Does Good Corporate Governance Include Employee Representation? Evidence from German Corporate Boards

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Abstract

Within the German corporate governance system, employee representation on the supervisory board is common and typically legally mandated. When labor has detailed knowledge of firm operations, we propose that labor representation on corporate boards brings valuable first-hand operational knowledge to corporate board decision-making. We discover that labor representation provides a powerful means of monitoring and reduces agency costs within the firm. We show that the judicious use of labor representation increases firm market value and that the greater the need for coordination within the firm, the greater the potential improvement there is in governance effectiveness. These results do not hold for union representatives.

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1. Introduction

Over the past decade, there has been intense research interest in identifying the role of the corporate board in creating firm value and offsetting agency costs caused by the separation of ownership and control. Often the goal of this research is to identify the board structure and composition that provides directors the best incentives to maximize value creation. Various mechanisms have been proposed for how the board alleviates inefficiencies in the firm. Studies of comparative systems of corporate governance across countries have led to insights about optimal corporate board composition and about the interplay between board structure and the legal environment in which firms operate. (Denis and McConnell (2003) summarize the international corporate governance literature and La Porta, Lopez-De-Silanes, Shleifer, and Vishny (2000b) describe the role of the legal system.) In this paper, we examine the role of employee representation on German corporate boards.

An area of inquiry unaddressed in much of the extant corporate governance literature is the role of stakeholders beyond the shareholders. In the Anglo-American system, the fundamental objective of corporate governance is the optimal imposition of incentives and control to maximize the return on equity capital in face of the separation of ownership and control (Shleifer and Vishny (1997)). In other countries—e.g., Germany and Japan—a broader view of corporate governance is often taken. The interests of creditors, employees, customers, suppliers, government, etc. and the conflicts among these other stakeholders are considered (Hoshi (1998) and Schmidt and Tyrell (1997)). Despite these conflicts, the success of a firm is clearly in the best interest of all these parties. In this paper, we do not take a normative position concerning the validity of the stakeholder view; instead, we ask whether the involvement of these other groups in the governance of a firm can increase firm value. *Specifically, we ask, can employee membership to a corporate board increase firm market value? Do employee representatives—while seeking to*

govern the firm in a manner that protects their own interests—indirectly protect the interests of minority shareholders and thereby increase firm value?

A German stock company (*Aktiengesellschaft* or *AG*) has a two-tiered board structure. The *Aufsichtsrat* or supervisory board has a role similar to that of American and British boards of directors. The effect of employee representation on the supervisory board is the subject of this paper. The supervisory board appoints and removes the members of the second board, known as the *Vorstand* or (executive) management board, and sets their salaries. The management board is responsible for firm operations and reports to the supervisory board. The two-tier structure is an attempt to formalize the special governance function of outside directors as representatives of the shareholders. Despite the two-tier structure, a German supervisory board views its responsibilities similarly to an American or British board: long-term strategic planning, fulfilling financial goals, improving profitability, selecting a chief executive, and reviewing the executive's performance (Prigge (1998)). Therefore, many of the implications of this paper may be generalized to other countries as well.

In Germany, there has been a long-standing policy that employees should share in the decision making of their firms. This policy, known as the *Mitbestimmungsrecht*, is usually translated as the *Right of Codetermination*. Through the *Montanmitbestimmungsgesetz* of 1951, Germany requires mining, coal, and steel workers have the right to 50% representation on their company's boards with the remaining 50% representing shareholders. The *Mitbestimmungsgesetz* of 1976 extends this right to all firms with employees numbering in excess of 2,000. The *Betriebsverfassungsgesetz* of 1952 requires stock corporations with employees numbering between 500 and 2000 provide labor *one-third* representation on their boards. Exceptions to codetermination include firms of any size that are family controlled or are involved in media, religious, union, or political activities. [1] [2]

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[1] The allocation of employees among affiliated firms is often complicated through the use of control agreements (*Beherrschungs- und Gewinnabführungsvertrag*) under § 291 AktG and the integration of firms

The codetermination laws also specify board size and election procedures. The supervisory board typically has as few as three and as many as twenty-one board members based on statutory capital, the number of employees, and the codetermination statute that applies. Average size ranges from approximately nine to thirteen depending on the study cited (Prigge (1998)). For our sample, which includes small firms, mean board size is about seven (see Table 1), and the total number of board members ranges from one to twenty-five.

To date, studies examining the financial benefits of labor involvement in corporate governance are few. In Germany, the existing studies examine the effect of the enactment of the 1976 legislation described above. Other studies focus on noneconomic measures of performance such as a firm's capacity to make decisions and implement change or the employees' ability to influence corporate policy. (See Gerum and Wagner (1998) for a summary.) The study most similar to our own is that of Gorton and Schmid (2004), which analyzes the effects of codetermination on the 250 largest German stock corporations. That research compares firms with one-third employee representation to firms with one-half representation and shows that the equity of firms with equal representation trades at a substantial relative discount on average. Gorton and Schmid conclude that employee representation on the board can alter a firm's objective function away from maximizing shareholder value and toward maximizing payroll.

In this paper, we explore in detail whether the optimal board structure includes *any* employee representation. We analyze whether the prudent use of employee representatives on the board of directors may actually enhance shareholder value. That is, we ask whether there may be some optimal board structure that includes some strictly positive level of employee board representation. Our sample consists of all publicly traded stock corporations and includes firms

under § 319 AktG. In addition, employees outside of Germany do not count under German codetermination law. However, employees in subsidiaries within the European Union are relevant to the codetermination laws of the European Union.

[2] Firms for which labor representation is not compulsory are typically those with 499 or fewer employees. However, publicly traded stock corporations established prior to August 10, 1994 (the effective date of the law known as the *Gesetz für kleine Aktiengesellschaften und zur Deregulierung des Aktienrects*) are required to have one-third labor representation regardless of size.

with a broad spectrum of labor representation from zero to more than one-half and firms for which labor representation is both optional and mandatory.

As we describe further in the following section, the information that employee representatives bring to the board and the monitoring capability that this information affords are key elements of our story. Our findings suggest that employee representatives on a firm's board, through their knowledge of operational detail, provide a channel for the flow of valuable information and a means for monitoring management decisions. First, we find that Tobin's Q for firms in industries that demand high levels of coordination with workers, such as trade, transportation, computers, pharmaceuticals, and other manufacturing, significantly improves with employee representation. These results do not hold when the employee is a union representative and does not work directly for the firm. [3]

Second, we find that firms with employee representation are more likely to pay a dividend. Following, Faccio, Lang, and Young (2001) and La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2000a), we interpret dividend payments as evidence of dampened insider expropriation. Third, we find that Tobin's Q for firms in more concentrated industries is higher when employees are present on the corporate board. In light of reduced competition and the consequent greater free cash flow, we infer that employee representatives in these concentrated industries provide information that reduces the ability of management to take perquisites and insiders to reap private benefits of control. Fourth, we find some evidence that supports Gorton and Schmid's (2004) results and show that excessive labor representation may create its own agency problem and reduce firm value. *In sum, we infer that the judicious use of labor representation may increase firm market value.*

We feel this research is especially timely. Recently, what constitutes good and effective corporate governance has become a major concern in free enterprise economies around the world.

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[3] We have run analyses to test for the effect of a union representative and observe that union representation—unlike employee representation—does not significantly increase firm value.

In Germany, Tüngler (2000) identifies a significant transition from the detached supervisory boards studied by Edwards and Fischer (1994) to ones engaged in active monitoring of management and firm performance. Similar to the *Code of Best Practice* of the Cadbury Committee in the U.K., the *German Corporate Governance Code (Deutscher Corporate Governance Kodex)* was promulgated in February 2002. This *Code* has set new standards for good and responsible corporate governance and has specified the tasks and responsibilities of the supervisory and management boards.[4] Although the adoption of the German *Code* is optional, our survey of annual reports from 2002 indicates the widespread intention to comply. The importance of codes of corporate governance in the U.K. is studied by Dahya, McConnell, and Travlos (2002). These authors (who by their own admission are skeptical as to the effects of the adoption of such codes) find a significant increase in management turnover and turnover sensitivity to firm performance following the adoption of the *Code of Best Practices* by U.K. firms. Our examination of corporate websites and annual reports from 2002 including the reports of the supervisory board shows a surprisingly active role of the supervisory board and often detailed statements of compliance with the *Corporate Governance Code*.[5]

In addition, corporate governance shows signs of convergence in the face of both mounting global competition in financial and product markets and international standardization of accounting and legal systems. (Schmidt and Tyrell (1997) discuss the convergence of systems of corporate governance globally, and Clark and Wójcik (2004) and Wójcik (2003) describe recent

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[4] For example, Section 3.4 states: "…The Management Board informs the Supervisory Board regularly, without delay and comprehensively, of all issues important to the enterprise with regard to planning, business development, risk situation and risk management. The Management Board points out deviations of the actual business development from previously formulated plans and targets, indicating the reasons therefor[e]." Section 5.1.1 continues: "…The task of the Supervisory Board is to advise regularly and supervise the Management Board in the management of the enterprise. It must be involved in decisions of fundamental importance to the enterprise."

[5] One such example is from Bayer AG's website which discusses the cooperation between the management and supervisory boards: The supervisory board "is directly involved in decisions on matters of fundamental importance to the company and confers with the Board of Management regarding the company's strategic alignment. It also holds regular discussions with the Board of Management on the business strategy and the status of its implementation." We found similar comments on the websites of Siemens AG and many other firms.

changes in the corporate governance structure of German firms in particular.) Because corporate governance is in a state of global flux, alternative corporate governance practices such as codetermination are very much the subject of debate.[6]

The rest of the paper is organized as follows. Section 2 summarizes the underlying economics of labor representation. Section 3 describes the data, and Section 4 discusses the methodology. Section 5 interprets the results, Section 6 tests the robustness of our results, and Section 7 concludes.

2. The Economic Setting

The theoretical literature on optimal corporate governance mechanisms, though very promising, is still only emerging, and the role of employee representation in governance is even less developed. In this section, we discuss this nascent understanding of the underlying economics of employee representation.

A. Perspective from the Literature[7]

From the underlying economics, it is by no means clear whether codetermination rights should increase or decrease firm value. In the classical analysis of the firm by Alchian and Demsetz (1972), the private firm is allocationally efficient when all control and property rights reside in one agent, the firm owner. The owner pays a competitive wage, monitors worker shirking, and—as the owner is the residual claimant—has efficient incentives. This simple picture of efficiency is clearly disturbed when codetermination is introduced. Property rights are now split between two agent types each pursuing a different agenda. Moreover, a similar line of reasoning also suggests that if the codetermination structure were mutually value enhancing, then it would have been adopted voluntarily, not through legislation.

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[6] For example, see *Börsen-Zeitung*, 2 January 2002, p. B22, (trnsl) "Financial Market Reform of Corporate Governance, the Supervisory Board System and the [Anglo-American Single] Board Model Converge."
[7] This subsection benefits from Gerum and Wagner (1998).

Key elements of the firm are absent from the Alchian and Demsetz (1972) analysis however. First, in the neoclassical firm, employees have no firm-specific skills. To the contrary, there is now more general agreement that employees develop firm-specific human capital and, like the firm owner, make "investments" in the firm. These nontransferable skills and knowledge may be critical to the competitiveness of the firm. Because long-term employment contracts either do not exist or lack specificity and because human capital investment is nontransferable, employees may fear future opportunism. Returns on human capital investments (i.e., wages) commensurate with investment, may never materialize (assuming asymmetry of information between the firm and new employees and ignoring the effects of owner reputation). This reasoning leads Furubotn and Wiggins (1984) to conclude that codetermination may intercede against this opportunism, promote human capital investment, and thereby increase firm value. Codetermination helps to reduce a time inconsistency problem and to ensure future rewards for worker commitment.

Another criticism of codetermination is that it interferes with natural economic forces in a competitive economy. As Jensen and Meckling (1979) observe,

> *If co-determination is beneficial to both stockholders and labor, why do we need laws which force firms to engage in it? Surely, they would do so voluntarily. The fact that stockholders must be forced by laws to accept co-determination is the best evidence we have that they are adversely affected by it.*

According to the transaction-cost theory of Williamson (1975), competitive forces drive the firm to its lowest cost organizational form. Because codetermination laws exogenously impose a structure, natural and efficient governance is not achieved.

To the contrary, coordination problems may impose substantial frictions on these competitive forces as discussed in Levine and Tyson (1990). If frictions are substantial and codetermination truly maximizes profits, we would not observe the outcomes described by Jensen and Meckling (1979) or Williamson (1975). As in the standard prisoner's dilemma, the first-best outcome may not obtain in equilibrium without coordination: Suppose that codetermination

increases firm value and consider any single firm implementing codetermination on its own. Pay differences between management and workers are likely to fall, and worker job security is likely to rise, as the bargaining power of labor capital providers has improved. Consequently, this single firm is likely to lose its best management talent and attract the least capable and least productive workers. Adverse selection induces a negative externality if codetermination is unilaterally introduced. Only with coordination, perhaps through legislation, can the benefits of codetermination be realized.

As Freeman and Lazear (1995) discuss, codetermination provides a mechanism for the credible exchange of information between the board and the workers. During difficult times for the firm, the union will be well aware of the problems and forthcoming with concessions. Of course, during times with better firm performance, labor too will expect to benefit. At the very least, the probability of a costly strike when the firm truly cannot afford a wage increase is likely to decrease with codetermination. This free and credible exchange of information should also improve cooperation and lead to a team approach to management. Workers with operational expertise should now have a means to propose ideas to the highest levels of the firm and thereby improve efficiency. Employee representation may improve the coordination and flow of specific knowledge within the firm, i.e., create an information intermediary between management and other employees.

Perhaps most importantly, we propose labor representation introduces a highly informed monitor to the board. The corporate governance literature provides a rich set of monitoring agents and mechanisms. In contrast to the widely held firm where no one shareholder has the incentive to monitor, Stiglitz (1985) recognizes that concentrated share ownership provides the holder of a large block of shares the incentive to monitor the firm and maximize its value. However, the manager-shareholder agency conflict often studied for American firms is replaced by a small shareholder-large shareholder agency problem in an international corporate governance context. (Shleifer and Vishny (1997) and Denis and McConnell (2003) survey these issues). Large

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blockholders of shares may enjoy private benefits of control through the expropriation of smaller

capital providers. As Bebchuk (1999) discusses, the separation of voting rights and cash flow

rights can lead to the redistribution of wealth in inefficient ways. Moreover, Lins (2003) finds

that when ownership and cash flow rights are aligned, firm value increases. (These results parallel

the findings of Stulz (1988), who analyzes managerial control rights for U.S. firms.)

Consequently, a larger ownership stake may be necessary to increase a blockholder's cash flow

claim and thereby realign his interests with those of minority shareholders.

Many researchers have proposed that banks with board seats provide an additional source

of outside monitoring in both Japan and Germany (e.g., Kester (1993)). The conventional wisdom

is that bank representation on German boards is wide spread, and through regular meetings of the

board, bank representatives monitor and influence corporate strategy. For example, Cosh,

Hughes, and Singh (1990), Grundfest (1990), and Hallet (1990) believe that bank representatives

provide a monitoring service that counters managerial myopia, preemptively reorganizes

management before problems arise, and effects necessary changes in corporate strategy. This

position is by no means unopposed however. In a widely-cited piece of literature, Edwards and

Fischer (1994) argue that the conventional wisdom regarding the benefits of the German bank-

based system with respect to economic growth and effective governance are overstated.[8] Tüngler

(p. 233, 2000) rationalizes these opposing views of late by writing:

> The focus of the supervisory board's work has begun to shift more and more towards
> advising and counselling the management board…controlling and supervising the
> management in time in order to prevent worse consequences…These duties and the
> appointment of a management board are the main tasks of the supervisory board.

Cable (1985) and Gorton and Schmid (2000) offer evidence that the value and

performance of German firms improve as bank board representation and equity ownership rise.

Bank representation may be a means to reduce the agency costs stemming from the separation of

ownership and control. We draw a parallel between the role of employee representatives and

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[8] We thank an anonymous referee for bringing this issue to our attention.

bankers on the board. *Like the banker who protects creditor interests, employees who protect labor interests indirectly protect the claims of small shareholders and may increase firm value.* Unlike the banker, however, labor representatives potentially have detailed knowledge of operations, new project feasibility, and the relative benefits of new technologies and, due to their human capital investment in the firm, are in some way residual claimants like the shareholders. Moreover, we propose that firms in industries such as trade, transportation, computers, pharmaceuticals, other manufacturing, and construction, which require coordination and special skills and knowledge, especially benefit from employee representation.

In the Anglo-American model of corporate governance, management nominates the members of the board, who the shareholders then elect. This process promotes close ties between management and the board. If project choices have imbedded in them external benefits to management and only management has the ear of the board, a situation arises where investment decisions are based partly on the perks associated with projects and the empire-building motives of management rather than purely on economic feasibility. In the German model, a large percentage of board members are nominated and elected by the employees of the firm. In this setting, an informed labor presence on the board may reduce the likelihood that perk-based investments are proposed and funded. As we address in the next section, however, excessive labor representation may reintroduce similar investment inefficiency. In light of both costs and benefits from codetermination, the relationship between firm value and employee representation is an empirical question.

B. Sources of Value Creation

We posit an inverted U-shaped relation between firm value and labor representation. The prudent use of labor in corporate governance can be value enhancing. Excessive influence of labor, on the other hand, may create a firm that is a "country club" for workers. The work of Gorton and Schmid (2004) shows that moving from one-third to one-half labor representation destroys firm

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value. This finding is not inconsistent with our view; a priori, one-half labor representation seems excessive. A second interesting difference between the one-third and one-half employee representation regimes is the involvement of union representatives as opposed to true employees on the supervisory board. According to Gerum, Steinmann, and Fees (1988), fully 29% of the "employee" representatives are external union representatives for firms with one-half representation. To the contrary, Vogel (1980) reports only 3% of the employee representatives come from the trade unions for firms with one-third representation.

We postulate that labor representation increases firm value by acting as a conduit for the flow of information. First, on an operational level, it is arguable that labor has a unique perspective on the costs of production, especially those related to worker hours. A labor presence on the board consequently provides unique insight into project feasibility and therefore improves corporate decision-making. Another form of labor representation in business decision-making in Germany is Work Councils Codetermination. Under these laws, plants must have councils elected by workers; firms with multiple plants must have aggregate councils; and holding companies (*Konzerne)* with multiple firms must have group councils.[9] Furthermore, in firms with over 100 permanent employees, employees must also establish a business and finance committee (*Wirtschaftsausschuss*). This committee may act as yet another mechanism through which information may be aggregated and analyzed; the firm must report in a timely fashion changes to the firm's financial position and any effect on the workforce. Vogel (1980) and Gerum, Steinmann, and Fees (1988) report that 74% (53%) of the employee representatives on supervisory boards of firms with a one-third (one-half) employee vote are chairmen, deputy chairmen, or ordinary members of the firms' various work councils. Prigge (p. 1012, 1998) surmises:

> … *at least as members of* Wirtschaftsausschuss*, work councilors can collect both a wide range of basic plant-level information as well as information on the business and*

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[9] A clear benefit from this structure is the communication of learning and acquired expertise throughout a plant and across plants within firms.

financial situation. Conditions seem to be such that a works councilor sitting on the supervisory board has a solid information base at his disposal and, equally important, his information base most likely is highly complementary to the information the shareholder representatives have…from a mere informational perspective the makeup of the supervisory board…is a good starting point for management board monitoring…This may be one main reason why internal employee representatives are generally highly appreciated supervisory board members of the capital side.

We propose that the greater the need for coordination and the greater the complexity of the labor component of production, the greater is this potential benefit from employee representation. This effect should not hold for union representatives, who do not work for the firm and hence do not have direct operational knowledge.

In the other direction, labor representation creates a credible vehicle through which information may be conveyed to the unions. In comparison, the Anglo-American model often leads to adversarial labor-firm relations. The basis for this tension is likely the asymmetry of information. We hypothesize that the greater transparency achieved through direct board representation reduces labor-firm antagonism, engenders a team approach to problem solving, and allows natural synergies to emerge thus benefiting shareholder value.

As a second mechanism for value creation, labor with its operational knowledge acts as a check on the private control benefits of large shareholders and the perquisite-related abuses by management. If only management proposes board members, then only management has access to the board. It is likely that embedded in project choices there are benefits to large shareholders or management that do not improve small shareholder wealth and hence firm value. Again, detailed knowledge of operations allows employees to act as a check on choices made for the benefit of large owners and management, but to the detriment of firm viability and hence labor interests. However indirectly, this whistle-blowing function of labor protects small shareholders and increases firm value. We would therefore anticipate a labor presence on the board should reduce asset stripping and management perk taking and increase the payout of cash flow as shareholder dividends.

This being said, there remains the right-hand side of our proposed inverted U-shaped function. When excessive, labor representation reintroduces some of the agency problems it initially cures. In this case, the beneficiary is labor, not management. Improved assessment of project feasibility and reduced managerial perquisites may give way to the selection of technologies that maximize the number of workers required rather than minimize the costs of production. That is, project choice may now be based in part on labor rather than management perquisites. In the extreme, the firm may be managed to maximize payroll rather than firm value.

Roe (1998) proposes that excessive codetermination may force the diminution of supervisory board power. Because strong boards bring concomitantly strong labor influence to firm decisions, many large German firms remain family controlled, avoid subjection to codetermination laws, and reduce the power of labor. Of the major sources of corporate governance (boards of directors, takeovers, product and capital market competition, and concentrated ownership), Roe (1998) believes that only concentrated ownership is effective in Germany. In a sample of 171 publicly traded commercial and industrial firms, Franks and Mayer (2001) report that in 85% the largest shareholder owns at least 25% of the voting stock, and in 57% the largest shareholder owns over 50% (also see Becht and Böhmer (1997)). By comparison, in our sample of 786 large and small firms, we find that in 53% the largest shareholders own at least 25% of the voting stock, and in 39% the largest shareholder owns over 50% of the voting stock. Roe (1998) also notes that to circumvent employee representation, firms substitute an informal system of frequent out-of-the-boardroom meetings between management and the largest shareholder for formal governance by the board. To the extent that this governance and ownership structure is the response to a constraint imposed by codetermination legislation on an otherwise efficient economy, firm value must suffer.

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3. Data

Our data consist of all stock firms incorporated in Germany and trading on a German stock exchange in 2003. The firms must be jointly available on Bloomberg and Thomson Financial's Worldscope database as of August 2003. From Bloomberg we obtain the supervisory board composition. From Worldscope we obtain measures of accounting performance, market capitalization, and business and geographic segment data as of fiscal year-end 2002.[10] In total, our sample consists of 786 firms. In addition, we calculate measures of industry concentration using the Herfindhal index and the business-segment data for *all* German firms included in the Worldscope database. This larger sample consists of 991 firms.

4. Methodology

We present a series of cross-sectional multivariate regressions using Tobin's Q (the ratio of the market value of equity plus the book value of assets minus the book value of equity over the book value of assets)[11] as the dependent variable and an indicator for labor representation as an independent variable along with control variables that include measures of firm size, business segment and geographic diversification, ownership concentration, bank board membership, industry concentration, industry classification, leverage, and several interaction terms. These control variables were selected because of their importance in previous studies. As a robustness check, we like Claessens, Djankov, Fan, and Lang (2002) and Lins (2003), replace Tobin's Q and repeat our analyses using market-value-of-assets to book-value-of-assets, market-value-of-equity to book-value-of-equity and operating return as three alternative dependent variables. Generally, all of our results hold for the market-value-of-equity to book-value-of-equity and for the market-value-of-assets to book-value-of-assets, and some, but not all, hold for the operating return measure.

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[10] For 669 out of a total of 786 firms, this fiscal year end is December 31, 2002.

[11] This measure for Tobins's Q has been used in Lins (2003) and Doidge, Karolyi and Stulz (2004). A similar measure has also been used by Fama and French (1998), La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2002), and Aggarwal and Samwick (2003).

Lang and Stulz (1994) document that U.S. firms diversified by business segment trade at a discount as measured by Tobin's Q. Berger and Ofek (1995) draw a similar conclusion using an excess value measure. Lins and Servaes (1999) confirm this finding in Japan and the U.K. but are unable to find a diversification discount in Germany. Similar to the latter paper, we define a firm as business-segment diversified when no more than 90% of a firm's sales can be attributed to one four-digit SIC segment as defined by Worldscope. We also include a measure of geographic diversification. We define a firm as geographically diversified when no more than 90% of its sales can be attributed to one geographic segment as defined by Worldscope.

In contrast to the U.S., where studies find that blockholdings of shares rarely have a very meaningful effect on firm value (see, e.g., Holderness (2003)), Gorton and Schmid (2000) and Lins and Servaes (1999) find that German firms with concentrated control rights trade at a premium as measured by Tobin's Q. In our sample, the mean total blockholder ownership is about 20% (40%) for firms without (with) employee representation. Generally, blockholders are defined in Worldscope as owners of 5% or more of the shares. We control for this ownership concentration through three bins of continuous variables: OWN10, OWN10-30, and OWN30+. This structure is similar to that of Morck, Shleifer, and Vishny (1988), McConnel and Servaes (1990), and Lins and Servaes (2002) and allows for a nonlinear relationship. The first variable assumes values between zero and 10%, the second between zero and 20%, and the third between zero and 70%. For example, when the blockholders control 70% of the firm, OWN10=0.10, OWN10-30=0.20, and OWN30+=0.40.[12]

A priori, allowing for nonlinearity in the effect of ownership on value is important as a blockholder may have very different incentives as his ownership stake varies. Sufficiently high levels of ownership should align his interests with those of minority shareholders and create an incentive to generate positive cash flow. Less of an ownership stake (while not adversely affecting the blockholder's effective control) may place cash flow from share ownership second

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[12] We have tried other ownership bins and have obtained similar results.

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to the private benefits of control, e.g., asset stripping, investor dilution, empire building or crony capitalism, and unfair transfer pricing. This suboptimal governance should lead to lower firm value. These benefits may be closely related to a diversification strategy. In fact, diversification may be a symptom of these problems. (See Lins and Servaes (2002) for a study of these effects in emerging markets and Denis and McConnell (2003) and La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2000b) for an integrative discussion of these issues.)

Other factors affecting corporate governance through agency conflicts have been proposed in the international corporate governance literature. Prominent among these in Germany—but not without controversy as discussed in Section 2—has been the positive, monitoring role played by bank representatives on the supervisory board. Because Cable (1985) and Gorton and Schmid (2000) show firm performance and value increase with bank supervisory board representation and equity control rights, we include a bank indicator variable that equals one if at least one board member is a bank representative.

We propose that there may also be an interaction between product market competition and employee representation on firm value. We identify two opposing effects: First, competition should enhance the benefits of cooperation between employees and owners. On this account, board membership should provide a credible means to convey information such as the vulnerability of the firm's competitive position and profits. Consequently, labor-induced costs should fall. Second, and in the opposite direction, industry concentration should lead to higher profits and less incentive for management to perform creating an environment rife with cash-flow agency costs and inefficient investment (see Dyck and Zingales (pp. 576-7, 2004) for a related discussion). Consequently, employee representatives, equipped with access to detailed operations-level information, should be vehicles for the communication of the inefficiency to the board. On this account, employee representation should improve the monitoring effectiveness of the supervisory board and add value to firms in concentrated industries. Several of our

regressions include an industrial concentration measure, which we calculate as the sales-weighted average of the Herfindhal index values of a firm's business segments.

Perhaps most critically, we propose that firms in industries that demand intense coordination or involve specially skilled and knowledgeable workers should benefit most from employee representation. For these industries the higher degree of information flow that board representation provides should be more valuable. However, in the literature, there are no established "high-coordination" industries. A search of the strategic management, operations management, and management science literature indicates that coordination and complex information flow are critical issues in industries requiring supply chain management: "supply chain management requires heavy emphasis on integration of activities, cooperation, coordination and information sharing throughout the entire supply chain, from suppliers to customers" (Lourenco (p. 1, 2004)). Moreover, a major component of supply chain management is transportation and logistics management (Thomas and Griffin (1996)) and bidirectional flow of information (Cooper, Lambert, and Pagh (1997)).[13] Consequently, we include SIC groupings where, a priori, supply chains or, more generally, complex serial processing are a central component of the industry's operations.

Easterbrook (1984) and Jensen (1986) argue that unless excess cash is disgorged from the firm, it is wasted or diverted to activities that privately benefit insiders to the detriment of outsiders. In an international context, LaPorta, Lopez-De-Silanes, Shleifer, and Vishny (2000b) conclude dividends are paid in response to the demands of minority shareholders who intervene against expropriation by insiders (when the legal system provides them adequate protection and power). Therefore, we include an indicator of whether a dividend is paid to capture a possible reduction in the expropriation of small, outside shareholders by controlling shareholders as suggested by Faccio, Lang, and Young (2001). Similarly, to control for the disciplining effect of debt in a firm's capital structure (Jensen (1986)), we include leverage as an explanatory variable.

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[13] See Duboisa, Hulthéna, and Pedersen (2004) for a discussion of the supply chain literature.

In addition, to control for the effect of firm size, profitability, and growth opportunities, we include the natural logarithm of total assets, the ratio of operating profits to sales, and the ratio of capital expenditures to sales (Lang and Stulz (1994), Berger and Ofek (1995), and Lins and Servaes (1999)).

5. Discussion and Implications

A. Summary of Univariate Results

Table 1 provides a description of the supervisory board for firms with employee representatives, bank representatives, and union representatives. Approximately 51% of the firms (400 firms out of 786 firms) have employee representation on their supervisory boards. Among firms with employee representatives, the mean (median) number of these representatives is 3.618 (3), and as the median board size for these firms is nine, the median employee representation on boards with employees is one-third.[14] The breakdown for bank representation is much different. Specifically, 29% of the firms (225 firms out of 786 firms) have bank representation on the supervisory boards (almost half of the number with employee representatives). Roughly 18% (138 out of 786) of the firms have a union representative and among those there is an average of 1.775 union representatives.

Table 2 compares firms based on whether they have employee representation on their boards and provides summary statistics of firm characteristics. The table also provides tests for the statistical differences in these measures. We see that firms with employee representation are significantly larger with respect to sales and assets and are relatively more profitable. Consistent with our supposition that employee representatives intervene against poor investment choices by management, we see that both capital expenditures and R&D as a ratio to sales are lower among firms with employee representatives. This result resonates with the signaling model of Bebchuk and Stole (1993) and our thought that, unopposed, management inefficiently overinvests in long-

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[14] In addition, we calculate that 146 out of 400 firms or 36.5% have labor representation in excess of the statutory requirements.

term projects having uncertain productivity such as equipment installation, plant construction, and R&D. Similarly, Table 2 provides evidence that dividend yields are significantly greater among firms with employee representation supporting our contention that these representatives reduce agency costs such as those of free cash flow (Jensen (1986)). We also find support for the hypothesis of Roe (1998), that ownership concentration is often higher in firms that have employee representation: the mean (median) value is 40.7% (36.0%) for firms with employee representation versus 19.7% (0.0%) for firms without employee representation. The indicators Block Percent 25, Block Percent 50, and Block Percent 75, which equal one when the largest blockholder owns more that each respective percentage, are all greater among firms with employee representation. These differences are significant at the 1% level. Lastly and perhaps most interestingly, firms with employee representation have a significantly higher median value for Tobin's Q than do firms without employee representation (1.126 vs. 1.038).[15]

B. Regression Results with Employee Representation and Industry SIC Classification

It appears that there is some univariate evidence that firms with employee representation have a higher Tobin's Q. However, we have not yet controlled for other factors known to affect this measure. These variables include indicators for industry and geographic diversification, profitability, growth opportunities, size, leverage, dividend payout, and ownership concentration. In this section, we use several multivariate regression models to test whether firms in industries that are information intensive, require specialized production knowledge, or demand high levels of coordination benefit from employee representation on their boards. We define these industries

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[15] An anonymous referee makes an interesting observation: if employee representatives limit the private benefits of control, then the size of the premiums paid in large block sales transactions should be lower when employees sit on the board. Dyck and Zingales (2004) study such transactions and measure the private benefits of control in 39 countries. We thank the authors for providing us their data for German firms. Of the 20 German firms, 14 had supervisory board data on Bloomberg: ten had employee representation and four did not.. Unfortunately, the small sample size did not permit any statistically significant inferences.

below and in Table 3 by their two-digit SIC and use a firm's primary SIC to assign it to an industry.

Model 1 of Table 3 includes the employee representation indicator along with several firm characteristics. The analysis illustrates that employee representation neither significantly increases nor decreases firm value as measured by Tobin's Q.[16] However, geographic and industry diversification clearly decreases firm value. The latter result contrasts with Lins and Servaes (1999), who examine a sample of larger German firms but do not observe an industry diversification discount.[17] Our results are consistent with the reasoning of La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2000a) and the results of Lins and Servaes (1999) for the U.K. and Japan: diversification reflects an agency cost between blockholder(s) and minority shareholders and leads to a discount of approximately 16-33%. We also find size as measured by the log of assets has a negative and significant effect on firm value similar to Fauver, Houston, and Naranjo (2004), Lins and Servaes (1999), and Lang and Stulz (1994). We observe that firms paying a dividend have higher value relative to those not paying dividends thereby providing evidence consistent with the notion that dividends reduce the agency cost of free cash flow (Easterbrook (1984), Faccio, Lang, and Young (2001), Jensen (1986), and LaPorta, Lopez-De-Silanes, Shleifer, and Vishny (2000b)). On the contrary, leverage appears to play no significant role in the analyses of Table 3. The coefficients are even negative, opposite to the free-cash-flow arguments of Jensen (1986).

Models 2 and 3 test whether firms benefit more from employee representation in industries that demand greater coordination, labor involvement, and more specialized employee skill sets. We see the industry indicator variables for trade (SICs = 50-59), transportation (SICs = 40-49), and manufacturing (SICs = 28-29, 33-39) consistently and significantly negatively affect

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[16] However, when an indicator is included in Model 1 of Table 3 that equals one when labor representation exceeds the statutory minimum and zero otherwise, its coefficient is positive and significant at the 10% level.
[17] Lins and Servaes (1999) do not control for geographic diversification however.

firm value.[18] Notwithstanding, the presence of employee representatives on the board alleviates these negative effects. When the employee representation indicator is interacted with each of these industry indicators, we observe a positive and significant effect on firm value. Moreover, the magnitudes of the interaction coefficients show that the benefits from employee representation substantially offset the ill effects of process complexity. For example, in Model 2, we see that the coefficient on the trade indicator is −0.457, but if employees are represented on the board, the industry effect is mitigated such that the net effect falls to −0.004 (=−0.457+0.453). We infer employee board representation in complex, coordination-intensive industries increases firm value. Contrary to Cable (1985), but consistent with Edwards and Nibler (2000), we find little evidence in favor of a value-creating role for bank representation on the supervisory board. Although consistently positive in our analyses, the bank representation indicator is never significant.

Model 3 introduces ownership measures. The marginal effect of additional ownership concentration when blockholders own less than 10% is negative and significant, while the marginal effect when ownership exceeds 30% is positive and significant. We infer larger ownership concentration aligns blockholders' interests with cash flow maximization and reduces their incentive to expropriate small shareholders' claims. This result also follows the Roe (1998) conjecture that only concentrated ownership is beneficial to firm value in Germany. As in Model 1, industrial diversification, geographic diversification, and size negatively affect firm value. In

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[18] We have tried other industries that a priori involve complex tasks such as the pharmaceutical industry (SIC=28) and the computer industry (SIC=35), each interacted with employee representation in this regression analysis and have obtained similar results: both have a positive and significant effect on firm value. Construction also appears, a priori, to be an industry characterized by complex serial processing. However, the coefficient on the interaction between employee representation and the construction indicator, though positive, is not statistically significant. We observe that the computer and pharmaceutical industries also fall within our manufacturing industry SICs, and the SICs included in our trade dummy are a subset of those used by Bodnar and Gentry (1993).

sum, Table 3 lends support to the notion that employee representation adds value to firms involved in information- and coordination-intensive industries. [19]

C. Logit Regression Results of Dividend Payment on Employee Representation

A second benefit of employees on the supervisory board is their potential role as highly informed monitoring agents. In such a whistle-blowing capacity, employees could provide information about the economic feasibility of projects and curb investment in managerial perquisites, expropriation by large insiders seeking private benefits of control, and cronyism. To test this conjecture, we like Faccio, Lang, and Young (2001) and LaPorta, Lopez-De-Silanes, Shleifer, and Vishny (2000b) measure the reduction of perquisites and private benefits through greater dividend payments. Using logit regressions, we test whether the likelihood that firms pay dividends increases when employees sit on the board.

Table 4 provides the results of these logit regressions. Models 1-3 all show that a firm is significantly more likely to payout cash as a dividend when employees are present on the board. These results are consistent with Faccio, Lang, and Young (2001) who document group-affiliated firms in Europe pay higher dividends to reduce expropriation by insiders. In addition, we observe the interaction of the employee representation indicator with the operating-income-to-sales ratio is also positive and significant providing more evidence that labor is instrumental in paying out cash as a dividend and mitigates expropriation by insiders and large shareholders. We interpret these results to mean employee representatives bring a knowledge base that complements that of the shareholder representatives. We infer proposed investments are more thoroughly screened

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[19] Instead of ownership bins in Model 3 of Table 3, we have used indicators that equal one when the holdings of the largest shareholder equals or exceeds 25%, 50%, and 75% (Block Percent 25, 50, and 75, respectively, in Table 2). Franks and Mayer (2001) explain that these three levels are important thresholds for control in Germany. When we run this modified version of Model 3, we find evidence consistent with private benefits of control: the coefficients on Block Percent 25 and 75 are positive and significant. The coefficient on Block Percent 50 is negative, though not significant. This nonlinear relationship is parallel to the findings of Morck, Shleifer, and Vishny (1988) for the U.S. (Tobin's Q rises for increases in ownership concentration up to 5%, falls, and then rises again for ownership in excess of 25%.)

when employees sit on the board, and projects that do not benefit small shareholders are less likely to be funded.

D. Ownership Concentration, Industrial Diversification, and Industrial Concentration

In this section, we extend the analyses in Table 3 and consider the interactive effect of employee representation with ownership concentration, industrial diversification, and industrial concentration. As in Table 3, ownership shows an interesting relationship with firm value in Tables 5 and 6. In Models 2 and 3 of both tables, for levels of ownership concentration no greater than 30% (OWN10 and OWN10-30), we see evidence of the private benefit of control: additional ownership destroys firm value. At these moderate levels of ownership concentration, we infer the benefits of control to larger shareholders through the expropriation of small shareholders dominate the accompanying losses from lower firm value. To the contrary, we see that when the ownership concentration exceeds 30% (OWN30+), the incentives of controlling shareholders are sufficiently aligned with firm value maximization (or, equivalently, their control rights are aligned with their cash flow rights), and moreover, there may be a monitoring benefit from concentrated ownership as discussed by Stiglitz (1985). The latter results are consistent with Gorton and Schmid (2000) who report an increase in the value of German firms as ownership concentration rises.[20]

When the ownership concentration variables are interacted with employee representation in Model 3 of Tables 5 and 6, it is interesting to observe the coefficient for moderate levels of ownership is positive and significant. This result obtains whether OWN10 or OWN10-30 is interacted with employee representation.[21] Employees on the board appear to monitor and reduce

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[20] Relative to studies of the effects of *managerial* ownership concentration in the U.S., the 30% threshold seems high however. Morck, Shleifer, and Vishny (1988) find that among U.S. firms, the marginal entrenchment effects of managerial ownership dominate the incentive alignment effects when ownership exceeds five percent. In a similar study of U.K. firms, however, Short and Keasey (1999) find the entrenchment effects do not dominate until ownership exceeds 12%.

[21] Only two of the ownership bins may be interacted with employee representation in any one regression as otherwise the regressor matrix is singular. We report the results for OWN10-30.

the expropriation of small shareholders by powerful blockholders who would otherwise govern the firm to maximize their own private benefits of control rather than share value. We infer actions such as asset stripping are more transparent to employee representatives familiar with firm operations than to outside board members.

As in Table 3, the negative coefficients on the diversification indicators are consistent with an agency cost between blockholder(s) and minority shareholders that leads to a discount. Table 5 provides additional insight, however. The interaction term between the industrial diversification indicator and employee representation is significant and positive in Models 1 and 2. Labor representation can significantly reduce the expropriation effects of a diversification strategy. This result is parallel to that of Lins and Servaes (1999) who find among German firms that inside ownership and diversification jointly increase firm value. We interpret these results as evidence of labor's greater understanding of operational detail and additional insight into the possible synergies associated with a diversification strategy. That is to say, with employee involvement in supervisory board decisions, the likelihood that corporate diversification creates economic value increases, and the likelihood that the diversification strategy is a means to private benefits of control decreases.

The analyses in Table 6 address the impact of industrial concentration. We see that concentration alone has no significant effect on firm value. Yet, when interacted with employee representation, we again see a positive and significant effect in Models 2 and 3. As industrial concentration increases, the discipline of the product market competition lessens, free cash flow increases, and manager-owner agency conflicts arise. We suggest the benefit of employee representation stems from the increased quality of the information available to the board. Employee representatives reduce the costs of incomplete information by providing credible advice as to the value of proposed expenditures. In this way, perquisites and empire-building behavior of management are curtailed.

With the exception of Model 3 of Table 6, the employee representation indicator is never both negative and significant. These results appear to contrast with those of Gorton and Schmid (2000, 2004), who find a negative and significant relationship. However, the Gorton and Schmid (2000) study accounts for the effect of employee representation through an indicator that equals one when labor representation equals shareholder representation and zero otherwise and uses a sample comprising the largest 100 firms based on sales (roughly speaking) drawn for the years 1975 and 1986. Similarly, the Gorton and Schmid (2004) study compares firms that are subject to one-third and one-half employee representation and uses a sample of the largest 250 firms based on total assets drawn for the years 1989-93. In contrast, the current analyses consider all publicly traded AGs as of 2003 that are subject to one-half, one-third, or no codetermination at all. As the next section shows, the benefits of employee representation depend not only on the presence of labor on the board but also on the judicious use of labor in corporate governance.[22]

6. Extensions and Robustness Checks

A. Optimal Labor Representation

As we hypothesize in Section 2, the prudent use of labor may be an issue central to optimal corporate governance. Does excessive labor representation have a negative effect on firm value as implied by the right-hand side of our hypothesized inverse U-curve? To test this conjecture, we return to the base case models of Table 3 but this time add three additional indicator variables. Employee Representation 0-33, which now replaces Employee Representation, assumes a value of one if employee representation strictly exceeds zero but is less than one-third, and zero otherwise. Employee Representation 33-50 assumes a value of one if employee representation weakly exceeds one-third but is less than one-half. Employee Representation 50+ assumes a

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[22] Similar to Himmelberg, Hubbard, and Palia (1999), we have conducted regression analyses that include R&D/sales as an independent variable to control for discretionary spending by management. The coefficient is negative, but never significant. All of our results remain qualitatively similar, but our sample size declines due to missing observations for R&D.

value of one if employee representation weakly exceeds one-half, and zero otherwise. As in earlier analyses, these new indicators are interacted with the industry indicators.

Table 7 provides these results and shows only Employee Representation 33-50 when interacted with the trade, transportation, and manufacturing indicators in Models 2 and 3 has a coefficient that is positive and significant. We infer that it is not the mere presence of labor on the board that builds shareholder wealth, but a presence between one-third and one-half of the board seats. These results provide statistical support for our earlier conjecture that the judicious use of labor representation is crucial. In general, representation less than one-third or in excess of one-half adds no value to the firm; moreover, the coefficient on the Employee Representation 33-50 indicator in Model 3 provides some evidence of a negative effect from excess labor representation, a result generally consistent with Gorton and Schmid (2004). Contrary to our conjecture and the results of Gorton and Schmid (2004), however, we find no significant *loss* in firm value attributable to labor representation in excess of 50%, either alone or interacted with the industry indicators.[23] We surmise that beyond some level of employee representation the agency costs offset the marginal information benefits of employee representation resulting in no further gain to firm value.

B. Endogeneity

An important question in many areas of empirical corporate governance is one of endogeneity. With respect to this paper, might a higher Tobin's Q make it more likely that a firm chooses to place employees on the supervisory board? Certainly, the German codetermination laws are predetermined and universal across firms; nevertheless, they provide only lower bounds to employee representation. And even though we feel this reverse causality is unlikely, we cannot

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[23] We have replicated the analyses of Gorton and Schmid (2004) using similar regression models. Like Gorton and Schmid, we used the largest 250 German stock corporations (from our sample of all German firms) and included an indicator for whether the firm's board has one-half (as opposed to one-third) employee representation. Our results show a *positive*—though insignificant—effect on the market-to-book ratio from increasing employee representation from one-third to one-half.

rule it out. Consequently, in this section we implement an instrumental variables approach similar to that used by Campa and Kedia (2002) and Doidge, Karolyi, and Stulz (2004).

German Codetermination laws induce a strong, exogenous positive relationship between the number of firm employees and the number of employee representatives on the supervisory board. Hence, we use the employee count as an instrument for the employee representation indicator and repeat the analyses reported in Tables 3, 5, and 6. Specifically, we employ a two-stage procedure where in the first stage we fit the employee indicator to a logit model that includes all the regressor variables in each model except the firm's employee count replaces the employee indicator. In the second stage, we use this fitted value of the employee indicator in regressions identical to the original models in Tables 3, 5, and 6 and report these results in the Appendix in Tables A1-A3, respectively.

This approach creates a continuous variable over the [0, 1] interval that loses some of the power of the simple indicator. Nevertheless, we see evidence in favor of our coordination argument: comparing Model 3 in Table A1 and Table 3, we see the signs are the same on the coefficients of the (fitted) employee representation-industry indicator interaction terms, and the coefficient on the manufacturing industry interaction in Table A1 remains statistically significant. Comparing Table A2 to Table 5, we see the benefits to employee representation on a firm with low-to-moderate ownership concentration remain the same. The coefficient on the (fitted) employee representation-OWN10-30 interaction term is positive and significant. Interestingly, we see that the coefficient on the employee representation-OWN30+ interaction term is now not only negative as in Table 5 but also statistically significant. This result provides new evidence of an agency cost of excess labor representation—the right-hand side of our hypothesized inverse U-shaped relation. When ownership becomes sufficiently concentrated, the control rights of the firm become aligned with the cash flow rights and the monitoring incentives of the large ownership block largely supplant the monitoring benefits of labor. Only the self-serving effects of labor, such as the incentive for payroll maximization, remain.

Similar to Table 5, Table A2 also shows that the coefficient on the interaction term between the industrial diversification indicator and employee representation is significant and positive in Models 1 and 2. Again, the results in Table 5 are robust to controls for endogeneity, and we see labor representation can significantly reduce the expropriation effects of a diversification strategy. Lastly, Table A3 shows that the coefficient on the interaction terms between industrial concentration and employee representation are positive though never significant. These results are qualitatively consistent with those in Table 6.

7. Conclusion

We show that prudent levels of employee representation on corporate boards can increase firm efficiency and market value. Although the optimal representation is likely below 50% (the level often mandated by law for large German corporations) as demonstrated by Gorton and Schmid (2004), it is certainly positive. We interpret our results as implying that there is an inverse U-shaped relation between firm value and employee representation on German corporate boards. We propose that employee representation provides a credible communication channel to the highest levels of the firm. Consequently, this superior information improves decision making by the board. Moreover, we find that industries that require more intense coordination, integration of activities, and information sharing such as trade, transportation, computers, pharmaceuticals, and other manufacturing benefit more from employee board representation. For moderate levels of employee representation, inclusion of labor seats on the board also leads to additional monitoring of managers and a reduction in private blockholder privileges. For example, this better information makes clearer the underlying incentives of management and large shareholders proposing diversification strategies and other investments of free cash flow. Armed with better information, the supervisory board may more easily recognize and thwart investments and strategies that represent private control benefits to large shareholders or management through asset stripping, pyramiding, dilution of small investors, crony capitalism, and simple perquisites.

Lastly, we propose this communication channel may be bidirectional. Employee representation on the board provides workers and unions credible information about strategy and profits that should reduce work halts and strikes. However, our results do not hold for union representatives on the supervisory board.

As with banker representation on boards, however, judicious use of the monitor is important. Excessive bank power on the board leads the firm to operate in the creditors interests and pass up risky though profitable investments (Macey and Miller (1995/96).[24] In a similar fashion, when employee representation reaches an excessive level, labor itself may become the source of an agency cost as employees seek their own perks, exert their influence to maximize payroll rather than stock price, and in general, run the firm as a "country club for workers." This creates a situation where the monitors themselves need to be monitored.

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[24] However, the German universal banking system permits equity ownership by banks and may reduce these ill effects.

References

Aggarwal, R.K., Samwick, A., 2003. Why Do Managers Diversify Their Firms? Agency Reconsidered. Journal of Finance 58, 71-118.

Alchian, A., Demsetz, H., 1972. Production, Information Costs and Economic Organization. American Economic Review 62, 777-795.

Bebchuk, L.A., 1999. A Rent-Protection Theory of Corporate Ownership and Control. National Bureau of Economic Research Inc., Working Paper Number 7203.

Bebchuk, L.A., Stole, L.A., 1993. Do Short-Term Objectives Lead to Under- or Overinvestment in Long-Term Projects? Journal of Finance 48, 719-729.

Becht, M., Böhmer, E., 1997. Transparency of Ownership and Control in Germany in The Separation of Ownership and Control: A Survey of 7 European Countries. European Corporate Governance Network ed., Report to the European Commission (www.ecgn.ulb.ac.be/).

Berger P., Ofek, E., 1995. Diversification's Effect on Firm Value. Journal of Financial Economics 37, 39-65.

Bodnar, B., Gentry, W., 1993. Exchange Rate Exposure and Industry Characteristics: Evidence from Canada, Japan, and the USA. Journal of International Money and Finance 12, 29-45.

Cable, J., 1985. Capital Market Information and Industrial Performance. Economic Journal 95, 118-132.

Campa, J.M., Kedia, S., 2002. Explaining the Diversification Discount. Journal of Finance 57, 1731-1761.

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.

Clark, G. L., Wójcik, D., 2004. Path Dependence and Financial Markets: The Economic Geography of the German Model 1997-2003. Environment and Planning A, forthcoming.

Cooper, M., Lambert, D., Pagh, J., 1997. Supply Chain Management: More Than a New Name for Logistics. The International Journal of Logistics Management 8, 1–14.

Cosh, A. D., Hughes A., Singh A., 1990. Analytical and Policy Issues in the UK Economy, in A. D. Cosh, A. Hughes, A. Singh, J. Carty, and J. Plender eds. London: Institute for Public Policy Research.

Dahya, J., McConnell J.J., Travlos N.G., 2002. The Cadbury Committee, Corporate Performance, and Top Management Turnover. Journal of Finance 57, 461-483.

Denis, D.K., McConnell, J.J., 2003. International Corporate Governance. Journal of Financial and Quantitative Analysis 38, 1-36.

Doidge, C., Karolyi, A.G., Stulz, R.M., 2004. Why are Foreign Firms Listed in the U.S. Worth More? Journal of Financial Economics 71, 205-238.

Duboisa, A., Hulthéna, K., Pedersena, A.-C., 2004. Supply Chains and Interdependence: A Theoretical Analysis. Journal of Purchasing & Supply Management 10, 3–9.

Dyck, A., Zingales, L., 2004. Private Benefits of Control: An International Comparison. Journal of Finance 59, 537-600.

Easterbrook, F.H., 1984. Two Agency-Cost Explanations of Dividends. American Economic Review 74, 650-659.

Edwards, J., Fischer K., 1994. Banks, Finance and Investment in Germany. Cambridge: Cambridge University Press.

Edwards, J., Nibler, M., 2000. Corporate Governance: Bank versus Ownership Concentration in Germany. Economic Policy 15, 238-267.

Faccio, M., Lang, L.H.P., Young, L., 2001. Dividends and Expropriation. American Economic Review 91, 54-78.

Fama, E.F., French, K.R., 1998. Taxes, Financing Decisions, and Firm Value. Journal of Finance 53, 819-843.

Fauver, L., Houston, J., Naranjo, A., 2004. Cross-Country Evidence on the Value of Corporate Industrial and International Diversification. Journal of Corporate Finance 10, 729-752.

Franks, J., Mayer, C., 2001. Ownership and Control of German Corporations. Review of Financial Studies 14, 943-977.

Freeman, R.B., Lazear, E.P., 1995. An Economic Analysis of Works Councils, in Works Councils: Consultation, Representation and Cooperation in Industrial Relations. Roger, J. and W. Streeck, eds., Chicago: University of Chicago Press, 27-52.

Furubotn, E., Wiggins, S., 1984. Plant Closing, Worker Reallocation Costs and Efficiency Gains to Labor Representation on Boards of Directors. Journal of Institutional and Theoretical Economics Zeitschrift für die gesamte Staatswissenschaft 140, 176-192.

Gerum, E., Steinmann, H., Fees, W., 1988. Der Mitbestimmte Aufsichtsrat-Eine Empirische Untersuchung, Stuttgart: Pöschel Verlag.

Gerum, E., Wagner, H., 1998. Economics of Labor Co-Determination in View of Corporate Governance, in Comparative Corporate Governance, State of the Art and Emerging Research K.J. Hopt, H. Kanda, M.J. Roe, E. Wymeersch, and S. Prigge eds., Oxford: Oxford University Press.

Gorton, G., Schmid, F., 2000. Universal Banking and the Performance of German Firms. Journal of Financial Economics 58, 29-80.

Gorton, G., Schmid, F., 2004. Capital, Labor, and the Firm: A Study of German Codetermination. Journal of the European Economic Association 2, 863-905.

Grundfest, J., 1990. Subordination of American capital. Journal of Financial Economics 27, 89-114.

Hallett, G., 1990. West Germany, in A. Graham with A. Seldon eds., Government and Economies in the Post-War World. London: Routledge.

Himmelberg, C., 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.

Holderness C., 2003. A Survey of Blockholders and Corporate Control. Economic Policy Review 9, 51-63.

Hoshi, T., 1998. Japanese Corporate Governance as a System, in Comparative Corporate Governance, State of the Art and Emerging Research K.J. Hopt, H. Kanda, M.J. Roe, E. Wymeersch, and S. Prigge eds., Oxford: Oxford University Press.

Jensen, M., 1986. Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. American Economic Review 76, 323-329.

Jensen, M., Meckling, W.H., 1979. Rights and Production Functions: An Application to Labor-managed Firms and Codetermination. Journal of Business 52, 469-506.

Kester, G.W., 1993. International Market Timing: Potential Gains from Asian Equity Markets. Research in International Business and Finance 10, 39-50.

Lang, L.H.P., Stulz, R.M., 1994. Tobin's q, Corporate Diversification, and Firm Performance. Journal of Political Economy 102, 1248-1281.

LaPorta, R., Lopez-De-Silanes, F., Shleifer, A., Vishny, R.W., 2000a. Investor Protection and Corporate Governance. Journal of Financial Economics 58, 3-27.

LaPorta, R., Lopez-De-Silanes, F., Shleifer, A., Vishny, R.W., 2000b. Agency Problems and Dividend Policies around the World. Journal of Finance 55, 1-33.

LaPorta, R., Lopez-De-Silanes, F., Shleifer, A., Vishny, R.W., 2002. Investor Protection and Corporate Valuation. Journal of Finance 57, 1147-1170.

Levine, D.I., Tyson, L.D., 1990. Participation, Productivity and the Firm's Environment, in Paying for Productivity: A Look at the Evidence A.S. Blinder, 183-237.

Lins, K.V., Servaes, H., 1999. International Evidence on the Value of Corporate Diversification. Journal of Finance 54, 2215-2240.

Lins, K.V., Servaes, H., 2002. Is Corporate Diversification Beneficial in Emerging Markets? Financial Management 31, 5-31.

Lins, K., 2003. Equity Ownership and Firm Value in Emerging Markets. Journal of Financial and Quantitative Analysis 38, 159-184.

Lourenco, H.R., 2004. Supply Chain Management: An Opportunity for Metaheuristics. Department of Economics and Business, Universitat Pompeu Fabra, Working Paper.

Macey, J.R., Miller, G.P., 1995/96. Corporate Governance and Commercial Banking: A Comparative Examination of Germany, Japan, and the United States. Stanford Law Review 48, 73-112.

McConnell, J., Servaes, H., 1990. Additional Evidence on Equity Ownership and Corporate Value. Journal of Financial Economics 27, 595-612.

Morck, R., Shleifer, A., Vishny, R.W., 1988. Management Ownership and Market Valuation: An Empirical Analysis. Journal of Financial Economics 20 293-316.

Prigge, S., 1998. A Survey of German Corporate Governance, in Comparative Corporate Governance, State of the Art and Emerging Research K.J. Hopt, H. Kanda, M.J. Roe, E. Wymeersch, and S. Prigge eds., Oxford: Oxford University Press.

Roe, M.J., 1998. German Co-Determination and German Securities Markets, in Comparative Corporate Governance, State of the Art and Emerging Research K.J. Hopt, H. Kanda, M.J. Roe, E. Wymeersch, and S. Prigge eds., Oxford: Oxford University Press, 369-372.

Shleifer, A., Vishny, R.W., 1997. A Survey of Corporate Governance. Journal of Finance 52, 737-783.

Schmidt, R.H., Tyrell, M., 1997. Financial Systems, Corporate Finance and Corporate Governance. European Financial Management 3, 333-61.

Short, H., Keasey, K., 1999. Managerial Ownership and the Performance of Firms: Evidence from the U.K. Journal of Corporate Finance 5, 79-101.

Stiglitz, J., 1985. Credit Markets and the Control of Capital. Journal of Money, Credit and Banking 17, 133-152.

Thomas, D.J., Griffin, P.M., 1996, Coordinated Supply Chain Management. European Journal of Operational Research 94, 1-15.

Stulz, R., 1988. Managerial Control of Voting Rights. Journal of Financial Economics 20, 25-59.

Tüngler, G., 2000. The Anglo-American Board of Directors and the German Supervisory Board— Marionettes in a Puppet Theatre of Corporate Governance or Efficient Controlling Devices. Bond Law Review 12, 230-271.

Vogel, C.W., 1980. Aktienrecht und Aktienwirklichkeit. Organisationsrecht und Aufgabenteilung von Vorstand und Aufsichtsrat. Eine Empirische Untersuchung Deutscher Aktiengesellschaften, Dissertation, University of Giessen.

Wenger, E., Kaserer, C., 1998. German Banks and Corporate Governance: A Critical View, in Comparative Corporate Governance, State of the Art and Emerging Research K.J. Hopt, H. Kanda, M.J. Roe, E. Wymeersch, and S. Prigge eds., Oxford: Oxford University Press, 499-536.

White, H., 1980. A Heteroskedasticity-Consistent Covariance Matrix Estimator and Direct Test for Heteroskedasticity. Econometrica 48, 817-38.

Williamson, O.E., 1975. Markets and Hierarchies: Analysis and Antitrust Implications; A Study in the Economics of Internal Organization. Collier Macmillan Publishers, Inc., New York, NY.

Wójcik, D., 2003. Change in the German Model of Corporate Governance: Evidence from Blockholdings 1997-2001. Environment and Planning A 35, 1431-58.

Table 1
Description of German Boards
Note: Table 1 provides descriptive statistics for the supervisory board composition for a sample consisting of all publicly traded German firms jointly available from Bloomberg and Thomson Financial's Worldscope database as of August 2003. All Board composition is obtained from Bloomberg. *In this table, observations for firms with employee representation, bank representation, and union representation do not sum to the number of observations for all firms as some firms have all three types of representatives and others have none.*

	Firms with Employee Representatives		Firms with Bank Representatives		Firms with Union Representatives		All Firms
	Employee Representatives	All Representatives	Bank Representatives	All Representatives	Union Representatives	All Representatives	All Representatives
Mean	3.618	9.963	2.031	11.044	1.775	15.145	7.029
Min	1	3	1	3	1	4	1
25th percentile	2	6	1	6	1	12	3
50th percentile	3	9	1	11	2	14	6
75th percentile	5	13	2	16	2	20	9
Max	10	25	11	25	8	25	25
Observations	400	400	225	225	138	138	786

Table 2

Accounting Performance by Employee Representation

Note: Table 2 provides paired differences of the means (medians) of accounting performance for firms with and without labor representation on their supervisory boards. The total number of observations for R&D/Sales is slightly less due to missing values. Leverage is defined as total debt divided by total assets. Dividend yield is defined as dividends per share over the year-end market price. Ownership concentration is obtained from Worldscope and is the sum of all blockholder ownership. Generally, blockholders are defined in Worldscope as owners of 5% or more of the shares. A firm's industrial concentration measure is the sales-weighted average of the Herfindhal indexes for each of its business segments, where the segments are defined by their two-digit SICs and the Herfindhal index is calculated using all German firms found on Worldscope as of August 2003 with valid segment sales data (991 firms). Industrially Diversified is the percentage of firms with more than one business segment (defined by its four-digit SIC). A firm is industrially diversified when no business segment accounts for more than 90% of sales. Geographically Diversified is the percentage of firms with more than one geographic segment as defined in Worldscope. A firm is geographically diversified when no geographic segment accounts for more than 90% of sales. Block Percent 25 equals one when the largest shareholder owns at least 25% of the shares; Block Percent 50 and Block Percent 75 are similarly defined. Tobin's Q is defined as the market value of equity plus the book value of assets minus the book value of equity divided by the book value of assets. The sample consists of all publicly traded German firms jointly available from Bloomberg and Thomson Financial's Worldscope database as of August 2003. The p-values for differences in means are from a standard t-test; those for medians are from a Wilcoxon ranked sums test. Medians are not reported for indicator variables.

Firm Characteristics:	No Employee Representation mean (median)	Employee Representation mean (median)	Difference (p-value)
Sales (€ MM)	129.3 (37.4)	393.6 (357.4)	0.000 (0.000)
Assets (€ MM)	222.6 (49.2)	1,320.0 (370.5)	0.000 (0.000)
Operating Income/Sales	−0.352 (−0.068)	−0.053 (0.009)	0.000 (0.000)
Capital Expend/Sales	0.208 (0.030)	0.067 (0.034)	0.160 (0.572)
R&D/Sales	0.033 (0.000)	0.011 (0.000)	0.007 (0.126)
Leverage	0.199 (0.119)	0.232 (0.199)	0.037 (0.013)
Dividend Yield	0.012 (0.000)	0.025 (0.018)	0.000 (0.000)
Ownership Concentration	0.197 (0.000)	0.407 (0.360)	0.000 (0.000)
Industry Concentration	0.219 (0.139)	0.232 (0.191)	0.304 (0.035)
Industrially Diversified	0.236	0.358	0.000
Geographically Diversified	0.223	0.363	0.000
Block Percent 25	0.332	0.713	0.000
Block Percent 50	0.205	0.563	0.000
Block Percent 75	0.096	0.373	0.000
Tobin's Q	1.419 (1.038)	1.349 (1.126)	0.344 (0.000)
Observations	386	400	

Table 3
Regression of Tobin's Q on Employee Representation, Industry SIC Classification, and Ownership Concentration
Note: Table 3 provides the results of regressions of Tobin's Q (defined as the market value of equity plus the book value of assets minus the book value of equity divided by the book value of assets) on the ratio of operating income to sales, the ratio of capital expenditures to sales, the natural logarithm of firm assets, leverage ratio (defined as total debt divided by total assets), and several indicator variables. The employee (bank) representation indicator assumes a value of one when the supervisory board has one or more employee (bank) representatives and zero otherwise. A firm is industrially diversified when no business segment (as defined by its four-digit SIC) accounts for more than 90% of sales. A firm is geographically diversified when no geographic segment (as defined in Worldscope) accounts for more than 90% of sales. The dividend indicator assumes a value of one if the firm pays a dividend and zero otherwise. The trade industry indicator takes on a value of one if any two-digit segment SIC is equal to 50-59, and zero otherwise. The transportation industry indicator takes on a value of one if any two-digit segment SIC is equal to 40-49. The manufacturing industry indicator takes on a value of one if the segment SIC is equal to 28-29, or 33-39. The interaction of employee representative with the industry indicator takes on a value of one when a firm has employee representation and does business in that specific industry. The ownership variables are bins of continuous variables such that a firm whose largest shareholder controls 25% of the firm has an OWN10 equal to 0.10, an OWN10-30 equal to 0.15, and an OWN30+ equal to zero. The sample consists of all publicly traded German firms jointly available from Bloomberg and Thomson Financial's Worldscope database as of August 2003. Heteroskedasticity-consistent (White (1980)) t-values are in parentheses. *, **, and *** imply statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

	Dependent Variable: Tobin's Q		
	(1)	(2)	(3)
Industrial Diversification Indicator	−0.183	−0.176	−0.161
	(−3.57)***	(−3.48)***	(−3.23)***
Geographic Diversification Indicator	−0.253	−0.237	−0.138
	(−5.16)***	(−4.80)***	(−2.29)**
Employee Representation Indicator	0.069	-0.072	-0.113
	(0.89)	(-0.67)	(-1.06)
Bank Representation Indicator	0.020	0.011	0.010
	(0.24)	(0.14)	(0.13)
Log (Assets)	−0.062	−0.062	−0.053
	(−3.37)**	(−3.34)***	(−2.75)***
Operating Income/Sales	0.029	0.038	0.043
	(0.30)	(0.39)	(0.44)
Capital Expenditures/Sales	−0.000	0.002	0.004
	(−0.01)	(0.12)	(0.26)
Leverage ratio	−0.398	−0.367	−0.356
	(−1.55)	(−1.44)	(−1.40)
Dividend Indicator	0.170	0.173	0.186
	(2.22)**	(2.26)**	(2.43)**
Trade Industry Indicator		-0.457	-0.446
		(-3.58)***	(-3.43)***
Employee Representative x Trade Industry		0.453	0.453
		(3.00)***	(2.97)***
Transportation Industry Indicator		-0.372	-0.353
		(-2.32)**	(-2.23)**
Employee Representative x Transportation Industry		0.491	0.447
		(2.56)**	(2.33)**
Manufacturing Industry Indicator		-0.218	-0.230
		(-1.89)*	(-1.97)**
Employee Representative x Manufacturing Industry		0.303	0.319
		(2.16)**	(2.28)**

Table 3 (Continued)

	Dependent Variable: Tobin's Q		
	(1)	(2)	(3)
OWN10			-2.686
			(-2.23)**
OWN10-30			-0.486
			(-0.74)
OWN30+			0.615
			(3.40)***
Constant	2.259	2.345	2.288
	(10.63)***	(10.49)***	(10.44)***
Observations	786	786	786
R^2	0.055	0.067	0.077

Table 4
Logit Regression of Dividend Payment on Employee Representation
Note: Models 1-3 of Table 4 provide the results of logit regressions with the dividend indicator (this indicator assumes a value of one if the firm pays a dividend and zero otherwise) as the dependent variable. The regressor variables are defined in Table 3. In addition, Models 1-3 of Table 4 include the interaction of the employee representation indicator with operating income to sales, and Model 3 includes the interaction of the employee representation indicator with ownership bin OWN10-30 and ownership bin OWN30+. The sample consists of all publicly traded German firms jointly available from Bloomberg and Thomson Financial's Worldscope database as of August 2003. Heteroskedasticity-consistent (White (1980)) t-values are in parentheses. *, **, and *** imply statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

	Dependent Variable: Dividend Indicator		
	(1)	(2)	(3)
Industrial Diversification Indicator	–0.581	–0.517	–0.511
	(–2.35)**	(–2.07)**	(–2.06)**
Geographic Diversification Indicator	0.287	0.281	0.284
	(1.26)	(1.04)	(1.05)
Employee Representation Indicator	0.965	1.046	1.120
	(4.15)***	(4.43)***	(3.71)***
Bank Representation Indicator	0.266	0.249	0.238
	(1.06)	(0.99)	(0.93)
Log (Assets)	0.183	0.190	0.192
	(2.81)***	(2.81)***	(2.82)***
Operating Income/Sales	3.829	3.859	3.876
	(3.77)***	(3.79)***	(3.78)***
Capital Expenditures/Sales	–0.138	–0.151	–0.148
	(–0.57)	(–0.61)	(–0.59)
Leverage ratio	–1.007	–1.052	–1.045
	(–2.11)**	(–2.19)**	(–2.17)**
Employee Representation x Operating Income/Sales	12.147	12.555	12.598
	(4.57)***	(4.67)***	(4.66)***
OWN10		–4.827	–5.020
		(–0.78)	(–0.81)
OWN10-30		4.139	5.016
		(1.23)	(1.27)
OWN30+		-1.242	-1.452
		(-1.82)*	(-1.00)
Employee Representation x OWN10-30			-1.337
			(-0.41)
Employee Representation x OWN30+			0.331
			(0.20)
Constant	-3.521	-3.584	-3.649
	(-4.95)***	(-4.92)***	(-4.86)***
Observations	786	786	786
R^2	0.298	0.302	0.302

Table 5
Regression of Tobin's Q on Employee Representation, Industrial Diversification, and Ownership Concentration
Note: Table 5 provides the results of regressions with Tobin's Q (defined as the market value of equity plus the book value of assets minus the book value of equity divided by the book value of assets) as the dependent variable. The regressor variables are defined in Table 3 except Models 1-3 of Table 5 include the interaction of the employee representation indicator with the industrial diversification indicator. The industrial diversification indicator assumes a value of one if no industrial segment (as defined by its four-digit SIC) accounts for more than 90% of sales, and zero otherwise. Model 3 includes the interaction of the employee representation indicator with ownership bin OWN10-30 and ownership bin OWN30+. The sample consists of all publicly traded German firms jointly available from Bloomberg and Thomson Financial's Worldscope database as of August 2003. Heteroskedasticity-consistent (White (1980)) t-values are in parentheses. *, **, and *** imply statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

	Dependent Variable: Tobin's Q		
	(1)	(2)	(3)
Industrial Diversification Indicator	−0.360	−0.320	−0.258
	(−3.91)***	(−3.71)***	(−3.20)***
Geographic Diversification Indicator	−0.264	−0.166	−0.164
	(−5.28)***	(−3.09)***	(−3.08)***
Employee Representation Indicator	-0.023	−0.048	−0.182
	(-0.23)	(−0.49)	(−1.48)
Bank Representation Indicator	0.028	0.025	0.046
	(0.35)	(0.31)	(0.58)
Log (Assets)	-0.064	−0.055	−0.057
	(3.44)***	(−2.91)***	(−3.05)***
Operating Income/Sales	0.030	0.035	0.042
	(0.30)	(0.36)	(0.43)
Capital Expenditures/Sales	−0.002	0.001	0.005
	(−0.09)	(0.03)	(0.26)
Leverage ratio	−0.392	−0.382	−0.390
	(−1.54)	(−1.49)	(−1.53)
Dividend Indicator	0.175	0.185	0.175
	(2.29)**	(2.44)**	(2.32)**
Employee Representation x Industrial Diversification	0.320	0.270	0.140
	(2.82)***	(2.43)**	(1.36)
OWN10		−2.285	−1.979
		(−2.00)**	(−1.70)*
OWN10-30		−0.621	−1.618
		(−0.95)	(−2.31)**
OWN30+		0.595	0.466
		(3.36)***	(2.25)**
Employee Representation x OWN10-30			2.080
			(2.46)**
Employee Representation x OWN30+			-0.009
			(-0.03)
Constant	2.319	2.260	2.337
	(10.42)***	(10.37)***	(10.39)***
Observations	786	786	786
R^2	0.060	0.069	0.077

Table 6
Regression of Tobin's Q on Employee Representation, Industrial Concentration, and Ownership Concentration
Note: Table 6 provides the results of regressions with Tobin's Q (defined as the market value of equity plus the book value of assets minus the book value of equity divided by the book value of assets) as the dependent variable. The regressor variables are defined in Table 3 except an industry concentration measure is included. A firm's concentration is defined as the sales-weighted average of the Herfindhal indexes for each of its business segments where business segments are defined based on their two-digit SICs. A Herfindhal index is calculated using all German firms found on Worldscope as of August 2003 with valid segment sales data (991 firms). Models 1-3 of Table 6 include the interaction of the employee representation indicator with the industrial concentration measure. Model 3 includes the interaction of the employee representation indicator with ownership bin OWN10-30 and ownership bin OWN30+. The sample consists of all publicly traded German firms jointly available from Bloomberg and Thomson Financial's Worldscope database as of August 2003. Heteroskedasticity-consistent (White (1980)) t-values are in parentheses. *, **, and *** imply statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

	Dependent Variable: Tobin's Q		
	(1)	(2)	(3)
Industrial Diversification Indicator	–0.174	–0.159	–0.170
	(–3.40)***	(–3.15)***	(–3.26)**
Geographic Diversification Indicator	–0.259	–0.155	–0.161
	(–5.20)***	(–2.84)***	(–2.94)***
Employee Representation Indicator	–0.055	–0.117	–0.314
	(–0.47)	(–0.98)	(–2.09)**
Industrial Concentration	–0.401	–0.407	–0.424
	(–1.26)	(–1.28)	(–1.33)
Bank Representation Indicator	0.018	0.016	0.042
	(0.22)	(0.20)	(0.54)
Log (Assets)	–0.062	–0.053	–0.056
	(–3.37)***	(–2.78)***	(–2.98)***
Operating Income/Sales	0.029	0.035	0.043
	(0.30)	(0.37)	(0.44)
Capital Expenditures/Sales	–0.002	0.000	0.004
	(–0.10)	(0.01)	(0.22)
Leverage ratio	–0.403	–0.394	–0.402
	(–1.56)	(–1.52)	(–1.57)
Dividend Indicator	0.172	0.183	0.173
	(2.23)**	(2.40)**	(2.29)**
Employee Representation x Industrial Concentration	0.556	0.634	0.666
	(1.55)	(1.74)*	(1.82)*
OWN10		–2.630	–2.272
		(–2.17)**	(–1.85)*
OWN10-30		–0.595	–1.667
		(–0.88)	(–2.24)**
OWN30+		0.652	0.488
		(3.66)***	(2.32)**
Employee Representation x OWN10-30			2.344
			(2.67)***
Employee Representation x OWN30+			-0.021
			(-0.07)
Constant	2.350	2.293	2.412
	(10.12)***	(10.07)***	(10.02)***
Observations	786	786	786
R^2	0.058	0.069	0.079

Table 7
Regression of Tobin's Q on Employee Representation Levels, Industry SIC Classification, and Ownership
Concentration
Note: Table 7 provides the results of regressions of Tobin's Q (defined as the market value of equity plus the book
value of assets minus the book value of equity divided by the book value of assets)) as the dependent variable. The
regressor variables are defined in Table 3 except: Employee Representation 0-33, which assumes a value of one if
employee representation strictly exceeds one but is less than one-third, and zero otherwise; Employee
Representation 33-50, which assumes a value of one if employee representation weakly exceeds one-third but is less
than one-half; and Employee Representation 50+, which assumes a value of one if employee representation weakly
exceeds one-half. Several interaction terms that include these new indicator variables are also included. The sample
consists of all publicly traded German firms jointly available from Bloomberg and Thomson Financial's Worldscope
database as of August 2003. Heteroskedasticity-consistent (White (1980)) t-values are in parentheses. *, **, and ***
imply statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

	Dependent Variable: Tobin's Q		
	(1)	(2)	(3)
Industrial Diversification Indicator	−0.183	−0.174	−0.158
	(−3.54)***	(−3.42)***	(−3.17)**
Geographic Diversification Indicator	−0.253	−0.243	−0.138
	(−5.12)***	(−4.91)***	(−2.32)**
Employee Representation Indicator 0-33	0.074	0.095	0.052
	(0.70)	(0.55)	(0.32)
Employee Representation 33-50	0.058	−0.156	−0.204
	(0.70)	(−1.43)	(−1.88)*
Employee Representation 50+	0.074	0.091	0.061
	(0.86)	(0.63)	(0.40)
Bank Representation Indicator	0.020	0.001	−0.003
	(0.24)	(0.01)	(−0.03)
Log (Assets)	−0.062	−0.061	−0.052
	(−3.29)***	(−3.17)**	(−2.58)*
Operating Income/Sales	0.029	0.041	0.047
	(0.30)	(0.43)	(0.50)
Capital Expenditures/Sales	-0.000	0.002	0.004
	(-0.01)	(0.09)	(0.24)
Leverage ratio	−0.004	−0.004	−0.003
	(−1.54)	(−1.39)	(−1.35)
Dividend Indicator	0.171	0.172	0.183
	(2.22)**	(2.21)**	(2.36)**
Trade Industry Indicator		−0.458	−0.446
		(−3.58)***	(−3.41)***
Employee Representative 0-33 x Trade Industry		0.178	0.133
		(0.78)	(0.63)
Employee Representative 33-50 x Trade Industry		0.643	0.658
		(3.71)***	(3.71)***
Employee Representative 50+ x Trade Industry		0.125	0.109
		(0.67)	(0.55)
Transportation Industry Indicator		−0.373	−0.355
		(−2.32)**	(−2.23)**
Employee Representative 0-33 x Transportation Industry		0.348	0.272
		(1.31)	(1.00)
Employee Representative 33-50 x Transportation Industry		0.686	0.671
		(2.51)**	(2.46)**
Employee Representative 50+ x Transportation Industry		0.209	0.153
		(0.92)	(0.67)

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Table 7 (Continued)

	Dependent Variable: Tobin's Q		
	(1)	(2)	(3)
Manufacturing Industry Indicator		−0.211	−0.227
		(−1.88)*	(−1.92)*
Employee Representative 0-33 x Manufacturing Industry		−0.165	−0.191
		(−0.73)	(−0.91)
Employee Representative 33-50 x Manufacturing Industry		0.458	0.489
		(2.90)**	(3.09)**
Employee Representative 50+ x Manufacturing Industry		0.070	0.088
		(0.40)	(0.49)
OWN10			−3.147
			(−2.53)**
OWN10-30			−0.326
			(−0.49)
OWN30+			0.638
			(3.66)***
Constant	2.263	2.339	2.284
	(10.28)***	(10.09)***	(10.00)***
Observations	786	786	786
R^2	0.056	0.073	0.084

APPENDIX

Table A1
An Instrumental Variable Regression of Tobin's Q on Employee Representation, Industry SIC Classification, and Ownership Concentration
Note: Table A1 provides the results for Models 1-3 of Table 3 but with an instrument replacing the employee representation indicator. This instrument is the fitted value of a logit regression of the employee representation indicator on the number of employees as well as all other explanatory variables in the model (hence, this instrument is calculated separately for each of the three models). For a description of all other variables see Table 3. The sample consists of all publicly traded German firms jointly available from Bloomberg and Thomson Financial's Worldscope database as of August 2003. Heteroskedasticity-consistent (White (1980)) t-values are in parentheses. *, **, and *** imply statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

	Dependent Variable: Tobin's Q		
	(1)	(2)	(3)
Industrial Diversification Indicator	−0.157	−0.166	−0.182
	(−3.06)***	(−3.07)***	(−3.34)***
Geographic Diversification Indicator	−0.240	−0.247	−0.161
	(−4.94)***	(−5.06)***	(−2.71)***
Employee Representation Indicator (Employee Instrumental Variable)	-0.320	-0.315	−0.064
	(-0.84)	(-0.73)	(−0.15)
Bank Representation Indicator	0.046	0.033	0.002
	(0.57)	(0.38)	(0.02)
Log (Assets)	−0.031	−0.034	−0.052
	(−0.89)	(−0.92)	(-1.46)
Operating Income/Sales	0.043	0.043	0.037
	(0.44)	(0.45)	(0.38)
Capital Expenditures/Sales	−0.004	-0.001	0.007
	(−0.25)	(-0.07)	(0.40)
Leverage ratio	−0.373	−0.361	−0.356
	(−1.46)	(−1.41)	(−1.39)
Dividend Indicator	0.242	0.230	0.177
	(2.87)***	(2.54)**	(1.96)*
Trade Industry Indicator		-0.198	-0.206
		(-0.67)	(-0.73)
Employee Representative x Trade Industry		0.139	0.085
		(0.36)	(0.24)
Transportation Industry Indicator		-0.069	-0.186
		(-0.23)	(-0.76)
Employee Representative x Transportation Industry		0.015	1.600
		(0.04)	(0.50)
Manufacturing Industry Indicator		-0.155	-0.311
		(-0.76)	(-1.90)*
Employee Representative x Manufacturing Industry		0.236	0.454
		(0.79)	(1.81)*
OWN10			-2.461
			(-2.08)**
OWN10-30			0.600
			(-0.74)
OWN30+			0.636
			(1.77)**
Constant	2.039	2.100	2.268
	(7.70)***	(6.81)***	(7.44)***
Observations	786	786	786
R^2	0.056	0.058	0.071

Table A2
Regression of Tobin's Q on Employee Representation, Industrial Diversification, and Ownership Concentration
Note: Table A2 provides the results for Models 1-3 of Table 5 but with an instrument replacing the employee representation indicator. This instrument is the fitted value of a logit regression of the employee representation indicator on the number of employees as well as all other explanatory variables in the model (hence, this instrument is calculated separately for each of the three models). For a description of all other variables see Tables 3 and 5. The sample consists of all publicly traded German firms jointly available from Bloomberg and Thomson Financial's Worldscope database as of August 2003. Heteroskedasticity-consistent (White (1980)) t-values are in parentheses. *, **, and *** imply statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

	Dependent Variable: Tobin's Q		
	(1)	(2)	(3)
Industrial Diversification Indicator	−0.418	−0.392	−0.278
	(−3.03)***	(−3.27)***	(−2.44)**
Geographic Diversification Indicator	−0.253	−0.166	−0.161
	(−5.14)***	(−2.86)***	(−2.78)***
Employee Representation Indicator (Employee Instrumental Variable)	-0.403	−0.081	−0.564
	(-1.01)	(−0.21)	(−1.38)
Bank Representation Indicator	0.040	0.014	0.040
	(0.49)	(0.17)	(0.48)
Log (Assets)	-0.033	−0.053	−0.033
	(-0.96)	(−1.55)	(−0.92)
Operating Income/Sales	0.044	0.038	0.064
	(0.45)	(0.40)	(0.71)
Capital Expenditures/Sales	-0.006	-0.000	-0.000
	(-0.36)	(-0.00)	(-0.02)
Leverage ratio	−0.373	−0.380	−0.368
	(−1.47)	(−1.49)	(−1.45)
Dividend Indicator	0.230	0.179	0.228
	(2.75)***	(2.14)**	(2.60)***
Employee Representation x Industrial Diversification	0.458	0.394	0.210
	(2.24)**	(2.25)**	(1.23)
OWN10		−2.263	−1.563
		(−1.96)**	(−1.34)
OWN10-30		−0.618	−4.056
		(−0.79)	(−3.48)***
OWN30+		0.594	1.790
		(1.84)*	(2.23)**
Employee Representation x OWN10-30			5.585
			(3.61)***
Employee Representation x OWN30+			-1.722
			(-2.09)**
Constant	2.111	2.251	2.205
	(7.95)***	(8.11)***	(7.29)***
Observations	786	786	786
R^2	0.058	0.068	0.075

Table A3
Regression of Tobin's Q on Employee Representation, Industrial Concentration, and Ownership Concentration
Note: Table A3 provides the results for Models 1-3 of Table 6 but with an instrument replacing the employee representation indicator. This instrument is the fitted value of a logit regression of the employee representation indicator on the number of employees as well as all other explanatory variables in the model (hence, this instrument is calculated separately for each of the three models). For a description of all other variables see the note at the end of Tables 3 and 6. The sample consists of all publicly traded German firms jointly available from Bloomberg and Thomson Financial's Worldscope database as of August 2003. Heteroskedasticity-consistent (White (1980)) t-values are in parentheses. *, **, and *** imply statistical significance at the 0.10, 0.05, and 0.01 levels, respectively.

	Dependent Variable: Tobin's Q		
	(1)	(2)	(3)
Industrial Diversification Indicator	–0.157	–0.170	–0.161
	(–3.00)***	(–3.24)***	(–3.10)***
Geographic Diversification Indicator	–0.241	–0.155	–0.156
	(–4.89)***	(–2.54)**	(–2.58)***
Employee Representation Indicator (Employee Instrumental Variable)	–0.347	–0.003	–0.584
	(–0.79)	(–0.01)	(–1.27)
Industrial Concentration	–0.120	–0.245	–0.246
	(–0.30)	(–0.61)	(–0.61)
Bank Representation Indicator	0.047	0.017	0.041
	(0.57)	(0.20)	(0.50)
Log (Assets)	–0.032	–0.057	–0.038
	(–0.87)	(–1.61)	(–1.02)
Operating Income/Sales	0.042	0.033	0.060
	(0.43)	(0.35)	(0.65)
Capital Expenditures/Sales	–0.005	0.002	0.002
	(–0.27)	(0.09)	(0.09)
Leverage ratio	–0.371	–0.384	–0.377
	(–1.45)	(–1.50)	(–1.48)
Dividend Indicator	0.243	0.179	0.222
	(2.84)***	(2.13)**	(2.54)**
Employee Representation x Industrial Concentration	0.127	0.279	0.314
	(0.24)	(0.53)	(0.60)
OWN10		–2.368	–1.589
		(–1.94)*	(–1.29)
OWN10-30		–0.678	–4.295
		(–0.85)	(–3.51)***
OWN30+		0.630	1.731
		(1.86)*	(2.19)**
Employee Representation x OWN10-30			6.140
			(3.89)***
Employee Representation x OWN30+			-1.693
			(-2.12)**
Constant	2.074	2.291	2.294
	(6.91)***	(7.33)***	(6.77)***
Observations	786	786	786
R^2	0.055	0.066	0.076