSTRUC captures the capital structure of the firm and it is measured as total liabilities scaled by assets. SIZE is the log of sales. The firms in the sample vary on both CAPSTRUC and SIZE.

3.2 Effects of control dilution

The results of the multivariate regressions of our NI and EXRATIO measures on DILUTE and the control variables (MANAGE, FAMILY, NOWNER, SCORP, CAPSTRUC, and SIZE) are presented in Table 5. We also include dummy variables to denote industry affiliation by using SIC dummies. 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. The first, fourth, and seventh columns examine the performance of diluted control firms versus the remaining firms for three performance measures: NI, sign(NI) $\log(1+|NI|)$, which is denoted as $\log(NI)$, and EXRATIO. As predicted, the coefficients on DILUTE are positive and significant for both NI measures (coefficients = 0.126 and 0.074, t-statistic = 1.74 and 1.99), and negative and significant for EXRATIO (coefficient = -0.044, t-statistic = -1.97). The magnitudes of these coefficients are also relatively large. After controlling for other factors, diluted control firms' NI is on average 12.6 percentage points higher than the remaining firms. The expense ratio figure is much smaller; with diluted firms having 4 percentage points lower expenses than non-diluted

¹⁸ The large number of single-owner firms in the sample raises concerns because these firms have no dilution possibility. Sensitivity tests described later show that the results are robust to the exclusion of single-owner firms.

firms. The relatively lower coefficient on EXRATIO is consistent with the argument that majority shareholders use a variety of mechanisms to expropriate minority shareholders. A more comprehensive measure such as NI better captures the consequences of these various mechanisms, and therefore results in a more powerful test that shows larger effects relative to narrower measures such as EXRATIO.

The relatively large DILUTE coefficient on NI, 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 to be undiluted. One reason is the illiquidity of ownership. Ownership structure may have evolved over time (depending on exogenous factors such as the deaths and wills of original owners), and current shareholders may find it too costly to adjust their position. It is not perhaps surprising that there is a huge legal literature, notably the multi-volume O'Neal and Thompson (1985), dealing exclusively with litigation related to the squeeze-outs of minority shareholders in close corporations.

The prevalence of non-diluted firms and their lower reported performance also squares well with Moskowitz and Vissing-Jorgensen (2002), who find little evidence of risk-premia in private firms. Speculating various reasons for their finding, Moskowitz and Vissing-Jorgensen (2002, Section V) argue that private pecuniary benefits of control are a viable explanation only if they are of the order of around 10 percent returns. Our finding suggests that this can very well be the case: net income scaled by total assets for firms with one controlling shareholder and minority shareholders (which is where pecuniary control benefits are maximum) is lower by 12.6 percentage points.

We run several other variants of the regression. We first test 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. As a consequence, performance should improve. We include the HIGHCON dummy as an additional regressor in Table 5, Columns, 2, 5, and 8. 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.

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 being similar to columns 1, 3, and 7. 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.

In our definition of firms with diluted control, we do not include firms where the largest shareholder has exactly 50% ownership, our assumption being that this shareholder has absolute control. While a plausible assumption with three or more shareholders, it is not so if there are only two shareholders. We rerun the regression with a new dummy TIE, which indicates whether the largest owner has exactly 50%. The results are shown in Table 5, Columns 3, 6, and 9. The TIE dummy is insignificant, and has little impact on the magnitude of the coefficients on DILUTE and EXRATIO, suggesting that firms with 50% control are not confounding our analysis.

As discussed in Section I, the number of owners is also an important feature of ownership in close corporations. As predicted, NOWNERS is negatively associated with NI and log(NI) and positively associated with EXRATIO, the coefficients being significant at the 5% two-tailed level. We also drop all the single owner firms from our sample and re-estimate the regressions in Table 5. Once again, with the exception of Column 9, the coefficients on DILUTE are significant, suggesting that single-owner firms where shareholder conflicts are clearly absent are not confounding our analysis.

Other control variables behave in the predicted fashion. The SCORP dummy has a positive coefficient on NI and log(NI), consistent with the tax argument that C-corporations report lower profits to

avoid taxes. This tax interpretation of the SCORP dummy controls for any tax related variation in performance.

There is another version of the tax avoidance story. If the controlling shareholder reports lower NI to reduce taxes, other shareholders can threaten to go to the authorities with this information in order to extract rents from the controlling shareholder. The larger the number of other shareholders, the higher the risk that such a threat occurs and therefore the more reluctant the controlling shareholder is to reduce reported NI. Thus the tax story would predict lower NI numbers for firms with few owners and high NI numbers when the numbers of shareholders is large. This conclusion, however, is not supported by the data since the number of shareholders is negatively related to NI.

Finally, 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.

The leverage ratio, CAPSTURC, is not associated with overall performance. This is consistent with our prediction that monitoring by lenders regarding their senior claims has little effect on the expropriation among the junior claimants.¹⁹

The coefficient of MANAGE, a variable indicating whether the firm is run by a manager with an ownership stake, is almost always insignificant, suggesting that the firm faces little agency problems with respect to external managers. This result is to be expected, for unlike public corporations, shareholders in private corporations are well informed, take active interest in firm operations, and can therefore directly monitor the external manager. Ke et al (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.

Our results on ownership structure differ from Ang et al's (2000) study of close corporations using the same dataset. They find that ownership stake of the majority owner is linearly positively

¹⁹ Although in a different setting, La Porta et al (2000a, p. 26) find little evidence that debt mitigates expropriation problems among owners.

associated with performance. However, their performance measures are different than ours. They exclude costs of good sold, interest expense, and managerial compensation from their definition of expenses. We do not make these adjustments to total expenses because, as indicated in Table 1, majority shareholders can expropriate by paying themselves a lot or by cutting deals with creditors and suppliers to benefit themselves at the expense of the firm. Further, our dilution and alignment effect predictions imply a non-linear relationship between ownership and performance, which cannot be addressed with a linear specification used by Ang et al (2000).²⁰

The above argument also raises the question as to why we use a dummy ownership variable that is a constant within the diluted category, as opposed to using a 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. Since we only have the stake of the largest shareholder, we cannot include a more continuous measure of ownership within the diluted category.

3.3 Sensitivity Analyses

We conduct several additional tests to explore the exogeneity of the ownership structure. One could argue that ownership structure is more of an endogenous variable for younger firms, because the initial ownership structures in these firms are more likely to have arisen in response to *current* conditions. In contrast, ownership structures for older firms, initially having been designed for *past* conditions, are less likely to suffer from this problem. We therefore drop all firms younger than the first quartile age (7 years) and rerun all the regressions in Table 5. All the coefficients on DILUTE in models (1)-(9) have the expected sign and retain their significance at the 10% two-tailed level. We then drop all firms younger

²⁰ This argument has also been made in the context of public corporations. Morck, Shleifer, and Vishny (1988) argue that a test that incorporates both the entrenchment and the alignment effects of managerial ownership requires a non-linear specification. They point to this non-linearity as a reason why they find different results than Demsetz

than median age (12 years) and rerun all the regressions in Table 5. The coefficient on DILUTE retains its sign in all the nine regressions, but is significant at the 10% two-tailed level only in models (4), (5), (7), and (8).

The market for shares is also likely to be less liquid for firms with fewer shareholders. In such firms, buyers can easily form coalitions and extract huge concessions from the sellers. Alternatively, none of the remaining few owners may have the money to buy out a minority shareholder who wishes to sell. Therefore, ownership structure is likely to be more exogenous in these firms. We repeat the analyses dropping all firms with more than six shareholders. All the coefficients on DILUTE in models (1)-(9) have the expected sign and, except column (9), retain their significance at the 10% two-tailed level. We then drop all firms with more than five shareholders. The results in Table 5 continue to hold --- all the DILUTE coefficients in Table 5 have the predicted signs, and except columns (6) and (9), significant at the 10% two-tailed level.

We use levels regressions of performance on ownership structure. Some studies advocate the regression of performance changes on ownership changes to effectively control for the endogeneity of ownership structure (e.g., Himmelberg, Hubbard, and Palia 1999). However, such tests have very low power to detect any relation (Zhou 2001). In any event, the NSSBF dataset is a cross-sectional dataset, precluding any panel regressions. We can determine annual ownership changes for the insurance dataset in Section 4, but, consistent with Zhou's (2001) argument, we find very little ownership changes across time. We turn to the insurance sample next.

IV. Property-Casualty Insurers: Data and Results

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. Second, unlike

and Lehn (1985), who like Ang et al (2000), test only the alignment effect and therefore use a linear specification (see Morck, Shleifer, and Vishny 1988 p. 295 for details).

the NSSBF sample that spans several industries, insurance companies have a fairly homogeneous production function, increasing the comparability among the observations. This homogeneity also extends to financing. Insurance companies do not issue debt, so there are no lender-owner confounding effects. Consequently, as discussed previously, the opportunities for misbehavior by the controlling shareholder are likely to be similar across these insurers, mitigating concerns about reverse causality. Third, unlike the previous sample, there are no tax-related and other incorporation effects: all firms in this sample are C-corporations. Fourth, 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. Finally, the performance measures used in the analysis are highly reliable, as they are derived from audited annual statements that follow Statutory Accounting Principles. An important implicit assumption in Section II 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.

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 Ys 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.²¹ We used these reports 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.²² 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.

4.1 Descriptive statistics

Table 6 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 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., have one shareholder owning more than 75%, which we denote as HIGHCON. Diluted ownership where the largest shareholder holds less than 50% comprises 37% of our sample. This is a fairly large

²¹ 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.

²² Some of the owners are identified as family trusts. We combine ownership by family trusts with ownership by individual family members.

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.

Our aim is to replicate the performance regressions used for the NSSBF sample. Consequently, to the extent possible, we construct the same regressors for the insurance sample. Table 7 reports descriptive statistics on these variables. We use NI and EXRATIO as the dependent variables. Reflecting the homogeneity of the insurance industry as well as our sample selection criteria, NI and EXRATIO are better behaved than 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.

NOWNER denotes the number of owners 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. Since family ownership issues are already accounted for in the ownership measures, we do not use a family variable. MANAGE measures whether the manager of the firm is an owner, approximately one third of the insurers are owner-managed.²³ Finally, there are no lender-related measures because insurers are not allowed to issue debt.

NI and EXRATIO are affected by several other firm characteristics. We measure SIZE 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.²⁴ These controls are analogous to the SIC codes for

²³ Management of insurers is described by name in Best's Insurance Reports, which we match against the Schedule Y.

²⁴ 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

the NSSBF sample. Finally, since all the insurance firms are C-corporations, we do not use an incorporation dummy.

4.2 Effects of control dilution

Table 8 reports the results of the multivariate performance regressions. We include the HIGHCON dummies, similar to Columns 2 and 7 in Table 5. The NI and EXRATIO regressions are explanatory with R^2 s of 30% and 23%.²⁵ This figure is much higher than the R^2 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 NI (EXRATIO) regression (coefficients = 0.04 and -0.39, t-statistic = 2.26 and 2.62). Diluted firms' NI exceeds 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 percent.

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 coefficient on HIGHCON in the EXRATIO regression is negative (as expected) but not significant. As expected and consistent with results on the NSSBF sample the coefficients on NOWNER is significantly negative (positive) in the NI (EXRATIO) regressions.

4.3 One-Share One-Vote Policy and Ownership Changes across Time

As discussed in Section I, 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

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.

²⁵ 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).

only four insurers in our sample have dual-class shares (e.g., non-voting common stock or voting 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, 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 of ownership, 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.

That none of the surviving firms changed ownership category is reassuring, because it is a *direct* test of our exogeneity assumption of close corporation ownership structure. It also indicates that regressions of performance changes on ownership structure changes will have *zero* power, supporting Zhou's (2001) argument that changes regressions are not the most powerful way to control for the endogeneity of ownership.

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.

V. Conclusion

Ninety-nine percent of the firms in the United States are close corporations. These 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, thus creating a substantial overlap between management and ownership. Consequently, the main governance problem in these firms is the squeeze out of minority shareholders by the majority shareholders, generating a vast amount of litigation (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). We provide one of the first empirical tests on the issue by demonstrating that performance is higher for firms with diluted control. An important reason why we can interpret this result as illustrating the role of ownership in firm performance is the absence of a ready market for shares in close corporations. This illiquidity makes the ownership structure a historical, statistically *predetermined* measure, allowing us to sidestep the ownership endogeneity problem confronting ownership-performance studies of public firms.

A major practical problem facing empirical research on close corporations is the difficulty in acquiring detailed data on their governance features. However, given the significant role of these firms in the economy, acquiring such data to conduct more involved empirical tests would be a worthwhile endeavor.

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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 & 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
NI	2,719 [#]	0.37	1.25	-3.82	0.09	11.54
sign(NI)* log(1 + NI)	2,774	0.20	0.65	-4.06	0.09	4.08
EXRATIO	2,770	0.97	0.39	0	0.97	10
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
SIZE	2,770	13.95	1.90	6.91	13.91	19.63

NI is net income scaled by total assets. EXRATIO is total expenses scaled by sales. 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. SIZE is the log of sales.

[#]One percent of the observations in each tail of 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
OLS Regression of Performance Measures on Ownership Structure
for NSSBF C- and S-Corporations in 1992

Dependent Variable ⇒ Independent Variables ↓	NI (1)	NI (2)	NI (3)	log(NI) (4)	log(NI) (5)	log(NI) (6)	EXRATIO (7)	EXRATIO (8)	EXRATIO (9)
	Coefficient (t-statistic in parentheses)								
INTERCEPT	0.551** (2.31)	0.541** (2.26)	0.485* (1.93)	0.153 (1.26)	0.149 (1.23)	0.148 (1.15)	1.316*** (18.10)	1.312*** (18.03)	1.305*** (17.05)
DILUTE	0.126* (1.74)	0.144* (1.94)	0.172** (2.05)	0.074** (1.99)	0.080** (2.11)	0.081* (1.89)	-0.044** (-1.97)	-0.037* (-1.62)	-0.033 (-1.29)
HIGHCON		0.068 (1.18)	0.099 (1.37)		0.024 (0.80)	0.025 (0.67)		0.027 (1.54)	0.031 (1.40)
TIE			0.058 (0.71)			0.002 (0.05)			0.007 (0.29)
NOWNER	-0.043*** (-3.41)	-0.038*** (-2.88)	-0.036*** (-2.71)	-0.022*** (-3.39)	-0.020*** (-2.97)	-0.020*** (-2.92)	0.010*** (2.59)	0.012*** (2.94)	0.012*** (2.95)
FAMILY	0.113* (1.88)	0.103* (1.71)	0.113* (1.82)	0.055* (1.79)	0.052* (1.66)	0.052 (1.63)	-0.046** (-2.50)	-0.050*** (-2.68)	-0.049** (-2.56)
SCORP	0.061 (1.24)	0.064 (1.29)	0.064 (1.29)	0.050** (1.97)	0.051** (2.01)	0.051** (2.01)	-0.014 (-0.90)	-0.012 (-0.81)	-0.012 (-0.82)
CAPSTRUC	-0.068 (-0.88)	-0.070 (-0.90)	-0.070 (-0.90)	-0.057 (-1.44)	-0.058 (-1.46)	-0.058 (-1.46)	0.076*** (3.23)	0.076*** (3.20)	0.076*** (3.20)
MANAGE	-0.016 (-0.29)	-0.024 (-0.42)	-0.024 (-0.43)	-0.022 (-0.76)	-0.024 (-0.84)	-0.024 (-0.84)	0.030* (1.77)	0.028 (1.59)	0.028 (1.59)
SIZE	-0.017 (-1.21)	-0.018 (-1.27)	-0.018 (-1.24)	0.004 (0.53)	0.004 (0.49)	0.004 (0.49)	-0.025*** (-5.72)	-0.025*** (-5.80)	-0.025*** (-5.79)
SIC Code Dummies F-statistic	2.39***	2.38***	2.37***	2.76***	2.75***	2.74***	2.32***	2.29***	2.30***
N	2,713	2,713	2,713	2,768	2,768	2,768	2,770	2,770	2,770
Adj. R ²	0.016***	0.016***	0.016***	0.016***	0.016***	0.016***	0.022***	0.022***	0.022***

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

NI is net income scaled by total assets. $\log(\text{NI})$ is $\text{sign}(\text{NI}) * \log(1 + |\text{NI}|)$. EXRATIO is total expenses scaled by sales.

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. TIE is a dummy variable indicating if the primary owner owns exactly 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. SIZE is the log of sales.

Table 6
Distribution of Ownership Stakes for 51 Private Property-Casualty Insurers in 1998

Number of owners with greater than 10% ownership	N	Total ownership by owners with greater than 10% ownership Mean (median) [standard deviation]	Ownership Stake of the Largest Owner		
			[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 7
Descriptive Statistics for 51 Property-Casualty Insurers in 1998

	Mean	Median	Std. Dev.	Min	Max
NI	0.035	0.033	0.033	-0.032	0.118
EXRATIO	1.05	1.00	0.28	0.35	2.09
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

NI is net income divided by total assets. EXRATIO is total operating expenses divided by 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 owners 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. NPE is total net premiums earned in millions, and is a proxy for size. Since insurers cannot issue debt, there is no analog for CAPSTRUC.

Table 8
OLS Regression of Performance measures on Ownership Structure
for 51 Property-Casualty Insurers in 1998

Dependent Variable ⇒ Independent Variables ↓	NI	EXRATIO
	Coefficient (t-statistic)	
INTERCEPT	-0.12* (-1.78)	1.66*** (2.96)
DILUTE	0.04** (2.26)	-0.39** (2.62)
HIGHCON	0.02* (1.70)	-0.18 (-1.64)
SIZE	0.01* (2.09)	-0.03 (-0.89)
AUTO	-0.02 (-1.54)	0.18 (1.64)
AandH	-0.34 (-1.63)	0.10 (0.06)
PERIL	0.03** (2.12)	0.19 (1.38)
NOWNER	-0.008*** (-3.61)	0.070*** (3.69)
MANAGE	0.021* (1.74)	-0.147 (-1.41)
Adj. R ²	0.30***	0.23***

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

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 $\geq 75\%$ 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 owners 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. SIZE is log of total net premiums earned. Since insurers cannot issue debt, there is no analog for CAPSTRUC.