The Effects of Ownership Concentration and Identity on Investment Performance: An International Comparison*

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Abstract:

This article makes two important contributions to the literature on the incentive effects of insider ownership. First, it presents a clean method for separating the positive wealth effect of insider ownership from the negative entrenchment effect, which can be applied to samples of companies from the US and any other country. Second, it measures the effects of insider ownership using a measure of firm performance, namely a marginal *q*, which ensures that the causal relationship estimated runs from ownership to performance. The article applies this method to a large sample of publicly listed firms from the Anglo-Saxon and Civil law traditions and confirms that managerial entrenchment has an unambiguous negative effect on firm performance as measured by both Tobin's (average) *q* and our marginal *q*, and that the wealth effect of insider ownership is unambiguously positive for both measures. We also test for the effects of ownership concentration for other categories of owners and find that while institutional ownership improves the performance in the USA, financial institutions have a negative impact in other Anglo-Saxon countries and in Europe.

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I. Introduction

The possibility of a conflict of interests between a firm's managers and owners can be traced at least as far back as the classic study of Berle and Means (1932) documenting the existence of a "separation of ownership from control." Since their book appeared numerous studies have hypothesized about the nature of the conflict between managers and owners, and/or attempted to measure the economic consequences of this conflict.[1] This literature, implicitly or explicitly, has assumed an "Anglo-Saxon" corporate governance structure. A firm's owners are its shareholders; shares are widely dispersed, so that no outside shareholder has a strong incentive to monitor managers carefully; managers do not hold large fractions of their companies' shares, and thus do not have the same financial interest in the firm as the shareholders. When managers held a large fraction of the shares, as say ten percent, it was assumed that they identified with the shareholders and maximized their wealth.[2]

In a seminal article, Mørck, Shleifer and Vishny (1988, hereafter MSV) highlighted a second feature of insider ownership – the larger the fraction of a company's shares held by its managers, the more *entrenched* they are. Thus, insider ownership has two conflicting effects: (1) an alignment effect -- as the number of shares held by the insiders increases, the effect on their wealth of a rise in the firm's market value increases; (2) an entrenchment effect – the likelihood of replacement through a proxy fight or takeover declines as the managers' shareholdings increase giving them more discretion to pursue their own goals.

MSV presented evidence of a relationship between the shareholdings of a company's board of directors and Tobin's *q*. Tobin's *q* rose from around 0.75 when the board held no shares to roughly 1.0, when it held 5 percent, and then fell reaching a value of only 0.7, at a holding of 25 percent of outstanding shares. From this point on *q* again rose. MSV attributed this nonlinear pattern to the alignment effect dominating over the first and third ranges of ownership concentration and the entrenchment effect dominating over the middle range.

Several subsequent studies reported similar up/down/up relationships between performance and ownership concentration (Cho, 1988; Short and Keasey, 1999; Cosh, Guest and Hughes, 2000;

and Gugler, Mueller and Yurtoglu, 2004). McConnell and Servaes (1990, 1995) observed only the first part of the curve – an inverted parabola – in their US data, as did Thomsen and Pedersen (2000) in data from Europe.[3] Again the interpretation for these nonlinearities has been that a single variable – ownership concentration – has two conflicting effects on company performance.

It would clearly be preferable to capture the two effects of insider ownership with two separate variables. An important contribution of this article is to employ one variable to capture the positive wealth effect on firm performance that comes with insider ownership, and a second variable to capture its negative entrenchment effect. We find a strong and unambiguous *positive* effect on company performance from managers' wealth holdings in their firms, and an equally unambiguous *negative* entrenchment effect, once these two effects are separated.

As noted above, the institutional environment implicitly assumed in this literature has been that of an Anglo-Saxon country, and most of the empirical work has used data from the United States. A second important contribution of this article is to extend the methodology to countries with other corporate governance structures. We do this in two ways. First, we estimate the wealth and entrenchment effects from insider ownership for two other samples of countries – five Anglo-Saxon countries other than the US, and for a sample of Continental European countries. Second, we test for the existence of analogous effects when outside institutions are the largest shareholder. We do this for two categories of institutions – other, non-financial firms and finance institutions (banks and insurance companies).

Most contributions to this literature have followed MSV and used Tobin's q to measure company performance. Starting with Harold Demsetz (1983), however, several authors have questioned whether ownership concentration can properly be treated as an exogenous variable in studies of firm performance.[4] In industries in which agency problems could significantly lower a firm's market value, ownership might remain concentrated to mitigate agency problems, while in industries in which the performance of managers could be easily judged, the advantages of diversifying shareholdings dominate and ownership becomes dispersed. The third major contribution

of this article is to employ a measure of firm performance, which does not suffer from this endogeneity problem – namely a *marginal q.*

We proceed as follows: The main methodological issues and models to be tested are discussed in the following section. The US data are discussed in Section III, with results for the US presented in Section IV. In Section V the insider ownership model is estimated for samples of countries with Anglo-Saxon or civil law legal systems. Estimates of the model for other ownership categories are presented in Section VI. Conclusions are drawn in the final section.

II. Methodological Issues

A. Separating the Wealth and Entrenchment Effects of Insider Ownership

The fraction of shares held by insiders (*IS*) is clearly the appropriate variable for measuring the entrenchment effect. As *IS* rises it becomes increasingly difficult to displace the managers through a proxy contest or hostile takeover. Thus, when one considers only the entrenchment effect, one predicts a negative relationship between *IS* and firm performance.

As a measure of the positive wealth effects of insider ownership, *IS* is problematic. Consider, for example, the consequences of a decision by empire-building managers to acquire another firm, even though the merger will produce no net gain in wealth.[5] The acquirer must offer the shareholders of the other firm a premium of typically 20-30 percent over their pre-bid price to get them to give up their shares. If the target is 30 percent of the size of the acquirer and the premium is 30 percent of its market value, the premium equals 9 percent of the acquirer's market value, and the acquirer's shareholders suffer a 9 percent loss in wealth from a merger that generates no net wealth.[6] The wealth loss to the managers is proportional to the *value* of their holdings, not to their size as a percent of outstanding shares. A manager owning $10 million of her company's shares has the same financial incentive to raise their price, regardless of whether her holdings constitute one percent of outstanding shares or 15 percent. A ten percent increase in her company's share price makes her a million dollars richer regardless of the *fractional* size of her holdings. Thus, for all managerial decisions having a *proportional effect* on the value of the firm, the proper variable for measuring the wealth effects of these decisions is the *value* of insiders' shareholdings (*VS*).[7]

For some decisions, it is better to assume an *absolute effect* on the firm's market value. For example, if the managers award themselves a $20 million bonus, this reduces the value of the firm by the amount of the bonus. The cost of this award to the managers is directly related to the fraction of shares held by them. Thus, *IS* will also capture the effects on insiders' wealth from decisions having an absolute effect on the value of the firm.

For investment decisions like mergers, the most reasonable assumption to make is that they have proportional effects on market values and insiders' wealth. Both measures of performance that we use, Tobin's (average) q and marginal q, will be more sensitive to decisions with proportional effects than to decisions with absolute effects. *VS* is thus the appropriate variable for capturing the wealth effects for these types of decisions. We shall interpret *IS* as capturing the entrenchment effect of insider ownership, but recognize that it can also capture the effects of decisions having an absolute effect on managers wealth.[8]

Claessens, Djankov, Fan and Lang (2002, hereafter CDFL) have also attempted to separate the wealth and entrenchment effects of insider ownership. They take advantage of the highly concentrated shareholdings in East Asian countries, and the fact that cash flow and control rights sometimes differ for large shareholders. CDFL claim to measure the wealth effect of ownership with a measure of cash flow rights, and the entrenchment effect using control rights of large shareholders.

Although we find this method for separating the two effects of ownership to be quite innovative, it nevertheless has several shortcomings compared to our approach. Most significantly, it cannot be applied to the US, since the kinds of corporate pyramids and multiple-vote shares that lead to divergences between cash flow and control rights in East Asia are largely absent in the US, and many firms have no large shareholders. Furthermore, even where large shareholders are important, as in Germany, control and cash flow rights are the same for most shareholders. Nevertheless, the entrenched position of large shareholders can lead to rent extraction by them. Gugler and Yurtoglu (2003b) find for German companies, for example, that unconstrained large shareholders have detrimental effects for minority shareholders, even though cash flow and control rights may be equal, provided that they are less than 100%.

Although corporate pyramids and multiple-vote shares can produce a divergence between cash flow and control rights, in countries where these institutions are common cash flow and control rights remain identical for most firms. Claessens et al. (2000, p. 100) and Faccio and Lang (2002, p.392) report identical cash flow and control rights for the median firm in East Asia and Western Europe, respectively. The same is true for samples of companies from Germany and Turkey, where pyramids and multiple-vote shares are also important.[9] This large overlap between cash flow and control rights naturally leads to high positive correlations between the two variables. In the German sample the Pearson correlation between cash flow and control rights was 0.71, for Turkey it was 0.47.[10] For the United States, of course, it would be near one. In contrast, the two variables that we use to measure the wealth and entrenchment effects are nearly uncorrelated (r = -0.15). Thus, our methodology can be applied to samples where large shareholders are relatively rare, to samples with large shareholders and no separation of cash flow and control rights, as well as to samples with large shareholders and a separation of cash flow and control rights, while the CDFL methodology is applicable only in the last of these three cases.

B. Endogeneity Issues

As noted in section I, a main criticism against using managerial shareholdings to explain company performance has been that ownership structure is not exogenous, when a measure of *average* performance like Tobin's *q* is the dependent variable. So that our results can be compared with the rest of the literature, we shall use Tobin's *q* as one measure of firm performance. Our second measure of performance is an estimate of *marginal q* – the ratio of a firm's return on investment to its cost of capital.[11] This measure of performance does not suffer from any endogeneity problem.

The fractional holdings of managers may, of course, be endogenous to the nature of the investment *opportunities* of a firm. Managers of firms with high risk investment opportunities may choose to hold smaller fractions of their companies' shares. Companies with risky investment opportunities face higher costs of capital, and must earn higher returns from their investments to maximize their shareholders' wealth. However, the predicted *ratio* of returns on investment to cost of capital is the same for all firms, which maximize shareholder wealth. On the last dollar invested it

should equal 1.0. If all managers maximized shareholder wealth, all firms would have *qm*s equal to or slightly greater than 1.0 *regardless of the nature of their investment opportunities*.[12] Marginal *q* would be independent of managerial shareholdings and all other variables. If, on the other hand, managers who are secure in their positions invest more than the amount, which maximizes shareholder wealth, *qm*s will differ across firms, and these differences will be related to the degrees to which managers' investment decisions deviate from those that would maximize their shareholders' wealth. The incentive to deviate will in turn depend upon the degree of managerial entrenchment and the wealth effects of managers' shareholdings – the variables in our model. Causality *must* run from the variables that determine managers' incentives to invest (i.e. *IS* and *VS*) to the investments themselves, which in turn determine the returns on these investments (i.e. *qm*). Managers choose investment levels, investment levels do not determine managers, or the characteristics of their shareholdings. If the relationships between average *q* and the other variables in the model are also observed for marginal *q,* we can be reasonably sure that the relationship is not driven by simultaneity problems. If, on the other hand, the results for the two choices of dependent variables differ, it is the results for *qm* that will not suffer from simultaneous equation bias.

C. Model Specification

If managers are risk averse, their utility will increase nonlinearly with their wealth, and a nonlinear relationship between the value of their shareholdings and company performance can be expected. We capture this nonlinearity by including both linear and quadratic terms in *VS* in the equation with a positive coefficient predicted for *VS* and a negative coefficient for VS^2. The negative entrenchment effect of insider ownership (*IS*) is assumed to be linear.[13]

While entrenchment can be expected to increase with the size of managerial shareholdings, keeping this fraction constant, managerial entrenchment may also increase with the *size* of the firm (*S*). With a perfect capital market an outsider could always raise the necessary money to takeover a poorly performing company, and size would be no protection for managers engaging in substantial on-the-job consumption. But if capital markets are less than perfect, size may offer managers some protection against takeovers. A second reason for expecting a negative relationship between size and

firm performance, measured as either average or marginal *q*, is that small companies may find it difficult to raise sufficient funds to finance all of their wealth-creating investments due to asymmetric information problems, and thus their *q*s lie above one.[14] There are, of course, still other reasons why firm size and performance might be related. To the extent that firm size is related to market shares a positive relationship between size and performance might be expected, due to market power or efficiency effects. To the extent that size is related to diversification, a positive relationship would be expected, if diversification improves performance, a negative relationship, if it worsens performance. Although we treat size as a second measure of managerial entrenchment, the reader is of course free to interpret its effect in other ways, when *average q* is the performance measure. When marginal *q* is the dependent variable, however, a negative relationship between firm size and *q* can only arise if managers of large firms *over* invest as a result of managerial entrenchment, or *under* invest due to asymmetric information problems.

Although it is reasonable to assume that managerial shareholdings produce conflicting incentive effects, the same cannot be said for the shareholdings of outsiders. In recent years, mutual and pension funds have become an important class of shareholders in the US. We expect these institutional shareholders to be interested only in share performance and predict, therefore, that managers' discretion to pursue their own goals declines with the fraction of a company's shares held by institutional shareholders, *IT*.

The R&D to sales ratio, *RD,* is included as an additional control variable. Firms with attractive opportunities to innovate are likely to spend more on R&D than other companies, and earn monopoly rents from their innovations. These firms will have relatively high infra-marginal returns on capital that will be reflected in higher *average q*s than other firms.[15] There is less reason to expect a positive relationship between *marginal q* and *RD*, however. If firms maximized shareholder wealth, all would have the same marginal *q*, namely 1.0, and there would be no relationship between *marginal q* and R&D. On the other hand, firms that spend a lot on R&D may have more attractive investment opportunities. These may allow managers to satisfy their desires for growth without overinvesting, or

at least without overinvesting as much as do managers of firms with limited investment opportunities. This reasoning implies a positive relationship between *RD* and marginal *q*.

Leverage might be yet another candidate for inclusion in the model. A difficulty arises in including leverage in our *q*-equations, however, in that it is itself likely to be a function of some variables in our model. Indeed, several different hypotheses for why leverage should be a function of insider concentration have been advanced.[16] Thus, both leverage and firm performance can be expected to be functions of the variables that measure managerial incentives and constraints.[17] Since our goal is not to contribute to the literature on the determinants of leverage, we do not construct a model to explain it nor include it in our model. We justify this decision on the grounds that leverage *does not belong in a q-equation as a causal variable,* but if at all only as a proxy for other variables related to managerial incentives and constraints. Since we already include measures of these, an additional proxy for them is unneeded.

We are thus left with the following specification for testing the different hypotheses about firm performance, defined as either average or marginal *q*:

$$q = \beta_1 IS + \beta_2 VS + \beta_3 VS^2 + \beta_4 S + \beta_5 IT + \beta_6 RD + \mu \qquad (1)$$

The predicted coefficients are $\beta_1 < 0$, $\beta_2 > 0$, $\beta_3 < 0$, $\beta_4 < 0$, $\beta_5 > 0$ and $\beta_6 > 0$.

We turn now to a discussion of the data used to test the hypotheses.

III. Data

The financial data are taken from the 1996-2000 versions of the *Global Vantage* and 1997 version of the *Compustat* databases of *Standard & Poor's.*[18] The percentage of insider ownership (*IS*) is drawn from the *Compact Disclosure* (*CD*) database. The sole source of ownership data used by *CD* is the *Securities and Exchange Commission*'s corporate proxy statements. *IS* is defined as the total number of shares held in aggregate by all officers and directors divided by the number of shares outstanding. *VS* is the value of the shares held by insiders and calculated by multiplying *IS* with the market value of equity.

We exclude banks and financial companies and some service industries (SICs 6000 through 6999 and above 8100), because the nature of capital and investment in these industries is not comparable to those of non-financial firms. We also exclude corporations reporting data that are not credible (negative sales and negative debt). To minimize the weight of outliers, we cap our basic variables at both the 1st and 99th percentile of the sample.

Panel A of Table 1 reports descriptive statistics of our main variables. The average *IS* of 21% is considerably higher than the 10.6 % figure reported by MSV.[19] The median value of shares held by insiders (*VS*) is $17,000,000. The mean combined stake of institutions (*IT*) is 31%. Size (*S*) is measured by the logarithm of total assets and its mean indicates that the average firm has about $150 million in total assets.

Noteworthy in Panel B of Table 1 is the high negative correlation between size and insider ownership and the high positive correlation between size and institutional shareholdings. As discussed above, the failure to allow for these relationships may help to explain the nonlinear pattern between insider ownership and *q*. The results in the next section indicate that it does.

IV. Results for the United States

A. Results for Average (Tobin's) *q*

Equation 1 in Table 2 presents our results when average *q*, *qa*, is regressed on insider ownership. A set of two-digit industry dummies was included in all equations, but their coefficients are not reported to save space. The same pattern of marginal effects of insider ownership is observed in eq. 1, as in MSV and several other studies. The relationship is nonlinear with all three terms in the cubic equation being highly significant.[20]

The relationship between *qa* and *IS* remains cubic once the other variables in the model are added (eq. 2), but the signs on the three *IS* terms *reverse*. Instead of *qa* rising as insider shareholdings increase it falls, although again in a nonlinear fashion. A negative relationship is of course exactly what one expects, if the fraction of shares held by insiders captures only the entrenchment effect of ownership. When *IS* is constrained to have a linear relationship with *qa*, its coefficient is negative and

significant, and the adjusted R^2 remains unchanged (eq. 3).

The relationship between insiders' shareholdings (*VS*) and *qa* is quadratic with the coefficients on the two terms being positive and negative as predicted. The marginal wealth effect of managers' shareholdings on company performance, as captured by the value of their holdings, is positive and tapers off as *VS* gets large, but remains positive over the range of *VS*. A diminishing marginal effect of *VS* is consistent with the assumption of diminishing marginal utility of wealth.

The second entrenchment variable in the equation, log size (*S*), has a negative coefficient as predicted, and is highly significant. Both institutional shareholdings (*IT*) and R&D have positive and significant impacts on *qa* as predicted.

The results in equations 1-3 of Table 2 illustrate the value of disentangling the entrenchment and wealth effects of insider shareholdings. The coefficients of both *IS* and *S* imply a strong negative effect on *qa* from managerial entrenchment as measured by either the size of managers' fractional shareholdings or the size of the firm itself. The wealth effect, captured by the value of the shares held by managers, is on the other hand positive and significant. Institutional shareholders appear to improve the performance of the companies in their portfolios.

B. Results for Marginal *q*

We first test for the same cubic relationship between marginal *q* and insider ownership as observed with average *q* as the dependent variable.[21] Eq. 4 in Table 2 reports these results. The three *IS* terms have the same signs as in eq. 1, and all coefficients are highly significant. Unlike in the equation for *qa*, when the other variables are added to the equation, the coefficients on the three *IS* terms do not reverse signs (see eq. 5), but their statistical significance drops dramatically with only the quadratic term's negative coefficient remaining significant at the 5 percent level. The coefficients on the other variables have the same signs as when *qa* is the dependent variable, and all are again statistically significant.

In eq. 6 we again drop the squared and cubic *IS* terms. As for *qa*, in the linear specification insider ownership has a significant, negative relationship with marginal *q*, as predicted under the

entrenchment hypothesis. As discussed above, there is less reason to expect a positive relationship between R&D and marginal *q*, than for average *q*. *RD* does pick up a positive and significant coefficient in the *qm* equation, but both its coefficient and *t*-statistic are much smaller in the *qm* than in the *qa* equation, which matches our expectations.

When equations 3 and 6 are compared, we observe the exact same pattern of coefficients in both the *qm* and *qa* equations. The negative entrenchment effects of insider ownership and firm size appear with either *qa* or *qm* as the dependent variable. The positive wealth effects of insider ownership and the positive effects of both institutional ownership and R&D are also present regardless of whether we use a measure of average performance, or the more appropriate measure of marginal performance – *qm*. Using *qm*, however, we are much more confident that reverse causality is not a problem.

Before closing this section, we shall contrast the relationships implied by our results between the two *q*s and insider ownership with those found in other studies. To do so we must take into account the fact that *IS* and firm size are inversely related. Managers tend to own larger stakes in small firms than in large ones. Thus, as we increase *IS* both *S* and the market value of the firm tend to fall. To predict the marginal effect of an increase in *IS,* we thus divide the range of *IS* into subintervals. For each subinterval we compute the mean value of *S* and the market value of the firm. We then multiply the mean figure for *S* by its respective coefficient in Table 2 and add this number to the coefficient on *IS*. We multiply the mean value of the firms' market value by *IS* to create a mean *VS* for each *IS* interval, and then multiply this number and its square by the appropriate coefficients in Table 2 and add them to the figures just calculated using mean values for *S*. An analogous calculation is made for *IT*. Since *RD* is uncorrelated with *IS*, we simply multiply its mean over the entire sample times its appropriate coefficient in Table 2 and add it to the figures just calculated.

This exercise gave us a set of points in *q*-*IS* space. Inspection of the pattern of the points suggested a quadratic relationship between both measures of *q* and *IS*. Therefore, we fitted a quadratic function to the points and plotted the relationship (see Figure 1). At low values of insider ownership, the wealth effect dominates the entrenchment effects and both *qa* and *qm* increase with *IS*.

At a level of insider ownership of 60 percent, the entrenchment effect begins to dominate. These relationships between average and marginal *q* and *IS* are similar to those observed by McConnell and Servaes (1990, 1995) and Thomsen and Pedersen (2000) for average *q*. Note also that the marginal *q/IS* curve lies entirely below the average *q* curve. This can be expected, if some firms earn infra-marginal rents, and thus have higher average than marginal returns on capital.

Given that MSV used *qa* as their measure of performance, one might wonder why our results do not imply the same pattern as in MSV when *qa* is the dependent variable. Here it is worth recalling that we *do* reproduce the MSV pattern with *qa* when *IS* is the only variable in the equation (Table 2, eq. 1). The reason why it does this is that *IS* by itself has to capture *three* effects – the entrenchment effect from insider ownership, the wealth effect from insider ownership, and the entrenchment effect from size. This one variable appears to capture these three effects less well than the three variables we use to capture these effects.

V. The Effects of Insider Ownership Concentration in Other Countries

A. Characteristics of the Sample

Our data sources do not contain enough observations on firms in each country to undertake the same kind of analysis for other countries as we have done for the United States. In examining the effects of ownership structure on investment performance, therefore, we have grouped countries according to the La Porta, Lopez-De-Silanes, Shleifer and Vishny (1997, 1998, hereafter LLSV) categorization based on the origins of the countries' legal systems. We have found in previous research that their categorization is useful for examining various aspects of corporate governance,[22] and by using it we eliminate at least one possible dimension of heterogeneity in our cross-national data. LLSV identify two broad categories of legal systems – Anglo-Saxon or common law systems, and civil law systems. We employ this same division in our subsequent tests, with the Anglo-Saxon category including five countries from the LLSV category, but excluding the United States.

In previous research,[23] we observed that the three Asian countries assigned to the Germanic/civil law category – Japan, Korea, and Taiwan – performed quite differently from the three

European countries in this category. This difference in performance might be due to differences in corporate governance structures between the two continents that go beyond the origins of their legal systems. A notable feature of corporate governance in Japan and Korea that differs from Europe lies in the important role played by *group* firms. The existence of these group firms makes it difficult to apply the methodology used in this study to measure the effects of ownership structures. In Japan, for example, the largest shareholder of a company typically holds less than 10 percent, often less than five percent of its outstanding shares. If the firm is a member of a keiretsu, however, the managers may be well entrenched against challenges from outside of the keiretsu, because the cumulative holdings of all members of the group are sufficient to protect the firm against outsiders.[24] Measuring the extent of managerial entrenchment as we do for the United States and the other countries in our sample would be meaningless. We thus limit our civil law countries to Europe.[25]

Column 2 of Table 3 reports the numbers of firms in each country's sample. The next four columns report the fractions of firms in each sample, for which a family, a non-financial corporation, a financial institution, or the state is the largest shareholder. The numbers in columns 3-6 sum to one. Column 7 reports the percentage of companies in each sample for which no family or institution holds at least 10 percent of a firm's shares. These firms are defined as having dispersed ownership. Several things are noteworthy in the first seven columns of the table. First, the fraction of companies for which a non-financial corporation is the largest shareholder is much lower in the United States than in either of the other country groups. This is due to Section 8 of the Clayton Act, which prohibits large cross-holdings of shares. Second, dispersed ownership is much lower in the United States than one anticipates from the Berle and Means view of ownership. This difference can be explained by the fact that our sample for the United States is very large, and thus includes many small firms for which an individual or family is the largest shareholder. If we limited our US sample to the 500 largest firms, as many studies do, the figure for dispersed ownership in the United States would be over 40 percent. Note also, however, that the Anglo-Saxon stereotype of widely dispersed ownership does not accurately characterize all of the other Anglo-Saxon countries either, although the average for this group is three times larger than for the Continental countries. Note also from column 6 that in most

countries the state is the largest shareholder for very small percentages of companies.

Column 8 presents the mean shareholding of the largest shareholder in each country group, regardless of his identity. Here the numbers correspond more closely to the Anglo-Saxon stereotype. The average fraction of shares held by the largest shareholder in the civil law countries is twice as large as in the United States or the other Anglo-Saxon countries.

Column 9 reports the mean shareholdings of the largest shareholder, when a family is the largest shareholder, with the last three columns constructed analogously for the other ownership categories. Thus, we see that for 20 percent of the companies in the civil law countries a family is the largest shareholder (column 3), and the mean holding for these firms is 26 percent of outstanding shares (column 9). Particularly noteworthy is the importance of other firms as shareholders in the civil law countries. For 49 percent of the companies in the civil law countries a non-financial firm is the largest shareholder (column 4), a fraction which is seven times larger than for the US and double the size for the other Anglo-Saxon countries. The mean holding for these firms in the civil law countries is 51 percent of outstanding shares (column 10), a fraction which is again considerably larger than for the US and the other Anglo-Saxon countries. These figures illustrate the importance of corporate pyramids and cross-shareholdings in Continental Europe.

B. Adjustments to the Model

In the United States we identified insider holdings as the holdings of the board of directors following the precedent of MSV. In many of the other countries it was not always possible to identify whether an individual was part of management or not. Thus, in the case where an individual or a family is the largest shareholder, we have chosen to define her or it as an insider, because in the great majority of cases these persons, or at least some members of the family, are part of management. This procedure may introduce a bias into our estimates of the effects of entrenchment to the extent that some families with large shareholdings are not part of management. They may be able to exert more control over managers because of their large shareholdings, and produce a better performance for the firm. The other variables in the model should not be affected by this problem.

It was also not always possible in other countries to identify all of the holdings of institutional shareholders. We could identify the holdings of banks and other financial institutions like insurance companies, however. Banks have often been thought to play a positive monitoring role for the companies in which they hold shares, particularly in civil law countries like Germany (Cable, 1985). Thus, one might expect the same positive coefficient on *Fin*, the fraction of shares held by financial institutions, as we observed for *IT* in the US results. Banks are also run by professional managers, however. If bank managers are empire builders, they may encourage the companies that they can influence to pursue growth, and *Fin* will pick up a negative coefficient in the *q* equations.

Many countries do not require firms to report their R&D. Thus, the final change to the basic model estimated for the US is to drop the R&D because of a lack of data.[26]

C. The Results

In Table 4, the sample is restricted to companies in each country group for which the largest shareholder is an individual or family. We assume that this largest shareholder is part of management, and thus that the entrenchment and wealth effects from his shareholdings should be captured by the same variables used for the USA. We do not concern ourselves any longer with the issue of whether performance is a cubic function of *IS*. The first thing one notes from the table is that the pattern of signs for the two key variables is *identical* to that for the United States. The entrenchment effect of insider (family) ownership is negative and highly significant for both country groups and measures of performance. The wealth effect is positive on the margin, and diminishing in *VS*. Both coefficients on the two *VS* terms are highly significant.

A comparison of the *sizes* of the coefficients reveals an important difference between the United States and the other countries, however. The coefficient on *IS* in eq. 3 of Table 2, predicts a fall in Tobin's *q* of 0.045 for a rise in an insider's shareholdings of 10 percent of outstanding shares. The comparable estimates in Table 4 for the Anglo-Saxon and civil law countries are nearly twice as large as for the United States, implying drops in *qa* of roughly 0.08 for both country groups. These differences imply stronger negative effects from entrenchment for both the Anglo-Saxon and civil law samples than for the United States.

The coefficients on the two *VS* terms in the *qa* equations in Table 4 imply similar wealth effects from insider shareholdings for the United States and the other two groups of countries.

Our second entrenchment variable – size – has a negative and highly significant coefficient in both *qa*-equations, with both coefficients being close to that for the US. The variable *Fin* is insignificant for the Anglo-Saxon countries, but *negative* and significant for the civil law countries. Thus, there is no evidence in the *qa* equations that banks and other financial institutions play a positive monitoring role as minority shareholders. In the civil law countries they even appear to worsen company performance.

In the bottom half of Table 4, the results are presented with *qm* as the dependent variable. As was true for the United States, all coefficients on the *IS* and *VS* variables have the same signs as in the *qa*-equations, and all are significant. Insider entrenchment worsens investment performance, while the wealth effects of insider shareholdings positively affect investment performance. The coefficient on *IS* for the other Anglo-Saxon countries is almost identical to that for the US, while *IS*'s coefficient in eq. 4 of Table 4 implies a weaker entrenchment effect in the civil law countries than for the United States.[27] The coefficients on *VS* in the *qm* equations are much smaller than observed in Table 2 for the US, and thus imply flatter *qm*-*VS* curves and weaker wealth effects of insider ownership than for the US.

Size again has a negative coefficient in both *qm*-equations, but is significant for only the Anglo-Saxon countries. Both coefficients are substantially smaller than for the US. *Fin* is insignificant in both equations.

The similarities in the results in Tables 2 and 4 outweigh the differences. The entrenchment effect of insider ownership is negative and significant for both measures of performance in every sample. The wealth effect is positive and significant. Size generally has a negative effect on performance.

As for the US, in Figures 2 and 3 we plot the predicted values for *qa* and *qm* against *IS* taking into account changes in the market values and sizes of firms associated with changes in *IS*. We also

add an adjustment for *Fin* in eq. 2, where it was significant. For the Anglo-Saxon countries, the two curves start at points slightly above 1.0. Both curves rise with *IS*, the *qa* curve more steeply than *qm.* Both curves peak earlier than for the US – at around an *IS* of 40%. The *qm* curve drops below 1.0 at an *IS* of around 80%.

The *qa*-curve for the civil law countries is essentially flat up to an *IS* of around 25%, and then begins to slope continuously downward dropping below 1.0 at an *IS* of slightly above 80 percent. The *qm* curve begins at around 0.6, rises ever so slightly until an *IS* of around 45%, and then gradually declines as insider ownership increases. Marginal *q* stays below 0.7 over the whole range of *IS*. Thus, the results in Figures 1, 2 and 3 reveal rather clearly that Anglo-Saxon countries have a superior investment performance to civil law countries. Moreover, they imply that the importance of the wealth effect of insider ownership relative to the entrenchment effects is strongest in the United States and weakest in the Continental European countries.

VI. The Effects of Ownership Concentration for Other Categories of Owners

Table 5 has been constructed analogously to Table 4. In the first four equations, the sample is restricted to firms with a non-financial company as the largest shareholder, in the next four a financial institution is the largest shareholder. The samples for state-controlled firms were so small that we have not estimated the models for them. Since the largest shareholder is no longer an insider or family, we have changed the designation of the largest shareholder's fraction of outstanding shares to *LS*.

A consistent pattern appears across all equations. *VS* and VS^2 typically have positive and negative coefficients, respectively. In two equations, the coefficient on *VS* was insignificant, but became significant when the VS^2 term was dropped, and so we report only the results without VS^2. We expect a positive coefficient on *VS* and a negative coefficient on VS^2, because of diminishing marginal utility of wealth. This pattern was consistently observed when *individuals* are the largest shareholders (Tables 2 and 4). The estimates for the *qm* equations imply that financial institution as largest shareholder behave as if they were risk neutral.

LS has a negative coefficient in 7 of the 8 equations with 6 of the 7 being statistically significant. The other entrenchment variable, *S,* has a negative coefficient in all 8 equations with 7 being significant. Of particular interest is the *qm* equation for Continental Europe when a financial institution is the largest shareholder. Marginal *q* is independent of both firm size and the controlling financial institution's stake in the firm, *LS*, while increasing with the value of this stake, *VS*.

When another firm is the largest shareholder, the coefficient on *Fin* is negative in all four equations, three being statistically significant. When a non-financial company is the largest shareholder, a firm is generally part of a corporate pyramid, or involved in cross-shareholdings with other companies. The negative coefficients on *LS* in these equations imply that a company's performance declines as the firm controlling it becomes more entrenched. The negative coefficients on *Fin* indicate that banks and other financial institutions only reinforce the adverse effects of these interlocking corporate relationships.

VS's coefficient in the average *q* equation for family-controlled firms in both the other Anglo-Saxon and civil-law countries is around 0.001. *VS*'s coefficients in the *qa* equations for firms controlled by other firms are 0.0005 for the Anglo-Saxon countries, and 0.0001 for the civil-law countries, a difference by a factor of two in the first case, ten in the second. Similar differences in the *VS* coefficients can be observed when financial institutions are the largest shareholders. Thus, the magnitude of the wealth effect on performance as measured by *qa* is generally much larger for insiders than for the other largest-shareholder categories in both the Anglo-Saxon and civil law countries.

Figure 4 presents the plots of *qa* and *qm* against *LS* based on the estimates from Table 5. The *qa* and *qm* curves for firm-controlled companies in Anglo-Saxon countries exhibit the same inverted-U shape observed for insider ownership. The *qa* curve for firm-controlled companies in the Continental European countries takes on a modest U-shape, and lies entirely above 1.0. As always a better indication of the importance of agency problems comes from observing the *qm* curve. It starts out just below 0.8, remains roughly constant until an ownership concentration of 0.20, and then declines steadily approaching 0.5 at a concentration level of 100 percent.

Both the *qa* and *qm* curves for finance-controlled companies in Anglo-Saxon countries have inverted-U shapes. The *qm* curve has a positive slope throughout most of the range of *LS* values implying an improvement in investment performance of finance-controlled companies in Anglo-Saxon countries as their ownership stakes rise. Nevertheless, the *qm* curve for these companies never even reaches a value of 0.90. Finance-controlled is the only ownership category in the Anglo-Saxon countries for which marginal *q*s are not greater than 1.0. Financial institutions in these countries do not appear to do a particularly good job of monitoring the firms that they control.

The same is true but even more so for finance-controlled companies in Continental Europe. The *qm* curve rises slightly with the controlling financial institution's ownership stake, but the curve lies entirely between 0.6 and 0.7 for the entire range of *LS* values. Thus, the curves in Figure 4 tell a similar story to the earlier figures. Although they reveal the existence of agency problems for finance-controlled companies in Anglo-Saxon countries, these problems are much more severe in Continental Europe than in Anglo-Saxon countries.

VII. Conclusions

This article cleanly separates the positive wealth effect of share ownership from the negative entrenchment effect. Almost without exception, we have found the wealth effect to be positive and significant and the entrenchment effect to be negative and significant across all control categories and countries. Our preferred measure of investment performance is marginal *q*, because it more accurately reflects the extent of agency problems in a firm and is not subject to simultaneous equation bias. Comparing the coefficients on *IS* and *LS* in the *qm* equations of Tables 2, 4 and 5, we see that the wealth effect of insider ownership was much stronger in the United States than in other countries, and generally stronger for insider owners than for other ownership categories in the other countries. Thus, when an individual or a family is in control of a firm, its performance is more sensitive to the value of the controller's stake than when another firm or financial institution is in control.[28] Individuals seem to respond more strongly to financial incentives than do institutions.

Again focussing on the marginal *q* equations, we observed that the negative effects of entrenchment by insiders were of similar strength in the United States and the other Anglo-Saxon

countries, but weaker although still significant in the civil law countries. On the other hand, the decline in marginal *q* for companies controlled by other firms as these controlling firms' stakes grow was three times *larger* in the civil law countries than in the Anglo-Saxon countries, with *LS*'s coefficient not even being significant in the latter sample.

When we combined the wealth and entrenchment effects of insider ownership, we found for the United States that both average and marginal *q* initially rose with increasing insider ownership, and than fell when *IS* reached values of roughly 60 percent. The same was true for average *q* in the other Anglo-Saxon countries except that the curve peaked at an *IS* of some 45 percent. Both *qm* curves in the English-origin and civil law countries were essentially flat suggesting that the wealth and entrenchment effects tend to balance one another out over the full range of *IS*.

Another interesting finding of our study is that institutional shareholders appear to be able to constrain managerial propensities toward overinvestment in the United States. Both *qa* and *qm* are positively related to institutional shareholdings in the US. For the other two sets of countries there was no evidence that financial institutions improve the performance of companies either as minority shareholders or when they are the largest shareholders. Both measures of performance were negatively related to the size of a financial institution's shareholding, when it was a minority shareholder, and the *qm-LS* curves lie entirely below 1.0 when a financial institution is the largest shareholder in both the Anglo-Saxon and civil law countries.

An important theme in several recent contributions to the literature has been the simultaneity of insider ownership and firm performance. In trying to address this issue, authors have written down one set of variables that they claim explains insider ownership, and another set that supposedly explains performance, as measured by *qa*. Industry dummies to capture industry specific characteristics, size, leverage and measures of risk, like the variance in share returns, have all been used to predict ownership structure. But these choices strike us as somewhat arbitrary, since all of these variables are also plausible candidates for explaining Tobin's *q*.[29]

Our substitution of *qm* for *qa* is an alternative way to mitigate the issue of simultaneity with respect to the right-hand-side variables in the model. As stressed above, the returns on an investment

are determined by the size and quality of the investment, and these, in turn, are determined by a firm's managers. Causality must run from the incentives faced by managers to their investment decisions. These investments then determine the returns on investment, which then determine our marginal *q*. Our confidence in our interpretation of the variables used to measure the entrenchment and wealth effects of insider ownership is strengthened, therefore, by the fact, that we obtain substantially the same results when marginal *q* is the dependent variable as when average *q* is.

Although our results reveal a number of similarities across the three samples of countries, they also reveal some important differences. In addition to the differences in the shapes of the curves relating the two measures of firm performance, *qa* and *qm*, to *IS* and LS as discussed above, there are also important differences in their *heights*. The superior investment performance of the United States and the other Anglo-Saxon countries over the civil law countries is clearly apparent when comparing the relative heights of the three *qm* curves for insider-controlled firms in Figures 1-3. This superior investment performance of the Anglo-Saxon countries continues to be observed for other categories of ownership. Although evidence of agency problems was apparent in the *qm-LS* curve of finance-controlled companies in Anglo-Saxon countries (Figure 4c), this curve lies entirely above the analogous curve for the civil law countries (Figure 4d). These firms performed about as badly as family-controlled companies in the civil law countries. Based on our estimates for the marginal *q* equations, the best performing companies in the civil law countries where controlled by other, non-financial companies. Above an ownership stake of 20 percent, however, the *qm*s for these companies steadily declined, so that at large values of *LS* they were performing just as badly as other firms in the civil law countries ($qm \approx 0.6$). These findings support the hypothesis that the legal institutions in the Anglo-Saxon countries offer shareholders better protection against agency problems than do those of the civil law countries.

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Table 1

Descriptive Statistics and Correlation Matrix for the US Sample

Tobin's *q* (*qa*) is the ratio of the market value (*M*) of a firm to its total assets. $\Delta M_t/M_{t-1}$ is the change in market value from year *t-1* to *t* scaled by M_{t-1}. I_t/M_{t-1} is total investment scaled by M_{t-1}. Insider ownership, *IS*, is defined as the total number of shares held in aggregate by all officers and directors divided by the number of shares outstanding. Insider wealth, *VS*, is the value of the shares held by insiders (*IS* times the market value of equity, MV) in Mn. USD. Size (*S*) is the logarithm of total assets. Institutional shareholdings, *IT*, are the mean combined (percentage) stake of institutions. *RD* is R&D expenditures divided by total sales. We deflate all variables by the CPI (1995=1.00).

Panel A: Summary Statistics				**Panel B: Matrix of Correlation Coefficients**								
	Mean	**Median**	**S.D**	***qa***	$\Delta M_t / M_{t-}$	I_t / M_{t-1}	***IS***	***IT***	***VS***	***S***	***RD***	***MV***
qa	1.54	1.08	1.35	1.00								
$\Delta M_t / M_{t-1}$	0.15	0.03	0.54	0.34 0.00	1.00							
I_t / M_{t-1}	0.15	0.11	0.22	-0.02 0.00	0.52 0.00	1.00						
IS	0.21	0.15	0.20	0.01 0.15	0.00 0.58	0.05 0.00	1.00					
IT	0.31	0.28	0.24	-0.02 0.02	0.06 0.00	0.06 0.00	-0.46 0.00	1.00				
VS	149.20	17.00	631.02	0.07 0.00	0.02 0.01	-0.02 0.06	-0.15 0.00	0.15 0.00	1.00			
S	5.01	4.81	2.14	-0.21 0.00	-0.02 0.01	0.00 0.80	-0.47 0.00	0.65 0.00	0.39 0.00	1.00		
RD	0.09	0.01	0.36	0.31 0.00	0.02 0.01	0.03 0.00	0.01 0.15	-0.07 0.00	-0.03 0.00	-0.17 0.00	1.00	
MV	1348.86	110.93	5745.61	0.08 0.00	0.01 0.11	-0.03 0.00	-0.19 0.00	0.19 0.00	0.60 0.00	0.44 0.00	-0.03 0.00	1.00

Table 2

Determinants of Average (*qa*) and Marginal *q* (*qm*) for the US Sample

All equations include a full set of SIC two-digit industry dummies. The coefficients for the *qm* equations are obtained from a regression of the percentage change in market value on investment with each explanatory variable interacted with investment. See the appendix for detailed definitions. The absolute values of the t-statistics (which are robust to heteroscedasticity) are reported below the coefficients.

Eq.	Dependent Variable	*IS*	IS^2	IS^3	*VS*	VS^2	*S*	*IT*	*RD*	N	Adj- R^2
1	***qa***	1.87 6.04	-5.23 5.39	3.79 4.65						16524	0.13
2	***qa***	-0.60 1.78	1.05 1.04	-0.63 0.75	$6.68*10^{-4}$ 22.27	$-2.72*10^{-8}$ 12.28	-0.25 29.78	1.16 19.01	0.65 23.54	16524	0.21
3	***qa***	-0.16 2.77			$6.67*10^{-4}$ 22.39	$-2.72*10^{-8}$ 12.36	-0.25 30.51	1.16 19.14	0.65 23.75	16524	0.22
4	***qm***	2.85 6.58	-7.98 6.12	5.26 4.89						14776	0.24
5	***qm***	0.45 0.98	-2.81 2.11	2.01 1.89	$2.26*10^{-3}$ 17.03	$-2.10*10^{-7}$ 10.67	-0.19 15.06	0.62 8.24	0.09 2.74	14776	0.30
6	***qm***	-0.58 7.50			$2.31*10^{-3}$ 16.62	$-2.15*10^{-7}$ 11.00	-0.19 16.55	0.62 8.26	0.09 2.67	14776	0.30

Table 3
Ownership Structure in Common Law and Civil Law Countries

The table reports the fractions of firms in each sample for which a family, a non-financial corporation, a financial institution, or the state is the largest shareholder (Columns 2-6). *LS* in column 8 shows the mean shareholding of the largest shareholder regardless of his identity. Columns 9-12 report the mean shareholdings of the largest shareholder if the largest shareholder is a family, or non-financial corporation, a financial institution, or the state. A company is defined to have a dispersed ownership structure if the largest shareholder owns less than 10 percent of its shares outstanding.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Country	**Firms**	**Family**	**Non-financial**	**Financial**	**State**	**Dispersed**	***LS***	**Family**	**Non-financial**	**Financial**	**State**
USA	3614	0.48	0.07	0.41	0.04	0.11	0.21	0.26	0.34	0.15	0.11
Australia	131	0.48	0.31	0.21	0.01	0.21	0.25	0.14	0.36	0.32	0.10
Canada	376	0.31	0.44	0.21	0.01	0.03	0.40	0.39	0.49	0.25	0.20
Great Britain	985	0.25	0.14	0.59	0.00	0.34	0.17	0.17	0.29	0.14	0.35
Ireland	33	0.36	0.25	0.38	0.00	0.31	0.20	0.26	0.25	0.15	-
New Zealand	35	0.06	0.40	0.53	0.00	0.01	0.44	0.39	0.44	0.45	-
English-Origin (non-US)	1560	0.29	0.24	0.45	0.01	0.23	0.24	0.25	0.39	0.17	0.22
Austria	55	0.06	0.59	0.20	0.14	0.00	0.62	0.59	0.67	0.54	0.57
Belgium	63	0.09	0.48	0.43	0.00	0.03	0.46	0.30	0.53	0.42	-
Denmark	65	0.39	0.36	0.22	0.03	0.33	0.25	0.21	0.38	0.10	0.41
Finland	61	0.15	0.36	0.32	0.13	0.20	0.26	0.24	0.34	0.15	0.42
France	403	0.24	0.55	0.18	0.02	0.05	0.49	0.43	0.56	0.39	0.40
Germany	353	0.27	0.46	0.19	0.04	0.04	0.53	0.54	0.61	0.36	0.45
Greece	9	0.16	0.74	0.08	0.00	0.09	0.45	0.46	0.50	0.45	-
Italy	132	0.07	0.42	0.45	0.05	0.06	0.44	0.36	0.49	0.40	0.49
Luxembourg	7	0.04	0.54	0.09	0.33	0.00	0.45	0.35	0.54	0.43	0.31
Netherlands	132	0.05	0.58	0.31	0.04	0.30	0.27	0.28	0.32	0.18	0.26
Norway	67	0.18	0.52	0.25	0.04	0.08	0.32	0.34	0.35	0.21	0.51
Portugal	20	0.07	0.46	0.26	0.21	0.02	0.44	0.24	0.49	0.44	0.46
Spain	91	0.04	0.59	0.30	0.04	0.10	0.41	0.20	0.51	0.27	0.22
Sweden	126	0.21	0.32	0.45	0.02	0.09	0.31	0.31	0.32	0.29	0.37
Switzerland	119	0.33	0.46	0.16	0.03	0.09	0.45	0.39	0.54	0.26	0.58
Turkey	27	0.14	0.49	0.33	0.04	0.00	0.43	0.41	0.41	0.40	0.95
Europe	1730	0.20	0.49	0.26	0.04	0.08	0.44	0.26	0.51	0.32	0.44

Table 4

The Entrenchment and Incentive Effects of Insider Ownership in non-US Anglo Saxon Countries (Eng) and European Civil Law Countries (CL)

Dependent Variable	Country Group	IS	VS	VS^2	S	FIN	n	Adj- R^2
qa	Eng	-0.78	$1.07*10^{-3}$	$-1.05*10^{-7}$	-0.23	0.11	4315	0.21
		8.00	15.13	11.43	18.19	0.45		
qa	CL	-0.82	$1.35*10^{-3}$	$-1.17*10^{-7}$	-0.28	-0.71	2411	0.23
		9.07	18.44	12.05	16.10	2.43		
qm	Eng	-0.56	$7.29*10^{-4}$	$-7.32*10^{-8}$	-0.08	-0.37	3700	0.26
		4.21	4.90	2.89	4.36	1.06		
qm	CL	-0.20	$4.91*10^{-4}$	$-3.90*10^{-8}$	-0.02	0.56	1924	0.20
		2.18	6.26	2.99	0.99	1.53		

Table 5. The Entrenchment and Incentive Effects of Non-Financial Corporations (Corp), Financial Corporations (Fin) and the State in non-US Anglo Saxon Countries (Eng) and European Civil Law Countries (CL)

Eq.	Country	LS Identity	q	LS	VS	VS^2	S	FIN	n	Adj- R^2
1	Eng	Corp	*qa*	-0.39 4.82	0.0005 16.39	$-6.8*10^{-9}$ 11.83	-0.25 18.90	-0.60 2.51	3630	0.242
2	CL	Corp	*qa*	-0.22 4.94	0.0001 19.64	$-2.6*10^{-10}$ 14.33	-0.14 17.55	-0.29 2.15	6080	0.158
3	Eng	Corp	*qm*	-0.13 1.14	0.0004 7.30	$-1.1*10^{-9}$ 0.90	-0.15 7.52	-0.15 0.41	3096	0.294
4	CL	Corp	*qm*	-0.31 5.50	0.0001 7.90	$-7.9*10^{-10}$ 2.53	-0.03 3.12	-0.36 2.53	4990	0.228
5	Eng	Fin	*qa*	-0.38 4.48	0.0002 12.38	$-2.5*10^{-9}$ 11.13	-0.10 13.29	-0.20 1.87	6634	0.191
6	CL	Fin	*qa*	-0.52 8.00	0.0005 17.36	$-1.7*10^{-8}$ 10.24	-0.16 17.00	-0.18 1.32	3166	0.273
7	Eng	Fin	*qm*	-0.13 0.98	0.0002 9.21	-	-0.08 7.36	-0.32 2.04	5768	0.261
8	CL	Fin	*qm*	0.01 0.11	0.00009 3.80	-	-0.008 0.57	0.25 1.32	2623	0.207

Figure 1
The Relationship between *IS* and *qa*, and *IS* and *qm* in the US

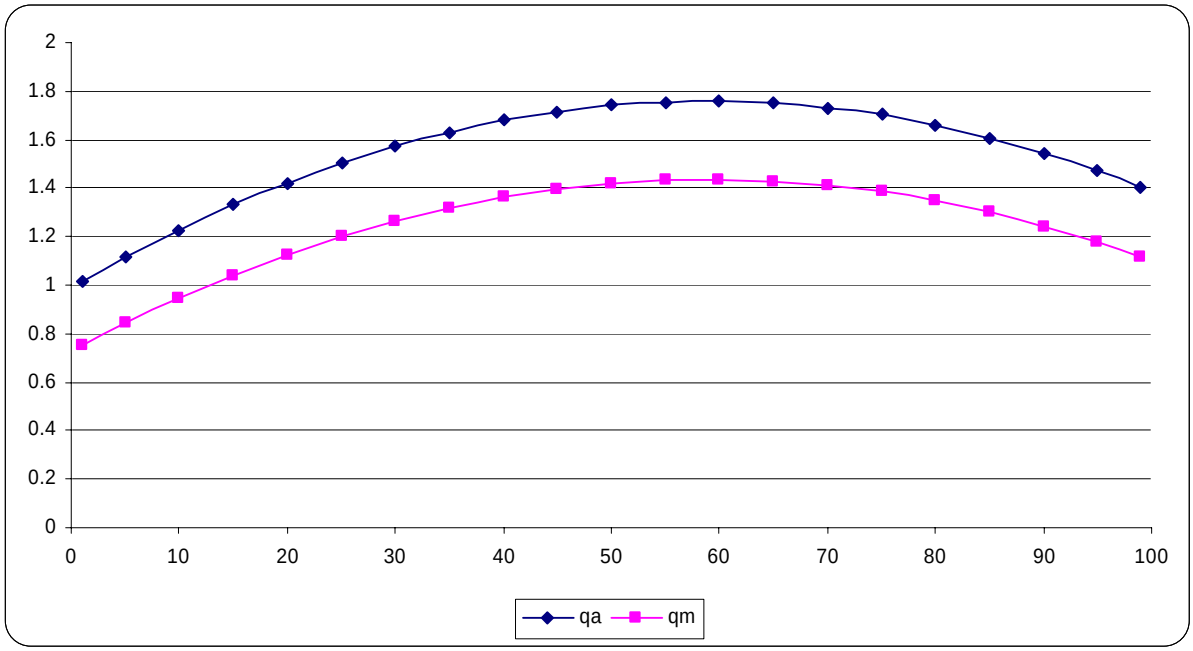


Figure 2
The Relationship between *LS* and *qa*, and *LS* and *qm* in the English-origin non-US Sample

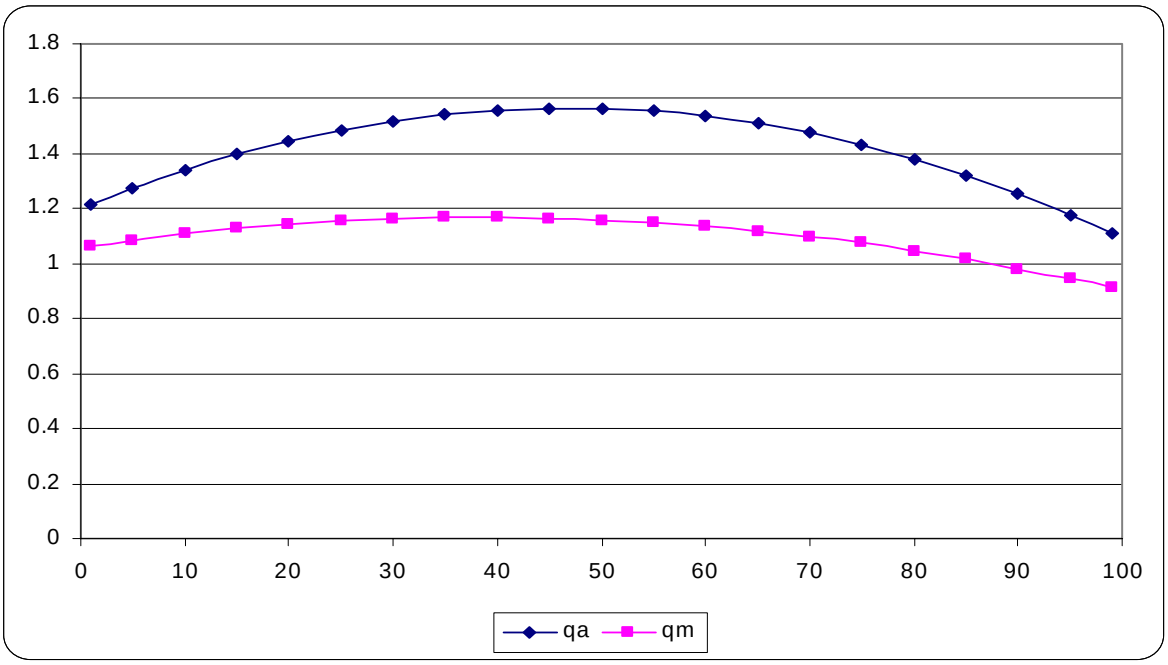


Figure 3
The Relationship between *LS* and *qa*, and *LS* and *qm* in the European Civil Law Sample

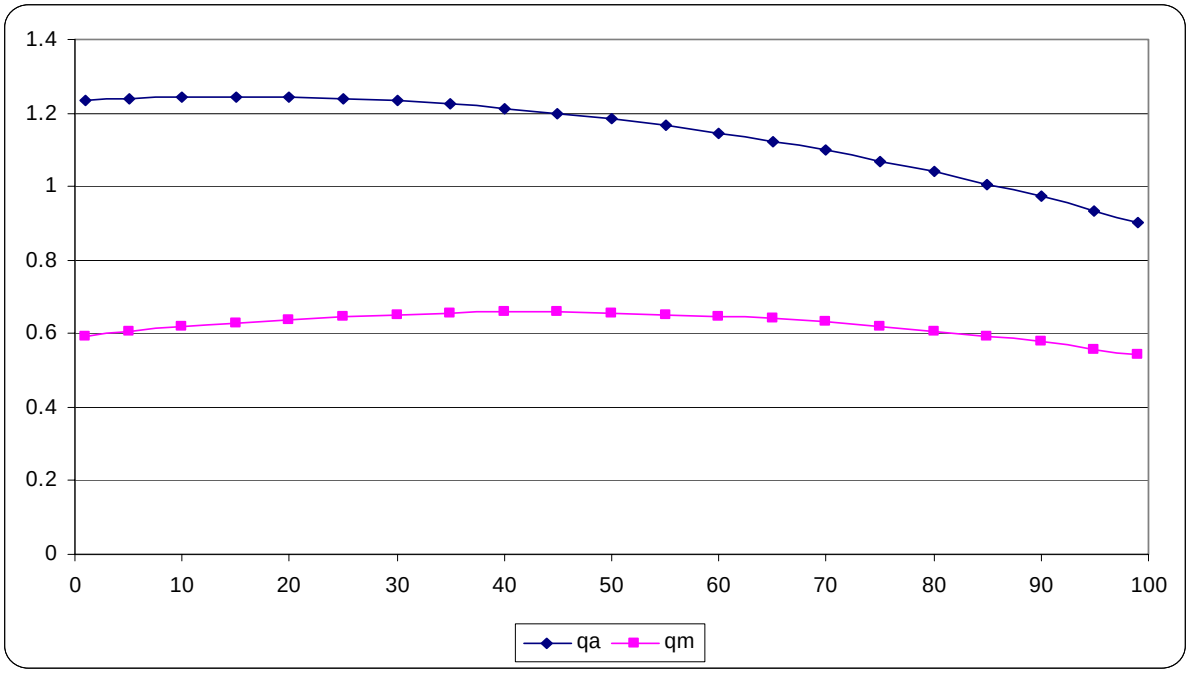


Figure 4A
The Relationship between *LS* and *qa* and *LS* and *qm* in the English-origin non-US Sample for Firm-controlled Companies

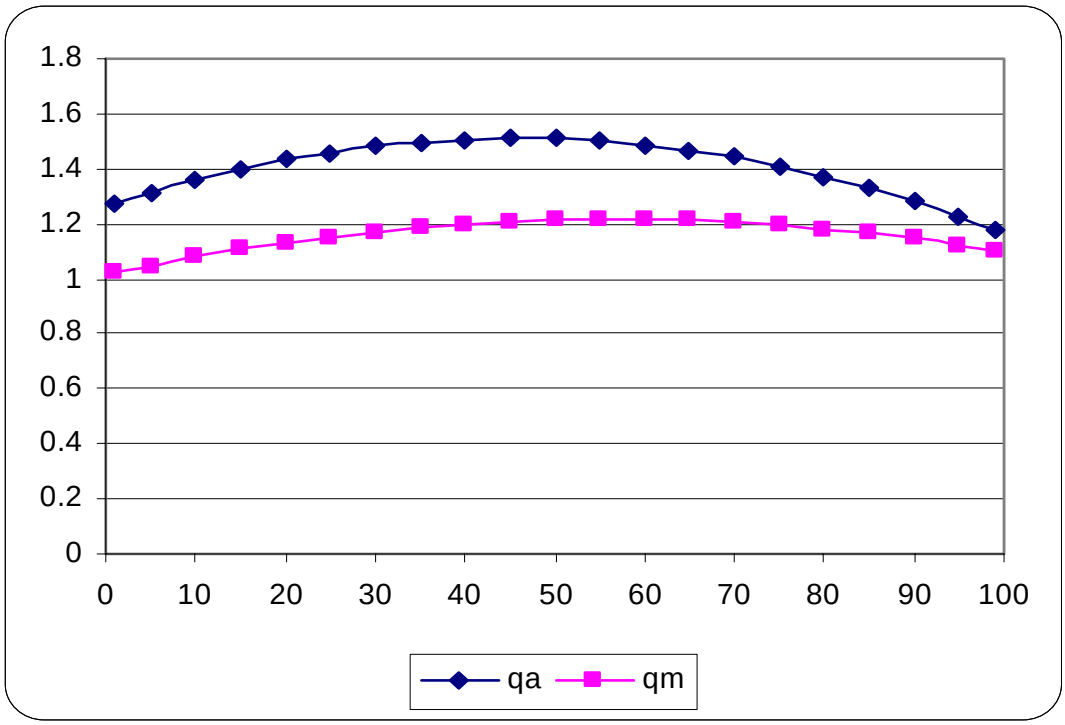


Figure 4B
The Relationship between *LS* and *qa* and *LS* and *qm* for the European Common Law Sample for Firm-controlled Companies

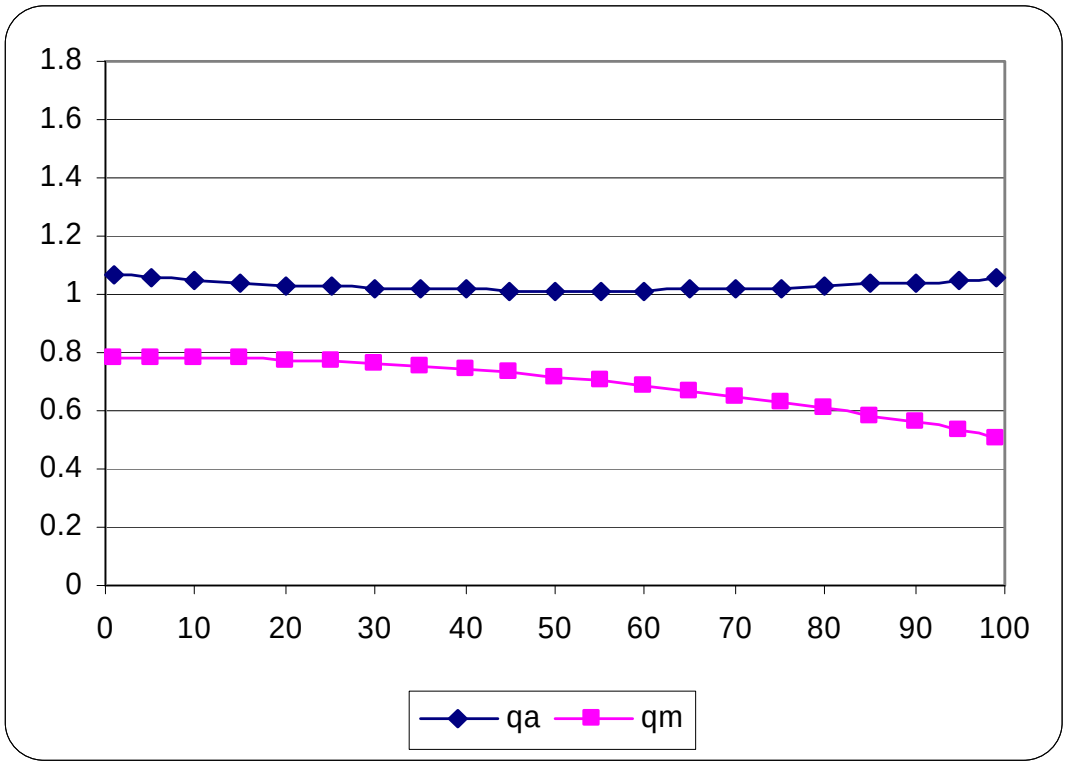


Figure 4C
The Relationship Between *LS* and *qa* and *LS* and *qm* for the English-origin non-US Sample for Finance-controlled Companies

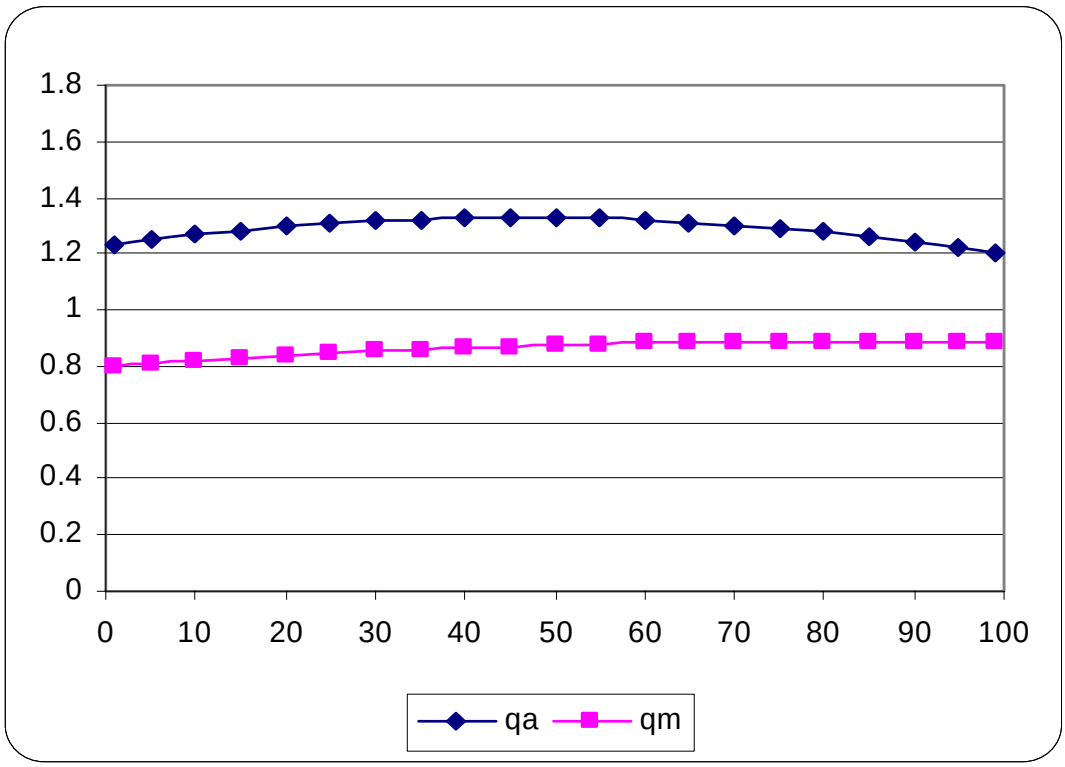
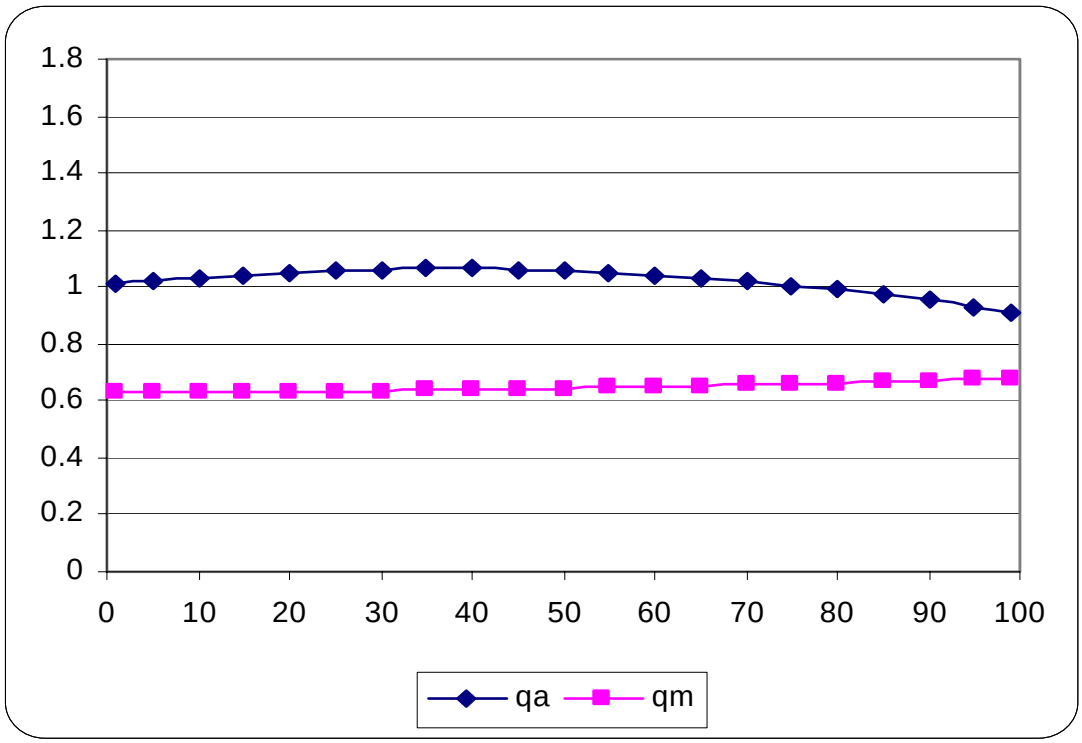


Figure 4D
The Relationship Between *LS* and *qa* and *LS* and *qm* in the European Common Law Sample for Finance-controlled Companies



Appendix:

1) Sources of Balance Sheet and Income Statement Data and Calculation of Variables

Data are taken from the 1997 version of the *Standard and Poors' Compustat* (*CS*) for USA and Canada and from the 1996-2001 versions of the *Global Vantage* (*GV*) for all countries. These datasets contain balance sheet, income statement, and stock market information. The sample period for the data is from 1985 through 2000. We exclude all banks and financial companies (SICs 6000 through 6999) and some service industries (SICs above 8100) because the nature of capital and investment in these industries is not comparable to those in non-financial companies. Table A1 gives an overview of the sample composition by industry and country group. The majority of the sample firms (64 %) is in manufacturing industries, utilities are 13 % of the sample firms and 10 % come from the agriculture, construction, or mining sector, and the rest from services.

Table A1: Composition of the Sample

Country group	Agriculture (< 1000)	Mining (1000-1499)	Construction (1500-1999)	Manufacturing (2000-3999)	Utilities (4000-4999)	Services (>5000)	All
USA	0.17%	3.12%	0.69%	34.40%	6.95%	2.04%	47.37%
Eng	0.24%	3.32%	1.28%	14.69%	2.68%	7.47%	29.69%
CL	0.18%	0.29%	1.14%	15.22%	2.92%	3.20%	22.95%
Total	0.59%	6.73%	3.11%	64.31%	12.55%	12.71%	100.00%

The variables (*CS* data item numbers in parentheses) are as follows. The market value is defined to be the sum of the market value of common stock, the book value of total debt and preferred stock. The market value of common stock is the end-of-fiscal year number of shares (54) multiplied by the end-of-fiscal year price per share (199). We use the book value of total debt (9+34) instead of its market value. An accurate estimate of the market value of a firm's outstanding debt obligations requires knowledge not only of the associated coupon and maturity structure but also of the credit quality of each component. Because such information is not available from standard data sources, we use the book values. The preferred stock is taken to be, in order and as available, redemption value (56), liquidating value (10), or par value (130). The investment of a firm in year *t* is meant to represent all funds available to the company, which could have been paid out directly to shareholders but were instead retained. Thus, investment in year *t* is defined as

$$I = IB + DEP - DIV + \Delta Debt + \Delta Equity + R\&D + ADV$$

where *IB* (18) is income before extraordinary items (profits after taxes and interest), *DEP* (14) is accounting depreciation and *DIV* (21) is total dividends paid in the fiscal year. These come directly

from the annual income statements of each company. New debt ($\Delta Debt$) is derived by taking the change in total debt since the previous period. Net new equity ($\Delta Equity$) is calculated as sales (108) less purchases (214) of common and preferred stock. Where these items are not available, $\Delta Equity$ is approximated by the change in the number of common shares outstanding multiplied by the average share price ((197+198)/2).

$R\&D$ expenditures (46) are reported on *CS* and *GV* databases for many companies. Missing values are interpolated from surrounding values on the premise that $R\&D$ to sales ratios are fairly constant over short periods of time, or approximated using $R\&D$ data at the 3-digit SIC code level from the *FTC's Annual Line of Business Reports*.

Advertising expenses (45) are not reported on GV database. For all countries (except for USA and Canada) these are proxied using aggregate advertising-to-sales ratios at the 4-digit SIC code level from a study by Rogers and Tokle (1993) who use firm level data from *Leading National Advertisers* to compute 4-digit advertising sales ratios. The remaining advertising figures are approximated by multiplying the actual company sales by 2-digit advertising to sales ratios that come from the 1990 *IRS Reports on Corporation Returns* (Table 6-Balance Sheets, Income Statements, Tax, and Selected Other Items, by Major Industry). All variables are deflated using the US *CPI* (1995=1.00).

2) Ownership and Control: Sources and Definitions

A) United States of America

The percentage of insider ownership for US firms is provided by the *Compact Disclosure* (*CD*) database. The sole source of ownership data used by *CD* is the *Securities and Exchange Commission'*s corporate proxy statement. Insider ownership is defined as the total number of shares held in aggregate by all officers and directors. We obtain the percentage of total shares held by insiders by dividing this total by the number of shares outstanding. This comprehensive measure of insider ownership has several advantages over alternative measures as for example inferring insider ownership by aggregating individual holdings. First, it incorporates ownership stakes of officers and directors whose individual stakes are smaller than 5% of the outstanding shares. Second, it alleviates the need to trace each beneficial owner's association with the firm. See Anderson and Lee (1997) for a comparison of different ownership sources and measures. Finally, we were able to compile an unbalanced panel for 3,614 firms in total over the years 1988 – 1997. The median number of annual observations per firm is seven (mean 6.2; max 10). Percentage holdings of institutional shareholders (pension funds, mutual funds, etc.) are computed by summing the ownership stakes of all such owners.

B) Europe

Germany

The data on the ownership structure of the German sample firms have been gathered from the 1988, 1991, 1994, 1997, 1999, and 2000 editions of the *Wer gehört zu wem*, a publication of the German *Commerzbank* that offers information on the identities and percentage shareholdings of firm owners. Since this source of data is available every fourth year, we use the most recent ownership data for missing years, e.g., the 1995 data are taken from the 1994 edition and the 1996 data from the 1997 edition. This procedure is unlikely to introduce much error since the ownership structure of German companies has been very stable. We cover 420 German firms.

Other European Countries

The ownership data on all other European countries come from the December 1999 version of *AMADEUS*. *AMADEUS* is a Pan-European financial database, containing balance sheet and ownership information on over 220,000 major public and private companies in all sectors in 26 European countries. The countries are (national information provider in parentheses): Austria (Verband der Vereine Creditreform e.V.), Belgium (National Bank of Belgium S.A.), Bulgaria (Creditreform Bulgaria OOD), Czech Republic (Albertina Data), Denmark (Kobmanstandens Oplysningsbureau A/S), Eire (CFI Online Limited), Estonia (Krediidiinfo AS), Finland (Finska - Suomen Asiakastieto Oy), France (SCRL S. A.), Germany (Verband der Vereine Creditreform e.V.), Greece (ICAPHellas S. A.), Hungary (Intercredit Budapest Kft.), Iceland (Icecredit S.p.A.), Latvia (KrediidiinfoAS), Luxembourg (Bureau van Dijk S.A.), The Netherlands (Delwel Uittgeverij B.V. and NV Databank), Norway (Creditinform AS), Poland (Info Credit), Portugal (MOPE Lda), Romania (Romanian Chamber of Industry and Commerce), Slovak Republic (Albertina Data), Spain (Informa S.A.), Sweden (UC AB), Switzerland (D&B Novinform AG) and United Kingdom (Jordans).

To be included in *AMADEUS* companies must comply with at least one of the following criteria: (i) their turnover must be greater than 10 million Euro, (ii) the number of their employees must be greater than 150; and (iii) their total assets must be greater than 10 million Euro. The sources of the ownership information are mostly the annual company reports. Information provided includes the percentage holdings of shareholders holding more than 5% (for the UK the cut off point is the 1% level), the name of the owner, and the date of the filing.

We supplement *AMADEUS* data for Italy by information provided by *CONSOB* (Document published by the *CONSOB* as per art. 1/5 of Law 216/74, 1998) and we make use of the annual reports obtained from *www.huginonline.com* for the missing data on Scandinavian companies. Ownership structure of Turkish companies is determined by using the 1995 and 1997 editions of the *Yearbook of Companies* from the Istanbul Stock Exchange.

C) Rest of the world

For Canada, we use the *FP Survey of Industrials*, which gives the identities, and percentage shareholdings of the major owners.

For companies from Australia and New Zealand we use the 1995/1996 edition of *Major Companies of the Fareast & Australasia* from *Graham & Whiteside*.

We use the information on the ownership and control structure of firms to categorize firms into one of the following categories: family-controlled (*Fam*), financial firm-controlled (*Fin*), non-financial firm-controlled (*Cor*), state-controlled (*Sta*) and dispersed. The criterion of categorization is that the largest shareholder of the firm is a family, financial firm, non-financial firm or the state. Additionally requiring the control stake to be greater than 10% of total equity results in smaller sample sizes, however this does not cause any qualitative change in our results. Companies with dispersed ownership structures have no shareholder with 10 percent of the outstanding shares.

Notes

[1] This literature includes both the "managerial discretion" literature of the 1950s and 1960s and the more recent studies, which build on the principal/agent model. For surveys of these literatures see Marris and Mueller (1980), Shleifer and Vishny (1997).

[2] See, for example, Kamerschen (1968), Monsen, Chui and Cooley (1968), Radice (1971) and Palmer (1973).

[3] Gedajlovic and Shapiro (1998) also test for a relationship between performance and ownership concentration, but their results are difficult to compare with the other studies, since they do not distinguish among the identities of owners, and also interact ownership with diversification.

[4] See in addition, Demsetz and Lehn (1985), Kole (1995, 1996), Loderer and Martin (1997), Cho (1998), Himmelberg, Hubbard, and Palia (1999), and Bøhren and Ødegaard (2001).

[5] Marris (1964, 1998) was the first to posit growth maximization as a goal for managers, and many studies include empire-building in their lists of possible manifestations of agency problems.

[6] For evidence that the losses to acquirers' shareholders are proportional to the gains to the targets, see Mueller and Sirower (2003).

[7] Although our study is the first to test for a relationship between the value of insiders' shareholdings and *q*-type measures of firm performance, several studies have tested for a relationship between this variable and other measures of performance - like the returns to shareholders from takeovers, see Walkling and Long (1984), Lewellen et al. (1985), Firth (1991) and Shinn (1999).

[8] Baker and Hall (2004) discuss the distinction between proportional and absolute effects of managerial decisions, and argue that the relative importance of decisions with proportional effects increases with firm size.

[9] Data are for 382 German firms (Gugler and Yurtoglu, 2003a) and 300 Turkish firms (Yurtoglu, 2003).

[10] Claessens et al. (2000) do not report the correlation statistic for their sample and we lack the data to compute it.

[11] The methodology for estimating marginal *q*s was first presented by Mueller and Reardon (1993). Recent applications include Mueller and Yurtoglu (2000), Gugler and Yurtoglu (2003b), Gugler, Mueller and Yurtoglu (2003a, 2003b, 2004).

[12] The assumption of diminishing marginal returns on investment implies that our measure of marginal *q*, namely the returns on *total* investment divided by the cost of capital, should exceed 1.0.

[13]We also experimented with including a quadratic term in *IS* in the equation, but its coefficient was generally insignificant and its inclusion sometimes made the coefficient on the linear term insignificant, suggesting multicollinearity. As will be seen, a linear term in *IS* is almost always significant, and so we report only it.

[14] For a discussion of the asymmetric information problem and investment, see Myers and Majluf (1984). Oliner and Rudebusch (1992) use size to identify firms subject to asymmetric information problems.

[15] Bronwyn Hall (1993) has found a positive relationship between R&D and the market value of firms in some time periods.

[16] A negative relationship between insider ownership and leverage has been reported by Friend and Lang (1988), Jensen, Solberg and Zorn (1992), Bathala, Moon and Rao (1994), and Firth (1995). A positive relationship has been reported by Kim and Sorenson (1986), Agrawal and Mandelker (1987), Amihud, Lev and Travlos (1990), Agrawal and Knoeber (1996), Berger, Ofek, and Yermack (1997), and Short, Keasey and Duxbury (2002).

[17] See, Berk, Stanton and Zechner (2005) for an analysis of corporate debt levels from the perspective of the managers' human capital risk to bankruptcy.

[18] The definitions of these variables are detailed in the appendix.

[19] MSV figures are based on 371 Fortune 500 firms. If we restrict our sample to the largest 500 firms in terms of average size over the sample period, the mean and median values of *IS* are 11.39% and 4.40%, respectively.

[20] MSV estimated a piece-wise linear regression rather than a cubic equation, but the pattern of signs on the three linear terms in their model corresponds to those in ours.

[21] Eq. 1 expresses a firm's performance as a function of insider ownership and the other variables that are assumed to affect performance. Our measure of investment performance, *qm*, is estimated using the following equation:

$$(M_t - M_{t-1})/M_{t-1} = -\delta + qm\, I_t/M_{t-1} + \mu_t/M_{t-1}$$

Substituting from eq. (1) into this equation yields a series of interaction terms between a firm's investment in period *t* and the relevant explanatory variable from eq. (1). The reported coefficients in Table 2 are for these interaction terms.

[22] See Gugler, Mueller and Yurtoglu (2003b, 2004).

[23] See, Mueller and Yurtoglu (2000), and Gugler, Mueller and Yurtoglu (2004).

[24] For variants on this argument see, Berglöf and Perotti (1994) and Osano (1996).

[25] Some data, although not a lot, are available for Latin American countries that LLSV categorize as having civil law legal systems. The differences between Europe and Latin America in level of development, corruption and the like seem sufficiently great, however, that we have decided to confine our civil law sample to the European countries. For some evidence on the importance of stage of development for performance, see Gugler, Mueller and Yurtoglu (2003b).

[26] To test the robustness of our findings, we have re-estimated the equations 1-6 in table 2 by dropping the RD variable. The exclusion of RD leaves the coefficients of VS, VS^2, and IT virtually unchanged. The coefficients of IS and S in equation 3 change slightly (in the case of IS the change is from -0.16I to -0.153 and in case of S, from -0.25 to -0.235). Changes in the *qm* equations are much more negligible. This exercise shows that the differences that we report between the US and other country groups can not be explained solely on the basis of the missing RD variable.

[27] Since we predict a negative coefficient on *IS*, the *t* value of 1.74 implies significance at the 5 percent level using a one-tail test.

[28] The exception to this statement is in eq. 8 of Table 8, where we have a small sample.

[29] When all else fails, researchers often resort to lagged values of a variable as its instruments. This strategy does not seem appropriate in this case, however. The fraction of shares held by insiders varies quite slowly over time. Once the effect of last year's insider-ownership holdings on this year's holdings has been removed, there is not much left to do any explaining. For a somewhat related argument, see Zhou (2001).