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Insider ownership, ownership concentration and 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.

1. Introduction

The possibility of a conflict of interests between a firm's managers and owners can be traced at least back to 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 its economic consequences.[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 10%, 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 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.

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[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) and Shleifer and Vishny (1997).

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

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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%, and then fell reaching a value of only 0.7, at a holding of 25% 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, 1998; Short and Keasey, 1999; Cosh et al., 2001; Gugler et al., 2004). McConnell and Servaes (1990) 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 to capture its negative entrenchment effect. For an important category of managerial–shareholder conflicts, 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 literature has implicitly assumed an Anglo-Saxon institutional environment, 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 a sample of 16 Continental European countries. Second, we test for the existence of analogous effects when outside institutions are the largest shareholder, namely, 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 exogenous 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 3, with results for the US presented in Section 4. In Section 5 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 6, and a robustness check is discussed in Section 7. Conclusions are drawn in the final section.

2. Methodological issues

2.1. The wealth effects of manager–shareholder conflicts

There are many ways in which managers can take advantage of the separation of ownership from control. One important category of conflict is over the size and growth rate of the firm. Managers may pursue growth beyond the rate that would maximize shareholder wealth, because their salaries are linked to the firm's size, or because they experience psychological rewards from managing a large company.[5] Growth-maximizing managers will invest more than is optimal from the point of view of the shareholders, and thus the returns on investment will be below their cost of capital. Our use of marginal *q* to measure firm performance is directly related to this prediction.

To see the implications of managerial overinvestment, assume that a company is expected to earn profits of π from now to infinity, and pays all profits out as dividends. The market value of its equity is then $M=\pi/i$, where *i* is its cost of capital. Assume its initial capital stock equals its market value, $M=K$, so that Tobin's *q* is 1.0. The managers choose to expand the firm's capital stock by α% through an investment *I*, $I=\alpha K$. For argument's sake, assume that the return on this investment is zero, and it is funded by issuing new shares. Assuming rational expectations on the part of the stock market, the value of the firm's existing shares falls by α%, as soon as the managers announce the sale of shares to finance the unprofitable investment. If the managers own shares in their company, they will suffer a wealth loss of α% of the *value* of their shareholdings. Thus, the bigger the value of their shareholdings, the greater is their wealth loss from an unprofitable expansion of their company. For all decisions like this one, which have *proportional effects* on firm values, the proper variable for measuring their wealth effects is the *value* of insiders' shareholdings (VS).[6]

[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] 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).

A large literature has established that shareholders of acquiring companies do not gain from mergers and often lose.[7] One explanation for this seemingly surprising result is that managers undertake unprofitable mergers in pursuit of growth. Mergers should also have proportional effects on managers' wealth. To acquire another firm, a premium of 20–30% over the pre-bid price of a target's shares typically must be offered. If the target is 30% of the acquirer's size and the premium is 30%, the premium equals 9% of the acquirer's market value, and the acquirer's shareholders suffer a 9% loss in wealth from a merger that generates no increase in net wealth.[8]

In general, investments of all kinds should have proportional effects on firm values. An advertising campaign that shifts a firm's demand schedule and increases profits by α% will increase its market value α%. An innovation that increases the return on total assets α% also increases the firm's market value α%. The incentives to introduce such investments are proportional to the value of insiders' shareholdings. Should an entrenched management choose to use its security to pursue the "quiet life," this too should reduce the company's return on total assets, and reduce the value of the management's shareholdings in proportion to their value.

One area of manager–shareholder conflict, which has received considerable attention in recent years, is managerial compensation. Bebchuk and Fried (2004) present considerable evidence that managers transfer wealth from their shareholders to themselves. Assume that managers can increase their salaries above their contributions to the firm's profits by transferring β% of profits to themselves each year. The present value of this transfer for the managers is $PV=\beta\pi/i=\beta Mi/i=\beta M$. The loss to the managers as shareholders in the company is again *proportional* to the value of their shareholdings, βVS. If $\beta=0.15$, a manager owning $10 million of her company's shares suffers a $1.5 million wealth loss as a shareholder, regardless of whether her holdings constitute 1% or 15% of outstanding shares. A 10% increase in her company's share price makes her a million dollars richer regardless of the *fractional* size of her holdings.

For some decisions, it is better to assume an *absolute effect* on the firm's market value. For example, if managers award themselves a one-time bonus of $20 million out of this year's dividends, their cost as shareholders from this award is directly related to the *fraction* of shares they hold, IS. Many forms of managerial self-dealing have absolute effects on a firm's market value, e.g., a loan to a manager at a sub-market interest rate, the purchase of a house for a manager by her company, etc. As Baker and Hall (2004) note, however, the importance of decisions with absolute effects relative to those with proportional effects should decline with firm size. A $10 million bonus has a large effect on the market value of a firm with $20 million in profits, a miniscule effect for a firm with profits of $20 billion. In contrast, a large merger, like Daimler's acquisition of Chrysler, can destroy billions of dollars in shareholder wealth. We use IS to measure the entrenchment effect of insider ownership, and thus implicitly assume that managerial decisions have proportional effects on shareholder wealth.

2.2. Measuring the entrenchment effects of insider ownership

Following Marris (1964, 1998) and Manne (1965), it has generally been assumed that the chief constraint on managerial pursuit of their own goals is the threat of takeover should their share price fall too low. This threat varies inversely with the fraction of shares held by the managers, IS. Thus, IS is an appropriate measure of the entrenchment effect of insider ownership, and one predicts a negative relationship between IS and firm performance. The negative entrenchment effect of insider ownership might be nonlinear, however. Once managers own 50% of their company's shares, it becomes impossible for an outsider to remove them. Even for shareholdings of less than 50%, management may own a sufficiently large stake to deter attempts to displace them. We shall, therefore, estimate two slopes for the IS variable in the empirical section.

As noted in the introduction, the literature up until now has used IS to capture *both* the wealth and entrenchment effects of insider ownership, and thus predicted and found that firm performance, as measured by Tobin's *q*, improves with increasing IS over some ranges for this variable, and declines over other ranges. If, however, the wealth effects of insider ownership are better captured by the value of insiders' shareholdings, as we have argued, the inclusion of VS in the model should remove any positive impact IS has on performance. All positive effects of insider ownership should be captured by VS, and IS will have a purely negative effect on performance. If, on the other hand, all effects of insider ownership were absolute, IS would capture both the entrenchment and wealth effects, and should exhibit the kind of sign reversals MSV and others have observed, while VS's coefficient would be insignificant. In using IS and VS to separate the entrenchment and wealth effects of managerial ownership, we are thus making the joint hypotheses that (1) the proportional effects of managers' decisions on shareholders' wealth dominate the absolute effects, and (2) IS measures the negative entrenchment effects and VS the positive wealth effects.

As noted above, an extremely important category of manager–shareholder conflict involves investment decisions like mergers. Most investment decisions are likely to have proportional effects on market values and insiders' wealth. Since one of the performance measures we use, marginal *q*, is a measure of *investment* performance, this consideration underscores its attractiveness over Tobin's (average) *q* to measure firm performance.

2.3. Other tests for the effects of insider ownership

Claessens et al. (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

[7] For surveys of this literature, see Agrawal and Jaffe (2000), and Mueller (2003, Ch. 9).

[8] For evidence that the losses to acquirers' shareholders are proportional to the gains to the targets, see Mueller and Sirower (2003) and Mueller and Yurtoglu (2007).

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. 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.

2.4. Endogeneity issues

As noted in Section 1, 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 the same kind of endogeneity problem as Tobin's q.

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 q_ms 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, q_ms 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. q_m). 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 q_m that will not suffer from this simultaneous equation bias.

Because we estimate our model with panel data, a second type of endogeneity can arise between some of the exogenous variables and lagged values of the dependent variable. A common way to correct for this possible bias is to estimate the model using the general method of moments (GMM). As a robustness check, we present GMM estimates in Section 7.

2.5. 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. As already

[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 qs was first presented by Mueller and Reardon (1993). Recent applications include Mueller and Yurtoglu (2000), Gugler and Yurtoglu (2003b), Gugler et al. (2003a,b, 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.

stated, the negative entrenchment effect of insider ownership (IS) might also be nonlinear. We, therefore, estimate two slopes for the IS variable, and do a grid search to see where the predicted negative relationship between IS and the q variables flattens out.

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 qs might lie above one.[13] 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 it. 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* qs than other firms.[14] 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.[15] Thus, both leverage and firm performance can be expected to be functions of the variables that measure managerial incentives and constraints. 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.[16]

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

$$q = \text{constant} + \beta_0 \text{IS}_{x-} + \beta_1 \text{IS}_{x+} + \beta_2 \text{VS} + \beta_3 \text{VS}^2 + \beta_4 S + \beta_5 \text{IT} + \beta_6 \text{RD} + \mu \tag{1}$$

where β_0 is the coefficient on IS for managerial shareholdings of less than x, and β_1 is the coefficient on IS for managerial shareholdings of greater than x. The predicted coefficients are $\beta_0<0$, $\beta_1 \leq 0$, $\beta_0<\beta_1$, $\beta_2>0$, $\beta_3<0$, $\beta_4<0$, $\beta_5>0$ and $\beta_6>0$.

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

3. Data

The financial data for all countries are taken from the 1996–2000 versions of the *Global Vantage* and 1997 version of the *Compustat* databases of *Standard & Poor's*.[17] The percentage of insider ownership (IS) is drawn from *Compact Disclosure* (CD), which is based on *Securities and Exchange Commission* proxy statements. We have insider ownership data from 1989 through 1997 for 3614 US companies.

[13] 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.

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

[15] A negative relationship between insider ownership and leverage has been reported by Friend and Lang (1988), Jensen, Solberg, and Zorn (1992), Bathala et al. (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 et al. (1997), and Short et al. (2002).

[16] When leverage is added to the model it picks up a negative sign with but one exception. The remaining results change little. The biggest impact of adding leverage is on size, which picks up a smaller, but still significant negative coefficient.

[17] The definitions of these variables are detailed in the Appendix.

Table 1a
Descriptive statistics

Variable	USA			Eng			CL		
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
q_a	1.57	1.10	1.39	1.47	1.02	13.21	1.08	0.79	1.69
$\Delta M_t/M_{t-1}$	0.20	0.04	1.01	0.13	0.04	0.49	0.09	0.02	0.41
I_t/M_{t-1}	0.17	0.11	0.48	0.17	0.12	0.25	0.22	0.16	0.28
IS	0.22	0.15	0.21	0.23	0.15	0.22	0.43	0.42	0.27
IT	0.31	0.26	0.24	0.11	0.00	0.16	0.10	0.00	0.18
VS	67.52	12.96	414.27	255.91	31.07	1560.03	689.95	103.77	4867.05
S	4.92	4.72	2.14	5.46	5.31	1.79	6.27	6.12	1.76
RD	0.11	0.02	0.40	0.04	0.01	0.20	0.04	0.01	0.10
MV	1276.08	105.01	5568.80	1234.02	190.30	5520.30	1785.81	308.21	7377.29

Tobin's q (q_a) 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. Eng are non-US Anglo-Saxon Countries and CL European Civil Law Countries. We deflate all variables by the CPI (1995 = 1.00).

Ownership data for the other countries come from a variety of sources, and are mostly taken from company annual reports (see Appendix). Information provided includes shareholder holdings of more than 5% (for the UK the cut off is 1%), the owner's name, and the filing date.[18] We have 1560 firms in English-origin countries and 1730 in Continental Europe (see breakdown in Table 3.) 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.

Banks and financial companies and some service industries (SICs 6000 through 6999 and above 8100) are excluded, because the nature of capital and investment in these industries is not comparable to that 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, the basic variables are capped at both the 1st and 99th percentiles.

Table 1a reports descriptive statistics of our main variables. The average IS of 22% for the United States is considerably higher than the 10.6% figure reported by MSV, and roughly equal to that of the other Anglo-Saxon countries.[19] Our higher figure for the USA is due to our having a much larger sample than MSV did, and thus many smaller firms with higher ownership stakes. The ownership stakes in both Anglo-Saxon countries are about half as large as in Continental Europe. The median value of shares held by insiders (VS) is much smaller for the USA ($13 million) than for the other Anglo-Saxon countries ($31 million) and Continental Europe ($104 million), again reflecting the presence of many small firms in the US sample. The mean combined stake of institutions (IT) in the USA is 31%, considerably higher than for the other two samples. Size (S) is measured by the logarithm of total assets. The median US firm has about $112 million in total assets, the median Anglo-Saxon firm has about $203 million, and the median Continental European firm has about $456 million in total assets.

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

4. Results for the United States

4.1. Results for average (Tobin's) q

Eq. (1) in Table 2 presents our results when average q, q_a, 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] When only IS is used to capture the effects of insider ownership, it appears to represent both the wealth and entrenchment effects.

VS and the other variables in the model are added in Eq. (2). The relationship between the value of insiders' shareholdings and q_a 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. With VS capturing the wealth effect of insider ownership, we now expect IS to

[18] 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.

[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.

Table 1b
Correlation matrix

USA	q_a	$\Delta M_t/M_{t-1}$	I_t/M_{t-1}	IS	IT	VS	S	RD
q_a	1.000							
$\Delta M_t/M_{t-1}$	0.274***	1.000						
I_t/M_{t-1}	0.003	0.500***	1.000					
IS	0.035***	0.026***	0.028***	1.000				
IT	−0.033***	0.010	0.015*	−0.461***	1.000			
VS	0.113***	0.026***	−0.003	0.039***	0.086***	1.000		
S	−0.211***	−0.033***	−0.002	−0.470***	0.650***	0.194***	1.000	
RD	0.307***	0.032***	0.015*	0.023***	−0.077***	−0.019**	−0.171***	1.000
MV	0.073***	−0.001	−0.018**	−0.184***	0.188***	0.445***	0.434***	−0.035
English origin (Non-US)	q_a	$\Delta M_t/M_{t-1}$	I_t/M_{t-1}	IS	IT	VS	S	RD
q_a	1.000							
$\Delta M_t/M_{t-1}$	0.039***	1.000						
I_t/M_{t-1}	−0.008	0.487***	1.000					
IS	−0.008	−0.019**	−0.033***	1.000				
IT	−0.011	−0.040***	−0.009	−0.060***	1.000			
VS	0.022**	0.082***	−0.015*	0.163***	0.020**	1.000		
S	−0.034***	−0.018**	0.021**	0.075***	0.065***	0.272***	1.000	
RD	0.022**	0.029***	0.043***	−0.038***	−0.017**	−0.009	−0.123***	1.000
MV	0.038	0.079	−0.020	−0.028	0.020	0.786	0.386	−0.011
Civil law	q_a	$\Delta M_t/M_{t-1}$	I_t/M_{t-1}	IS	IT	VS	S	RD
q_a	1.000							
$\Delta M_t/M_{t-1}$	0.298***	1.000						
I_t/M_{t-1}	−0.066***	0.428***	1.000					
IS	−0.002	−0.047***	−0.013	1.000				
IT	−0.006	−0.012	−0.014	−0.037***	1.000			
VS	0.115***	0.054***	−0.012	0.098***	−0.019*	1.000		
S	−0.110***	0.088***	0.096***	−0.101***	0.034***	0.217***	1.000	
RD	0.062***	0.013	0.268***	−0.020**	−0.027***	0.001	−0.058***	1.000
MV	0.170***	0.122***	0.006	−0.041***	−0.014	0.810***	0.377***	0.016

Note: *, **, *** … significant at the 10%, 5%, and 1% level, respectively.

measure only the entrenchment effect. This appears to be the case. The relationship between q_a and IS remains cubic, but the signs on the three IS terms *reverse*. Instead of q_a rising as insider shareholdings increase it falls, although again in a nonlinear fashion.

When IS is constrained to have a linear relationship with q_a, but one in which its slope is allowed to change, a grid search reveals that the best fit to the data comes at an IS value of 0.29. The coefficient on IS is −1.57 and significant for values of IS less than 0.29, and equals −0.58 (also significant) for values greater than 0.29 (see Eq. (3)). Eq. (3) is our preferred specification. It implies that q_a does decline as entrenchment increases, but that the decline gets weaker at levels of insider ownership in excess of 29%.

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 q_a as predicted.

Table 2
Determinants of average (q_a) and marginal q (q_m) for the US sample

Eq.	Dependent variable	IS	IS^2	IS^3	IS_{x-}	IS_{x+}	VS	VS^2	S	IT	RD	N	Adj-R^2
1	q_a	1.62	−4.34	3.02								16,543	0.128
		5.18	4.42	3.66									
2	q_a	−2.75	5.99	−4.03			0.0011	−4.26E-08	−0.23	0.92	0.63	16,543	0.219
		8.34	6.12	4.99			22.45	12.49	29.78	15.95	23.38		
3	q_a				−1.57	−0.58	0.0011	−4.14E-08	−0.22	0.91	0.63	16,543	0.219
					8.32	9.68	22.12	12.17	29.80	15.84	23.43		
4	q_m	2.60	−7.03	4.49								15,466	0.270
		6.08	5.53	4.34									
5	q_m	0.24	−2.10	1.47			0.0022	−2.06E-07	−0.19	0.64	0.11	15,466	0.289
		0.52	1.62	1.42			16.82	10.52	15.52	8.45	2.96		
6	q_m				−1.76	−0.65	0.0023	−2.12E-07	−0.20	0.65	0.11	15,466	0.289
					3.96	7.57	17.53	10.88	17.08	8.67	3.08		

All equations include a full set of two-digit (SIC) industry dummies. The coefficients for the q_m 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 of the q_m equations. The absolute values of the t-statistics (which are robust to heteroscedasticity) are reported below the coefficients. Eq. (3) and (6) allow for a nonlinear effect of IS on q. We estimate two slopes for the IS variable using a grid search; IS_{x-} is managerial shareholdings of less than x, and IS_{x+} is for managerial shareholdings of greater than x. In Eq. (3) x is 0.29 for the q_a, and in Eq. (6) x is 0.14 for the q_m. VS (VS^2) is the (squared) value of insiders' shareholdings. S represents the firm size (log of total assets), IT the institutional shareholdings and RD the firm level R&D to sales ratio.

The results in Eqs. (1)–(3) of Table 2 illustrate the value of disentangling the entrenchment and wealth effects of insider shareholdings. The coefficients of both IS variables and S imply strong negative effects on q_a 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 positive and significant as predicted. Institutional shareholders appear to improve the performance of the companies in their portfolios.

4.2. 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 q_a, 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 and none remain significant at the 5% level. The highly significant coefficients on the VS terms indicate that they are again capturing the wealth effects of insider ownership. The insignificant coefficients on the IS terms indicate that a cubic specification is inappropriate for capturing the entrenchment effect by itself.

In Eq. (6) we present the results from a grid search, when IS is entered linearly but with different slopes. The best fit now comes at a value for IS of only 0.14. Both coefficients on IS are again significant with the coefficient of IS for lower levels of insider ownership exceeding that for higher levels as expected. With VS in the equation, IS appears to capture only the entrenchment effect of insider ownership, when marginal q is the measure of firm performance. 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, but both its coefficient and t-statistic are much smaller in the q_m than in the q_a equation, which matches our expectations.

Comparing Eqs. (3) and (6), we observe the exact same pattern of coefficients. Negative entrenchment effects of insider ownership and firm size appear with either q_m or q_a 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—q_m. With q_m, however, we find both stronger entrenchment effects as captured by IS and stronger wealth effects as captured by VS. Both coefficients on IS are larger in absolute value in the q_m equation, and the coefficient on VS is double its size in the q_a equation. The coefficient on IS_{x-} implies that an increase in insider ownership from zero to 14%, the range over which IS_{x-} is measured, lowers q_m 0.25—a sizeable drop. The coefficients on the VS terms imply that an increase in the value of insider shareholdings of $100 million raises marginal q by 0.23, once again an economically meaningful change.

Before closing this section, we shall contrast the relationships implied by our results between the two qs 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 appropriate 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 Fig. 1). At low values of insider ownership, the wealth effect dominates the entrenchment effects and both q_a and q_m increase with IS. At a level of insider ownership of slightly under 60%, 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 q_a as their measure of performance, one might wonder why our results do not imply the same pattern as in MSV when q_a is the dependent variable. Here it is worth recalling that we *do* reproduce the MSV pattern with q_a 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.

5. The effects of insider ownership concentration in other countries

5.1. 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 individual countries as we have done for the United States. In examining the effects of ownership structure on investment

[21] See the Appendix for our definition of marginal q.

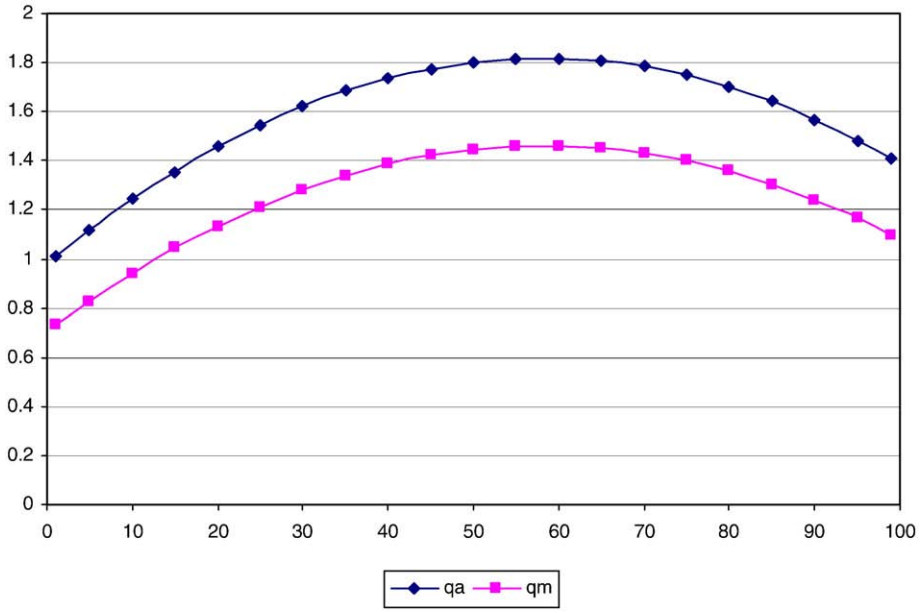

Fig. 1. The relationship between IS and q_a, and IS and q_m in the US.

performance, therefore, we have grouped countries according to the La Porta et al. (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 list, 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%, often even less than 5% 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 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, 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 for which no family or institution holds at least 10% of a firm's shares. These firms are defined as having dispersed ownership. Several things are noteworthy. 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%. 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.

[22] See Gugler et al. (2003b, 2004).
[23] See, Mueller and Yurtoglu (2000), and Gugler et al. (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 et al. (2003b).

Table 3
Ownership structure in common law and civil law countries

(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
European civil law	1730	0.20	0.49	0.26	0.04	0.08	0.44	0.26	0.51	0.32	0.44

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, a 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% of its shares outstanding.

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% 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% of outstanding shares (column 9). Particularly noteworthy is the importance of other firms as shareholders in the civil law countries. For 49% 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% 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.

5.2. 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 institutional shareholders 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 R&D because of a lack of data.

5.3. 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. This largest shareholder is assumed to be part of management, and thus 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. As for the United States, industry dummies were included, but we do not report their coefficients to save space. The first thing to note from the table is that the pattern of signs for the two key variables is nearly *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 coefficients on IS for lower levels of family ownership are all larger in absolute value than for higher levels as expected. The break in the IS variable for Continental Europe in the q_m equation is at a family holding of 31%. This is much higher than for either the United States or the other Anglo-Saxon countries. The most likely explanation for the difference is that shareholdings on average are much higher in Continental Europe than in the Anglo-Saxon countries, and thus insiders must secure a much higher percentage of shares to feel safe from attack from other large shareholders.

The wealth effect is positive on the margin, and diminishing in VS except for the q_m equation in the Anglo-Saxon sample, where the squared VS term has a positive coefficient implying a slightly *increasing* marginal effect. All eight coefficients on the VS terms are highly significant.

A comparison of the *sizes* of the coefficients reveals some important differences between the United States and the other countries, however. For our preferred estimations—the q_m equations—both coefficients on IS are considerably larger for the United States, e.g., roughly twice as large as for Continental Europe. Thus, the negative entrenchment effect from inside ownership is much stronger in the United States than in the other countries.

The coefficients on the VS terms also imply stronger wealth effects from insider shareholdings for the United States than for the other two country groups. The coefficients on the VS^2 terms, although statistically significant, are so small that when we take the first derivative of each equation with respect to VS, and evaluate its marginal impact at the mean or median for VS for each country, the implied marginal impacts of an increase in VS from the q_m equations are almost identical to the coefficients on the VS terms—.00225 for the United States, .0000565 for the other Anglo-Saxon countries, and .000103 for the Continental European countries. Thus, the marginal impact of an increase in VS on q_m is roughly 40 times larger for the US than for the other Anglo-Saxon countries, and 22 times larger than for the Continental European countries. An increase in the value of insider shareholdings of $100 Mio increases q_m by 0.225 in the United States, but only by 0.00565 in the other Anglo-Saxon countries and by 0.0103 in Continental Europe.

Our second entrenchment variable—size—has a negative and highly significant coefficient in all four equations. As with insider ownership, however, the entrenchment effect is stronger for the US, particularly in the q_m equations. The variable Fin has *negative* coefficients in all four equations, with two of them being significant. Thus, there is no evidence that banks and other financial institutions play a positive monitoring role as minority shareholders, and even some evidence that they have a deleterious impact on company performance. The coefficient on Fin in the q_m equation for the Anglo-Saxon countries implies a drop in q_m of 0.086 when a bank holds a 20% stake in a company.

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 consistently has a negative effect on performance. The three major differences in the results are that both the negative entrenchment and positive wealth effects of insider ownership are stronger in the US than in the other countries, and while outside institutional shareholders play a positive role on company performance in the US, share ownership by financial institutions in the other countries has, if anything, a negative impact.

As for the US, in Figs. 2 and 3 we plot the predicted values for q_a and q_m 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 q_a curve starts at a point slightly above 1.0, while the q_m curve starts almost exactly at 1.0. Both curves rise with IS, the q_a curve more steeply than q_m. Both curves peak earlier than for the US—at around an IS of 40%. The q_m curve drops below 1.0 at an IS of around 90%.

The q_a-curve for the civil law countries is essentially flat up to an IS of around 40%, and then begins to slope continuously downward falling below 1.0 at an IS of about 0.9. The q_m curve, on the other hand, begins at around 0.75, remains flat until an IS of around 35%, and then gradually declines as insider ownership increases reaching 0.6 at an IS of 100%. Thus, the results in Figs. 1–3 reveal rather clearly that Anglo-Saxon countries have a superior investment performance to civil law countries. Moreover, they

Table 4
The entrenchment and incentive effects of insider ownership in non-US Anglo-Saxon countries (Eng) and European civil law Countries (CL)

Eq.	Country group	q	x	IS_{x-}	IS_{x+}	VS	VS^2	S	FIN	N	Adj-R^2
1	Eng	q_a	0.23	−2.22	−0.71	2.30E-04	−2.70E-09	−0.15	−0.08	15,059	0.174
				12.16	14.40	20.16	14.65	26.17	1.44		
2	CL	q_a	0.19	−1.07	−0.39	1.00E-04	−2.80E-10	−0.14	−0.11	12,699	0.155
				4.79	10.38	25.7	18.08	26.24	2.73		
3	Eng	q_m	0.17	−1.01	−0.23	5.70E-05	2.10E-09	−0.06	−0.43	12,970	0.263
				3.39	3.21	2.64	5.74	7.03	5.17		
4	CL	q_m	0.31	−0.89	−0.34	1.00E-04	−6.00E-10	−0.03	−0.01	10,366	0.220
				5.72	7.38	11.37	3.63	3.59	0.17		

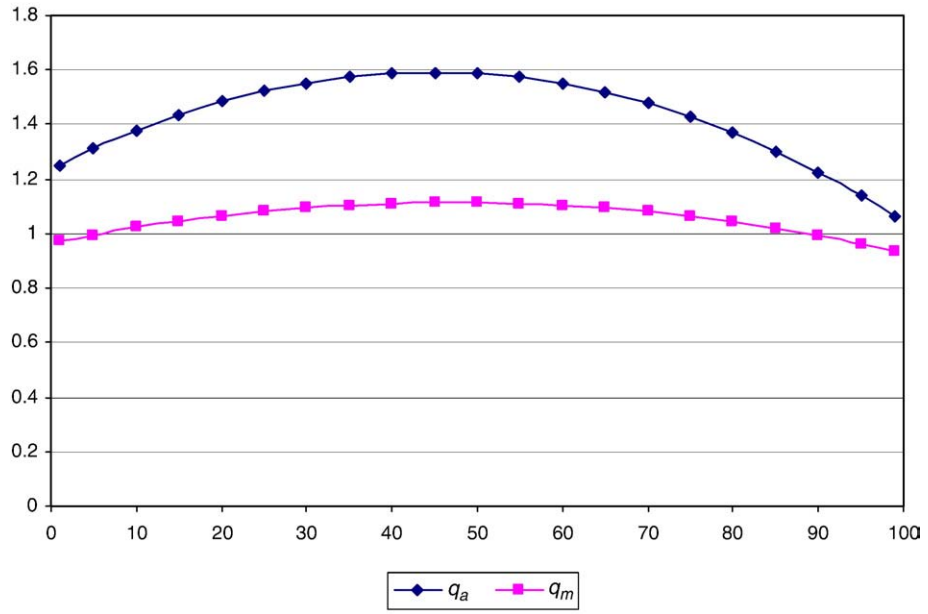

Fig. 2. The relationship between LS and q_a, and LS and q_m in the English-origin non-US sample.

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.

6. 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. Industry dummies were again included to allow for differences in depreciation rates across industries, but their coefficients are not reported to save space. Grid searches indicated that break points of largest shareholder holdings range between 30% and 37%. For two sub-

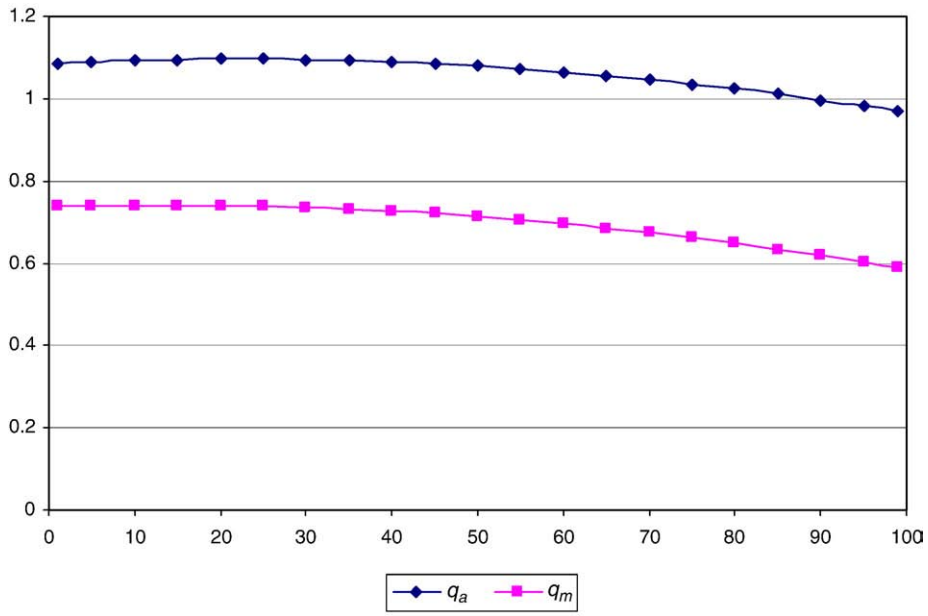

Fig. 3. The relationship between LS and q_a, and LS and q_m in the European Civil Law sample.

samples we report results only for a single, linear term in LS, since they were insignificant and breaks in LS produced a wide range of values for which the *F*-statistic was almost identical. For 5 out of the 8 sub-samples, entrenchment is larger until the break point again corroborating the hypothesis that control/entrenchment is not linearly related to shareholdings. Only in the *qa* equation in the sub-sample where financial institutions in civil law countries are the largest shareholders do we find increased entrenchment *after* the break of 37% ownership.

A consistent pattern appears across all equations. VS and VS^2 typically have positive and negative coefficients, respectively. 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 q_m 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 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 institutions' 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 q_a 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 q_a is generally much larger for insiders than for the other largest shareholder categories in both the Anglo-Saxon and civil law countries.

Fig. 4 presents the plots of q_a and q_m against LS based on the estimates from Table 5. The q_a and q_m curves for firm-controlled companies in Anglo-Saxon countries exhibit the same inverted-U shape observed for insider ownership. The q_a curve for firm-controlled companies in the Continental European countries virtually coincides with 1.0. As always a better indication of the importance of agency problems comes from observing the q_m curve. It starts out at 0.8 and remains roughly constant until an ownership concentration of 0.35, and then declines steadily approaching 0.5 at a concentration level of 100%.

Both the q_a and q_m curves for finance-controlled companies in Anglo-Saxon countries have inverted-U shapes. The q_m curve has a positive slope up to an LS of 0.55, flattens out for a stretch just under a q_m of 1.0, and then slowly declines. Finance-controlled companies in Anglo-Saxon countries achieve modestly improved investment performance as the financial institutions' ownership stakes rise. Nevertheless, the q_m curve for these companies never actually reaches a value of 1.0. Finance-controlled is the only ownership category in the Anglo-Saxon countries for which marginal *q*s are not generally 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 q_m curve starts at a level just under 0.9, remains flat as the controlling financial institution's ownership stake rises until an LS of around 0.35, and then falls to a level of nearly 0.6. Finance-controlled companies in Continental Europe never achieve a q_m as high as 0.9. Thus, the curves in Fig. 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.

These results should dispel the idea that banks and other financial institutions in Continental Europe improve the performance of companies they control. One possible explanation for this is that financial institutions also have agency problems. Their

Table 5
The entrenchment and incentive effects of non-financial corporations (Corp) and financial corporations (Fin) in non-US Anglo-Saxon countries (Eng) and European civil law countries (CL)

Eq.	Country group	LS Identity	*q*	*x*	LS_{x-}	LS_{x+}	VS	VS^2	*S*	FIN	*N*	Adj-R^2
1	Eng	Corp	q_a	0.35	−1.49	−0.67	0.0003	$-4.0*10^{-9}$	−0.22	−0.63	3,630	0.228
					5.44	7.18	13.27	8.28	17.00	2.62		
2	CL	Corp	q_a	0.34	−0.72	−0.36	0.0001	$-3.0*10^{-10}$	−0.15	−0.28	6,080	0.173
					4.11	6.68	22.28	16.65	19.18	2.09		
3	Eng	Corp	q_m	–	−0.07	–	0.0004	$3.0*10^{-9}$	−0.09	−0.32	3,096	0.281
					0.61		1.02	2.83	5.09	0.89		
4	CL	Corp	q_m	0.33	−1.14	−0.49	0.0001	$-9.6*10^{-10}$	−0.04	−0.35	4,990	0.234
					5.26	7.46	9.58	2.53	4.56	2.48		
5	Eng	Fin	q_a	0.30	−2.07	−0.52	0.0002	$-2.77*10^{-10}$	−0.11	−0.01	6,634	0.200
					9.61	5.20	13.17	12.17	14.52	0.08		
6	CL	Fin	q_a	0.37	−0.33	−0.61	0.0005	$-1.8*10^{-8}$	−0.19	0.08	3,166	0.276
					1.76	7.17	17.75	11.42	18.75	1.21		
7	Eng	Fin	q_m	0.33	−0.83	−0.06	0.00002	$-2.5*10^{-9}$	−0.06	−0.15	5,768	0.267
					2.95	0.45	0.48	5.23	5.44	1.43		
8	CL	Fin	q_m	–	0.03	–	0.00007	$-1.14*10^{-9}$	−0.01	−0.05	2,623	0.210
					0.34		4.64	0.54	1.12	1.54		

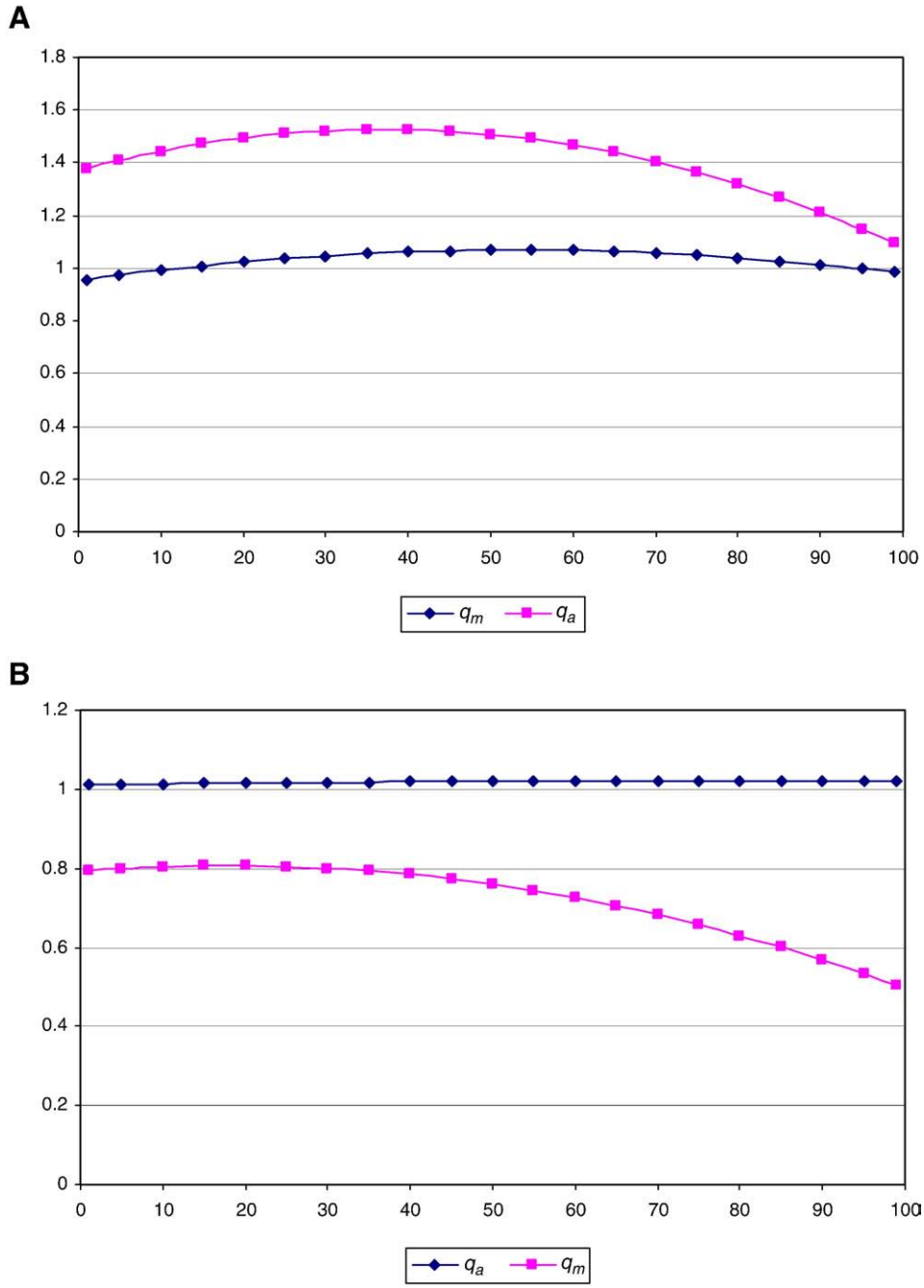

Fig. 4. A) The relationship between LS and q_a and LS and q_m in the English-origin non-US sample for firm-controlled companies. B) The relationship between LS and q_a and L_S and q_m for the European common law asample for firm-controlled companies. C) The relationship between LS and q_a and L_S and q_m for the English-origin non-US sample for finance-controlled companies. D) The relationship between LS and q_a and L_S and q_m in the European common law sample for finance-controlled companies.

managers may pursue growth, and their banks may grow faster, if the firms they control are growing fast. Also, many banks have M&A departments and earn substantial fees advising clients about mergers. Such banks have an interest in seeing the firms they control undertake mergers, even when the mergers are not necessarily in the interest of the merging companies' stockholders.

7. Robustness check

As noted above, our use of marginal q as a dependent variable eliminates the problem of reverse causality, in the sense that managers would choose to hold shares in companies with good investment performance. Investment performance is determined

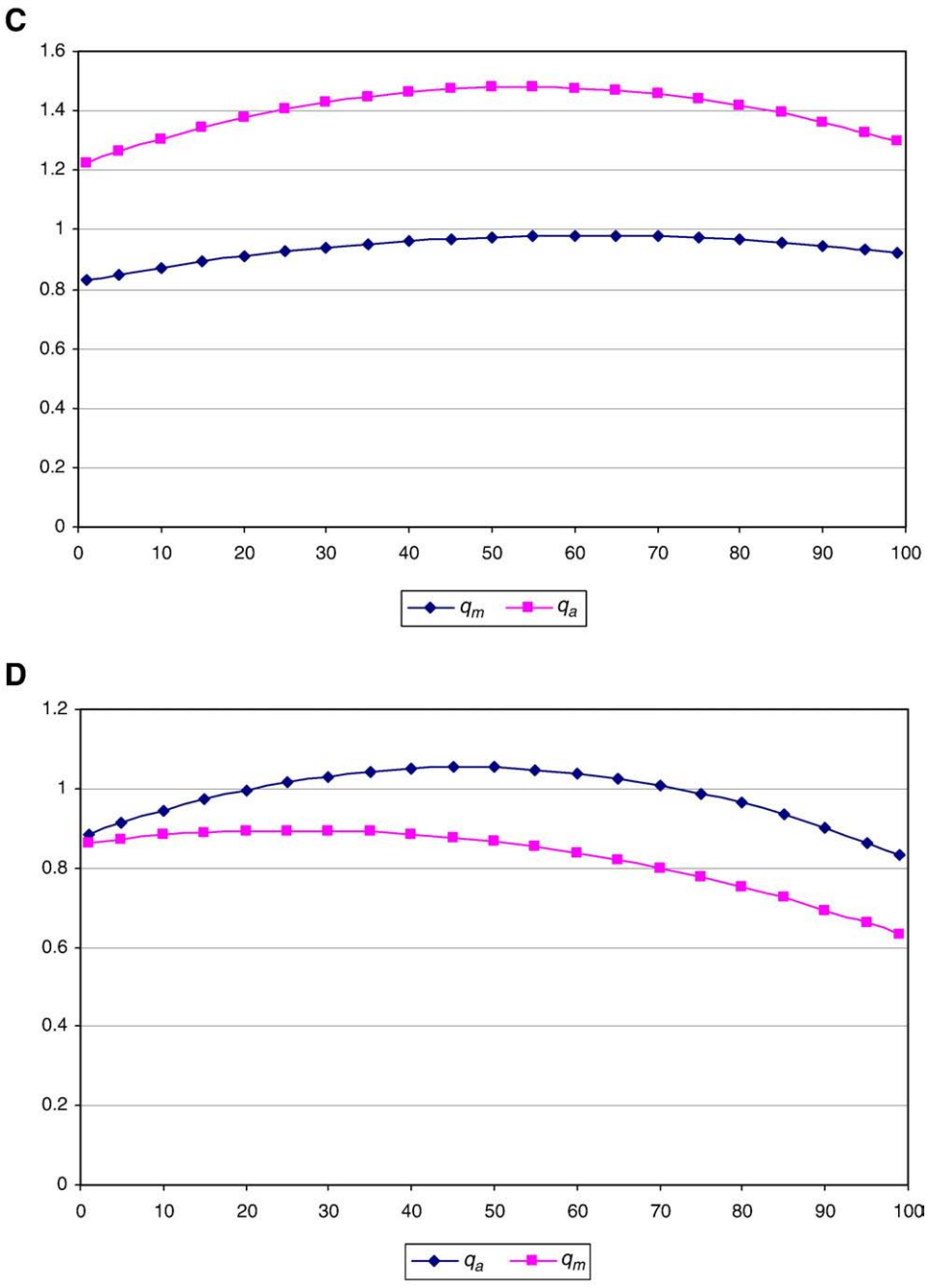

Figure 4 (*continued*).

by the decisions of the managers, which in turn are influenced by their shareholdings. In panel data sets as we employ, endogeneity issues can arise because lagged values of the dependent variable affect the exogenous variables. One way to correct for this problem is to estimate the models using the General Method of Moments (GMM). GMM uses lagged first differences of variables as instruments for the potentially endogenous variables. A difficulty that we have in implementing the GMM procedure is that we only have a complete panel of data for the United States. In the other countries our data sources did not always provide different values of ownership stakes for each year, and thus we had to repeat some of the values. This should not create significant biases in our OLS estimates, since ownership stakes change rather slowly over time, but it does play havoc with the GMM estimates, because the values of the first differences are simply zeroes. Thus, we only report GMM estimates for the United States (Table 6).

The results for both q_a and q_m are quite comparable to those in Table 2, e.g. the insider wealth effects are nearly unchanged. The break in the IS variable for q_a now comes at an insider holding of 0.22, and the coefficient for insider ownership is less than half as

Table 6
GMM estimates for the US sample

	IS_{x-}	IS_{x-}	VS	VS^2	S	IT	RD	N
q_a	−0.63	−0.17	0.0010	−3.95e−08	−0.86	1.00	0.24	10,850
	2.07	1.32	12.09	8.34	22.08	8.95	3.82	
q_m	−2.73	0.11	0.0057	−5.10e−07	−0.30	0.15	0.94	9963
	3.55	0.71	17.05	11.51	12.20	1.01	9.04	

Note: The estimation method is GMM. All Sargan tests of overidentifying restrictions and AR(k) tests that the average autocovariance in residuals of order k is zero are valid. Instruments for GMM include lagged levels of the dependent and the predetermined variables dated $t-2$ or earlier. The coefficient on the lagged dependent variable is omitted from the table and only firms with more than three observations are included. x is 0.22 for the q_a and 0.16 for the q_m equation.

large as in Table 2. Entrenchment appears complete at 22% insider ownership. The other important difference with Table 2 is that the negative impact of size on q_a is much larger in the GMM results.

In the GMM results for q_m, the break in the IS variable comes at an insider holding of 0.16 instead of 0.14. The fall in q_m as IS increases up to 0.16 is much steeper than for the OLS results, and after 0.16 the relationship between q_m and IS becomes insignificant, implying full control by insiders at an IS of 0.16. The coefficient on VS more than doubles so that the GMM results for q_m imply both much stronger wealth effects and entrenchment effects at low levels of inside ownership. The most important additional change is that institutional shareholdings become insignificant in the GMM results for q_m. Thus, there are some important differences between the GMM and OLS estimates for the United States, but most of the conclusions one draws remain unchanged.

8. Conclusions

This article has attempted to separate the positive wealth effect of share ownership from the negative entrenchment effect. To do so, we have used the value of a control group's shareholdings to capture the positive wealth effects of ownership, and the fractional holdings to capture the negative entrenchment effects. 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. This pattern of results is consistent with the hypothesis that managerial decisions, which adversely affect shareholders, have proportional effects on their wealth.

Our preferred measure of investment performance is marginal q, because it more accurately reflects the extent of agency problems in a firm and is less subject to simultaneous equation bias. Comparing the coefficients on IS, LS and VS in the q_m equations of Tables 2, 4 and 5, we see that both the negative entrenchment and positive wealth effects of insider ownership were much stronger in the United States than in other countries. The entrenchment effect was also stronger for insider owners in Continental Europe than for the other two ownership categories. Thus, when an individual or a family is in control of a Continental European firm, its performance is more sensitive to the size of the controller's stake than when another firm or financial institution is in control. In the other English-origin countries, this was only true for a comparison between family-controlled and other company-controlled firms. 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 then fell when *IS* reached values of roughly 60%. The same was true for average q in the other Anglo-Saxon countries except that the curve peaked at an IS of some 45%. The modest rise of the q_m curve in the English-origin countries suggested that the wealth effect only weakly offsets the entrenchment effects over the initial range of IS. In the civil law countries, the wealth effect offsets the entrenchment effects up to an IS of 40%, and then the entrenchment effects gradually pull q_m down.

Another interesting finding is that institutional shareholders appear to be able to constrain managerial propensities toward overinvestment in the United States. Both q_a and q_m are positively related to institutional shareholdings in the US. For the other countries there was no evidence that financial institutions improve company performance 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 q_m–LS curves lie entirely below 1.0 when a financial institution is the largest shareholder in both the Anglo-Saxon and civil law countries.

Although our results reveal a number of similarities across the three samples of countries, they also reveal some important differences. In addition to differences in the shapes of the curves relating q_a and q_m to IS and LS, 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 q_m curves for insider-controlled firms in Figs. 1–3. This superior investment performance of Anglo-Saxon countries continues to be observed for other categories of ownership. Although modest evidence of agency problems was apparent in the q_m–LS curve of finance-controlled companies in Anglo-Saxon countries (Fig. 4C), this curve lies entirely above the analogous curve for the civil law countries (Fig. 4D). These findings support the hypothesis that Anglo-Saxon legal institutions offer shareholders better protection against agency problems than do those of civil law countries.

Appendix A

A.1. Definition of variables

Tobin's q (q_a) is defined as the ratio of the market value of a firm to its total assets (COMPUSTAT item 6) where the market value of the firm equals the market value of common equity (item 199 (share price at the end of the fiscal year) times item 25 (common shares outstanding)) plus the book value of preferred stock (items 56, 10, 130) plus the book value of short-term (9) and long-term debt (34).

Total investment is defined as the sum of income before extraordinary items (18), depreciation (14) and dividends (21), new debt (ΔD), new equity issues (ΔE), R & D expenditures (46) and advertising expenditures (45). New debt (ΔD) is the change in total debt since the previous period. Net new equity (ΔE) is sales (108) less purchases (214) of common and preferred stock. Missing values of R & D expenditures are approximated using R & D-sales ratios at the 3-digit SIC code level from the FTC's Annual Line of Business Reports. Missing values of advertising expenses are approximated using 2-digit advertising to sales ratios from the 1990 IRS Reports on Corporation Returns.

Eq. (1) in the text 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, q_m, is estimated using the following equation (see Mueller and Reardon (1993) or Gugler et al. (2004) for a detailed discussions on this method):

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

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.

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 and calculated by multiplying IS with the market value of equity. Size (S) is measured by the logarithm of total assets in Mn. USD. 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).

A.2. Data appendix

Ownership structure data for German firms have been gathered from the 1988, 1991, 1994, 1997, 2000 and 2001 editions of the *Wer gehört zu wem*, a publication of *Commerzbank* that offers information on the identities and percentage shareholdings of firm owners. Since this data source is only available every fourth year, we use the most recent ownership data for missing years, e.g., 1995 data are from the 1994 edition, and 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.

Ownership data for 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 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).

References

Agrawal, A., Mandelker, G.N., 1987. Managerial incentives and corporate investment and financing decisions. Journal of Finance 42, 823–837.
Agrawal, A., Knoeber, C.R., 1996. Firm performance and mechanism to control agency problems between managers and shareholders. Journal of Financial and Quantitative Analysis 31, 377–397.
Agrawal, A., Jaffe, J.F., 2000. The post-merger performance puzzle. Advances in Mergers and Acquisitions, vol. 1. Elsevier, Amsterdam, pp. 7–41.
Amihud, Y., Lev, B., Travlos, N.G., 1990. Corporate control and the choice of investment financing: the case of corporate acquisitions. Journal of Finance 45, 603–616.
Baker, G.P., Hall, B.J., 2004. CEO incentives and firm size. Journal of Labor Economics 22, 767–798.
Bathala, C.T., Moon, K.P., Rao, R.P., 1994. Managerial ownership, debt policy, and the impact of institutional holdings: an agency perspective. Financial Management 23, 38–50.
Bebchuk, L., Fried, J., 2004. Pay without Performance: the Unfulfilled Promise of Executive Compensation. Harvard University Press, Cambridge MA.
Berger, P.G., Ofek, E., Yermack, D.L., 1997. Managerial entrenchment and capital structure decisions. Journal of Finance 52, 1411–1438.
Berglöf, E., Perotti, E., 1994. The governance structure of the Japanese financial keiretsu. Journal of Financial Economics 36, 259–284.
Berle, A.A., Means, G.C., 1932. The Modern Corporation and Private Property. Harcourt, Brace and World, New York.
Bøhren, O., Ødegaard, A., 2001. Corporate Governance and Economic Performance: A Closer Look. WP Norwegian School of Management.
Cable, J.R., 1985. Capital market information and industrial performance: the role of West German banks. The Economic Journal 95, 118–132.
Cho, M.H., 1998. Ownership structure, investment, and the corporate value: an empirical analysis. Journal of Financial Economics 47, 103–121.
Claessens, S., Djankov, S., Lang, L.H.P., 2000. The separation of ownership and control in East Asian corporations. Journal of Financial Economics 58, 81–112.

Claessens, S., Djankov, S., Fan, J.P.H., Lang, L.H.P., 2002. Disentangling the incentive and entrenchment effects of large shareholders. Journal of Finance 57, 2741–2771.
Cosh, A., Guest, P., Hughes, A., 2001. Managerial Discretion and Takeover Performance. WP ESRC Centre for Business Research, Cambridge University.
Demsetz, H., 1983. The structure of ownership and the theory of the firm. The Journal of Law and Economics 26, 375–393.
Demsetz, H., Lehn, K., 1985. The structure of corporate ownership: causes and consequences. Journal of Political Economy 93, 1155–1177.
Faccio, M., Lang, L.H.P., 2002. The ultimate ownership of Western European corporations. Journal of Financial Economics 65, 365–395.
Firth, M., 1991. Corporate takeovers, stockholder returns and executive rewards. Managerial and Decision Economics 12, 421–428.
Firth, M., 1995. The impact of institutional stockholders and managerial interests on the capital structure of firms. Managerial and Decision Economics 16, 167–175.
Friend, I., Lang, L.H.P., 1988. An empirical test of the impact of managerial self-interest on corporate capital structure. Journal of Finance 42, 271–281.
Gedajlovic, E.R., Shapiro, D.M., 1998. Management and ownership effects: evidence from five countries. Strategic Management Journal 19, 533–553.
Gugler, K., Yurtoglu, B.B., 2003a. Corporate governance and dividend pay-out policy in Germany. European Economic Review 47, 731–758.
Gugler, K., Yurtoglu, B.B., 2003b. Average Q, marginal Q, and the relation between ownership and performance. Economics Letters 78, 379–384.
Gugler, K., Mueller, D.C., Yurtoglu, B.B., 2003a. Marginal Q, Tobin's Q, cash flow and investment. Southern Economic Journal 70, 512–531.
Gugler, K., Mueller, D.C., Yurtoglu, B.B., 2003b. The impact of corporate governance on investment returns in developed and developing countries. The Economic Journal 113, 511–539.
Gugler, K., Mueller, D.C., Yurtoglu, B.B., 2004. Corporate governance and the returns on investment. Journal of Law and Economics 47, 589–633.
Hall, B., 1993. The stock market's valuation of research and development investment during the 1980s. American Economic Review 83, 259–264.
Himmelberg, C.P., Hubbard, R.G., Palia, D., 1999. Understanding the determinants of managerial ownership and the link between ownership and performance. Journal of Financial Economics 53, 353–384.
Jensen, G.R., Solberg, D.P., Zorn, T.S., 1992. Simultaneous determination of insider ownership, debt, and dividend policies. Journal of Financial and Quantitative Analysis 27, 247–263.
Kamerschen, D.R., 1968. The influence of ownership and control on profit rates. American Economic Review 58, 432–447.
Kim, W.S., Sorenson, E.H., 1986. Evidence on the impact of the agency cost of debt on corporate debt policy. Journal of Financial and Quantitative Analysis 21, 131–144.
Kole, S.R., 1995. Measuring managerial equity ownership: a comparison of sources of ownership data. Journal of Corporate Finance 1, 413–435.
Kole, S.R., 1996. Managerial ownership and firm performance: incentives or rewards? Advances in Financial Economics, pp. 119–149.
La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R., 1997. Legal determinants of external finance. Journal of Finance 52, 1131–1150.
La Porta, R., Lopez-de-Silanes, F., Shleifer, A., Vishny, R., 1998. Law and finance. Journal of Political Economy 106, 1113–1155.
Lewellen, W., Loderer, C., Rosenfeld, A., 1985. Merger decisions and executive stock ownership in acquiring firms. Journal of Accounting and Economics 7, 209–231.
Loderer, C., Martin, K., 1997. Executive stock ownership and performance: tracking faint traces. Journal of Financial Economics 45, 223–255.
Manne, H.G., 1965. Mergers and the market for corporate control. Journal of Political Economy 73, 110–120.
Marris, R., 1964. The Economic Theory of Managerial Capitalism. Free Press, Glencoe.
Marris, R., 1998. Managerial Capitalism in Retrospect. Palgrave-Macmillan, London.
Marris, R., Mueller, D.C., 1980. The corporation, competition, and the invisible hand. Journal of Economic Literature 18, 32–63.
McConnell, J.J., Servaes, H., 1990. Additional evidence on equity ownership and corporate value. Journal of Financial Economics 27, 595–612.
McConnell, J.J., Servaes, H., 1995. Equity ownership and the two faces of debt. Journal of Financial Economics 39, 131–157.
Monsen, J.R., Chiu, J.S., Cooley, D.E., 1968. The effect of separation of ownership and control on the performance of the large firm. Quarterly Journal of Economics 82, 435–451.
Mørck, R., Shleifer, A., Vishny, R., 1988. Management ownership and market valuation: an empirical analysis. Journal of Financial Economics 20, 293–315.
Mueller, D., 2003. The Corporation: Investment, Mergers and Growth. Routledge, London.
Mueller, D.C., Reardon, E., 1993. Rates of return on corporate investment. Southern Economic Journal 60, 430–453.
Mueller, D.C., Yurtoglu, B.B., 2000. Country legal environments and corporate investment performance. German Economic Review 2, 187–220.
Mueller, D.C., Sirower, M.L., 2003. The causes of mergers: tests based on the gains to acquiring firms' shareholders and the size of premia. Managerial and Decision Economics 24, 373–391.
Mueller, D.C., Yurtoglu, B.B., 2007. Corporate covernance and the returns to acquiring firms' shareholders. Managerial and Decision Economics 28, 879–896.
Myers, S.C., Majluf, N.S., 1984. Corporate financing and investment decisions when firms have information that investors do not have. Journal of Financial Economics 13, 187–221.
Oliner, S.D., Rudebusch, G.D., 1992. Sources of the financing hierarchy for business investment. Review of Economics and Statistics 74, 643–654.
Osano, H., 1996. Intercorporate shareholdings and corporate control in the Japanese firm. Journal of Banking and Finance 20, 1047–1068.
Palmer, J., 1973. The profit-performance effects of the separation of ownership from control in large U.S. industrial corporations. Bell Journal of Economics 4, 293–303.
Radice, H.K., 1971. Control type, profitability and growth in large firms: an empirical study. The Economic Journal 81, 547–562.
Shinn, E.W., 1999. Returns to acquiring firms: the role of managerial ownership, managerial wealth, and outside owners. Journal of Economics and Finance 23, 78–89.
Shleifer, A., Vishny, R.W., 1997. A survey of corporate governance. Journal of Finance 52, 737–783.
Short, H., Keasey, K., 1999. Managerial ownership and the performance of firms: evidence from the UK. Journal of Corporate Finance 5, 79–101.
Short, H., Keasey, K., Duxburry, D., 2002. Capital structure, management ownership and large external shareholders: a UK analysis. International Journal of the Economics of Business 9, 375–399.
Thomsen, S., Pedersen, T., 2000. Ownership structure and economic performance in the largest European companies. Strategic Management Journal 21, 689–705.
Walkling, R.A., Long, M.S., 1984. Agency theory, managerial welfare, and takeover bid resistance. Rand Journal of Economics 15, 54–68.
Yurtoglu, B.B., 2003. Corporate governance and implications for minority shareholders in Turkey. Journal of Corporate Ownership and Control 1, 72–86.