

**TAKEOVER DEFENSES AND COMPETITION:
THE ROLE OF STAKEHOLDERS**

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Abstract

This paper studies the interaction between takeover defenses and competition. We find that firms in more competitive industries have more takeover defenses. This suggests that product market competition can be a substitute for the market for corporate control, with more information available in competitive markets making monitoring less costly. A novel instrument for the incentives of stakeholders in the product market to monitor is provided by the nature of the relationship between the firm and its customers. For firms in industries with long-term relationships with customers and suppliers, these stakeholders have greater incentives to monitor. We document that stronger competition is linked to more defenses only in these ‘relationship’ industries. Finally, we discuss the implications for the design of other governance mechanisms.

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I. Introduction

How does product market competition interact with the market for corporate control? Does the competitive environment affect the number of takeover defenses used? In this paper, we empirically investigate this interaction in light of two competing hypotheses. The first hypothesis argues that takeover defenses are the product of agency costs and thus inefficient, and predicts fewer takeover defenses (i.e., more exposure to the market for corporate control) in more competitive industries. Alchian (1950), Stigler (1958), Fama (1980) and Fama and Jensen (1983) argue that strong competition in the product markets is especially costly for firms that are governed and managed inefficiently, as competitive environments are quicker to force inefficient firms out (see also Shleifer and Vishny (1997)).

Gompers, Ishii, and Metrick (2003, henceforth GIM), Bebchuk, Cohen, and Ferrell (2004), Bebchuk and Cohen (2005), Cremers and Nair (2005), and Masulis, Wang, and Xie (2007) find that takeover defenses are, on average, associated with lower firm value and profitability as well as lower long-run returns and lower bidder returns. If the pressure to reform any suboptimal governance arrangements is strongest in the most competitive industries,¹ this literature predicts that takeover defenses are less frequent in competitive markets.

The second hypothesis is based on theories by Holmstrom (1982), Nalebuff and Stiglitz (1983) and Hart (1983) who argue that greater competition in the product market increases the amount of information available about the firm, thereby reducing the costs of monitoring. As a result, competition and the market for corporate control become substitutes, as either could reduce agency costs. Therefore, these theories predict that shareholders can allow more takeover defenses if product market competition is greater.

Using either industry-median profit margins, a sales- or Census-based Herfindahl index as proxies for the degree of product market competition, we find that firms in more competitive

¹ We follow Lerner (1934) in defining the competitiveness of an industry as one where profit margins are thin such that any financial consequences of suboptimal decisions by the managers could not be passed on to customers through increases in prices. We use the industry median profit margin as a proxy for the competitiveness. We also show the robustness of our results to the use of a Herfindahl index.

industries have *more, not fewer*, takeover defenses.² Further, differences in competitiveness can explain a significant fraction of differences in takeover defenses across industries. These results run counter to the first hypothesis that the market for corporate control and the product market are complements, but are consistent with the second, substitutes hypothesis.

To further investigate the substitutes hypothesis, we consider differences across industries in the incentives of the product market to directly monitor the firm. Specifically, Holmstrom (1982), Nalebuff and Stiglitz (1983) and Hart (1983) argue that the product market has a significant impact on the ability of monitors to perform their monitoring. We posit that this monitoring will be done at least partly by the firm's suppliers and customers, i.e., the firm's relationships with these stakeholders in the product market. An example of a stakeholder monitoring its trading relationship is Intel. Intel requires its suppliers to regularly provide financial and other relevant information.³ If more information from increased competition makes such monitoring less costly, this should have a bigger impact in those industries where such product market stakeholder relationships give greater incentives to monitor.

The stakeholder incentives to monitor the firm seem greatest if they have a long-term relationship with the firm. Otherwise, benefits from monitoring would seem to be lacking, especially if the product market is competitive and stakeholders have plenty of alternatives available. As a result, the substitutes hypothesis suggests that greater competition should lead to less exposure to the market for corporate control most directly in those industries where long-term relationships are formed and the customers and suppliers have greater incentives to monitor the trade partner.

We propose to use the relationship industries as an instrument for greater incentives for monitoring. As we classify firms into relationship and non-relationship industries based on their products and services, this classification can serve as an instrument for monitoring incentives that

² The takeover defenses considered in this paper can broadly be thought of as a collection of firm-level charter and by-law provisions that affect managerial entrenchment. In effect, we interpret the 'shareholder rights' in Gompers, Ishii and Metrick (2003) more narrowly as (a lack of) takeover defenses.

³ See: https://supplier.intel.com/static/supplierdiversity/New_Supplier_Page.htm.

is neither endogenously determined by the market for corporate control nor by the level of product market competition.

We define ‘relationship industries’ as durable goods industries plus longer-term services (see the Appendix for our classification). As a robustness check, we also consider a sample of manufacturing industries only, where relationship industries are those producing durable goods.⁴ This instrument for the presence of monitoring incentives provides further support for the substitutes hypothesis. It is only in industries with long-term business relationships that greater competition is associated with more takeover defenses.

The main alternative explanation of more takeover defenses in competitive industries is that firms in competitive-relationship industries have the highest agency costs and managers entrench themselves most. For example, firms whose customers are ‘locked in’ because of switching costs (which could be higher in relationship industries) may be attractive targets, and agency costs lead managers to be reluctant to lose control and thus they increase the number of defenses. However, we find that in competitive relationship industries, high stock-based executive compensation is more prevalent. This alternative governance mechanism should directly alleviate such agency conflicts between managers and shareholders, rendering this alternative explanation less likely.⁵

Finally, if there is a tradeoff of the costs and benefits of a firm’s exposure to the market for corporate control, what could these costs be? We speculate that again the stakeholders could provide a possible explanation, as takeovers can be disruptive to a target firm’s existing suppliers, customers and employees, especially in long-term relationships. While a detailed analysis of such costs is outside the scope of this paper, we believe this to be an interesting area of further study.

⁴ Our classification of relationship industries for the full sample and as given in the appendix is based on our own subjective interpretation of the main business model in each industry group. If we deem the industry to mainly consist of products and services that are more long-term in nature than average, these are classified as relationship industries. To reduce concerns about our subjective interpretations, the manufacturing sample is used, where we rely on the widely used classification of durable goods.

⁵ Caveat: it may in turn be possible that incentive pay, which is also endogenously determined, is higher exactly to offset higher agency costs, in which case the ‘residual agency costs’ after incorporating incentive pay may be higher or lower.

Our paper makes several contributions related to two distinct strands of the literature on corporate governance. First, we contribute to the literature that investigates the governance implications of the competitiveness of the product markets. Hart (1983) formalizes the notion posited by Machlup (1967) that more competition in the product market acts as a disciplinary mechanism and reduces managerial slack.⁶ Hence, fewer substitute governance mechanisms are needed in competitive markets, as supported by our findings. Second, our evidence that the nature of the product market relationship matters contributes to the literature on the role of stakeholders for firm performance and behavior, see e.g. Allen, Carletti, and Marquez (2007), Fee, Hadlock, and Thomas (2006), and Maksimovic and Titman (1991).

The remainder of this paper proceeds as follows. In the next section we describe the data used to investigate the link between takeover defenses and industry competition. Section III shows the first tests and offers two competing hypotheses that could explain the finding that there are more takeover defenses in more competitive industries. It highlights the importance of the nature of products and the relationship between the firm and its stakeholders. Section IV sheds some light on the design of governance mechanisms. The conclusion follows in Section V.

II. Data

This section describes the data. Since most of the implications for the interaction between takeover defenses and competition are at the industry-level, we compute proxies for those for each industry. For most of our paper, and where the data allows, we use two-digit SIC industry classifications.⁷

First, we form a proxy for the industry level of takeover defenses by taking the equal-weighted industry average of each firm's Governance index or 'G-index.' We follow Gompers, Ishii and Metrick (2003) in defining the G-index at the firm level by summing up the number of

⁶ However, Scharfstein (1988) points out that Hart's (1983) conclusions are sensitive to the assumptions about feasible compensation schemes for managers.

⁷ We chose a two-digit SIC classification to obtain a sufficient number of firms per industry given that IRRC data on takeover defenses is available only for the largest 1000 firms. Where possible we also computed industry level variables at the four-digit SIC level. The results are robust to this change in industry definition.

restrictive provisions that each firm has in their charter and by-laws. Each provision thus contributes equally to the index, and a higher value of the G-index indicates more provisions that limit shareholder rights, thus greater protection against takeovers. The G-index is based upon 24 provisions and is updated in 1990, 1993, 1995, 1998, 2000, and 2002. For the years where the information is not updated, we assume the last available value. This data is obtained from the Investor Responsibility Research Center (IRRC) database.

We also use a refined measure of the G-index proposed by Bebchuk, Cohen, and Ferrell (2004) termed the E-index (entrenchment), which considers only 6 out of these 24 provisions: staggered boards, limits to shareholder bylaw amendments, supermajority requirements for mergers, and supermajority requirements for charter amendments, and two “takeover readiness” provisions that boards put in place to be ready for a hostile takeover (poison pills and golden parachutes). Finally, we also use a third measure, the anti-takeover or ATI-index from Cremers and Nair (2005) that is closely related to takeover vulnerability and considers only three common anti-takeover provisions that create significant obstacles for takeovers: preferred blank check, staggered boards, and restrictions on calling special meetings and action through written consent.

The univariate statistics on the industry level averages during our sample period from 1990 to 2003 are shown in Panel A of Table 1. We find that the average industry has a G-index of 9.11. There is substantial variation in the industry level G-index, with a minimum industry average G-index of 5 and a maximum of 14 with a standard deviation of 1.11. One potential issue with the industry level analysis of the G-index is that not all industries get equal coverage in IRRC since the sample is based on the largest 1,000 firms. We find that IRRC firms represent, on average, about 70% of the sales of an industry (not tabulated). However, we find no significant correlation between the industry average G-index and a proxy for the representation (i.e., the fraction of firms or sales of the industry as represented in the IRRC database). Adding this proxy to the regressions discussed below also does not affect the inferences. We thus conclude that there is no obvious bias induced by the use of IRRC data to proxy for industry level shareholder rights.

Our main measure for the level of competition in each industry is the industry median net profit margin (NPM). NPM is defined as the income before extraordinary items available for common equity divided by sales (following Gompers et al., 2003). As lack of competition (or product differentiation) allows monopolies to charge higher prices and generate higher profit margins, we follow the industrial organization literature (Lerner, 1934) in interpreting a lower industry NPM as indicating greater competition. Therefore, net profit margin also relates closely to the concept of the Lerner Index (Lerner, 1934) as a measure of competition.⁸

An alternative, commonly used proxy for industry concentration is the Herfindahl-index. The Herfindahl index is given by $H = \sum_i (\Pi_i)^2$, where Π_i is the market share of the sales of company i and the summation is over the total number of firms in the industry. We calculate the Herfindahl index using all firms with sales data available in Compustat. We also use the concentration measure that is based on market share of the largest four companies in each industry as provided by the Economic Census (1992).⁹ We aggregate this information from the four-digit SIC to the two-digit SIC. Since the Herfindahl index is directly related to the number of firms, we also use the Normalized Herfindahl-index. It is defined as $(n \times \text{Herfindahl} - 1)/(n - 1)$, where 'n' is the number of firms. In all cases, a higher (normalized) Herfindahl index indicates a more concentrated industry, and thus less competitive.

In order to control for other possible factors affecting the anti-takeover provisions at the industry level, we include a number of control variables. The selection of the variables is largely based on Gompers et al. (2003). Since Gompers, Ishii and Metrick (2003) find that firms tend to have a higher G-index if they are large, have high institutional ownership, high trading volume, low sales growth, poor stock returns and low Tobin's Q, we control for these characteristics within each industry. Following Cremers and Nair (2005) who find that blockholdings and anti-

⁸ The Lerner Index is a measure of the profitability of a firm that sells a good: $(\text{price} - \text{marginal cost}) / \text{price}$, see e.g. Domowitz, Hubbard, and Petersen (1988). Our proxy is based on the standard assumption in the literature that the marginal cost can be reasonably approximated by the average variable cost (Carlton and Perloff, 1989).

⁹ The 1997 and 2002 Census updates are done using NAICS as an industry classification. The match between NAICS and SIC is relatively poor (as per the Census webpage), thus we use the 1992 proxy (see also the discussion in footnote 13).

takeover provisions are complements in affecting equity returns, we also control for blockholdings.

To proxy for size, we use the market value of equity (in millions). We then compute the industry-level proxy for size (Equity Value) as the (log of the) equal-weighted average size of all firms in Compustat in any particular industry-year. Institutional Ownership is the fraction of shares owned by institutional owners as identified by 13-D filings from the CDA Spectrum database. Proxying for trading, Trading Volume is the average of the monthly trading volume divided by the number of shares outstanding over the past five years. Sales Growth is the growth of sales in the prior five years. Prior Return is the average monthly return over the five years prior to the fiscal year end. TQ is Tobin's Q computed as market value of equity + book value of assets – book value of equity – deferred taxes divided by book value of assets.¹⁰ Block Ownership is the fraction of shares held (in percent) by the largest institutional owner if it is at least 5%, and is zero otherwise. The block ownership is measured in the 4th quarter of the prior fiscal year. We also include ROA, the return-on-assets, calculated as net income divided by book value of assets, and the Dividend Yield defined as the dividend-to-share price ratio at fiscal year end.

III. Product Market Competition and Takeover Defenses

III. 1. Does Competition Lead to Fewer Takeover Defenses?

As discussed in the introduction, the early literature by Alchian (1950), Stigler (1958), Fama (1980) and Fama and Jensen (1983), and summarized by Shleifer and Vishny (1997), argues that competition in the product markets would reduce or eliminate inefficiencies in organizations. The logic is that in a very competitive product market, firms can only charge the marginal cost to customers because otherwise customers would switch to a different provider, given that products of different firms are almost perfect substitutes in these competitive industries. Hence, if a firm has to bear extra costs due to inefficiencies associated with takeover defenses, it will lose business as customers will not pay that firm's higher marginal cost. Alternatively, if the

¹⁰ If deferred taxes are missing then these are set to zero.

firm continues selling at the (lower) industry's marginal cost, it will make less profit and hence firm value is expected to be lower. This seems directly supported by the empirical results of Gompers et al. (2003) who find a negative association between the level of takeover defenses and firm profitability (and Tobin's Q), suggesting that, on average, those defenses may be costly or inefficient.

Therefore, our first hypothesis predicts that in more competitive industries, we should observe fewer takeover defenses. The reason is that, agency costs notwithstanding, higher competition forces firms in more competitive industries to avoid the costs and inefficiencies that may be associated with a more frequent use of takeover defenses. On the other hand, firms in more concentrated industries (where products are more differentiated) might be able to pass these extra costs along to the customers.

III. 1. Takeover defenses and Product Market Competition

To capture the extent of competition in the industry - the main variable of interest - we first use the industry median net profit margin (NPM). Panel B of Table 1 displays the correlations between the NPM and our three proxies for the average number of takeover defenses in an industry using the full panel sample. According to these univariate tests, the correlation of NPM with all three defense proxies is significantly negative. For example, we find a correlation of -8.4% with the Eindex (p-value of 1.7%). This suggests that at the industry-level, more competition or lower industry-median NPM is associated with more takeover defenses.

Table 2 presents corresponding multivariate results of industry-level pooled panel regressions using industry between-effects and year dummies, where the dependent variable is the average level of takeover defenses in an industry. Errors are clustered by industry as observations within an industry (through time) are not independent. The between-effects regression captures the cross-sectional variation by essentially averaging variables over the time-series by industry.

Column 1 shows that decreases in NPM are statistically significantly associated with more frequent takeover defenses. In column 2, we verify that this relation is robust to several

control variables. Since these were described in the previous section, we simply summarize them here. These include controls for industry size (average Equity Value), performance (average ROA, Sales Growth) and valuation (average industry TQ). We also use controls for the presence of institutional Block Ownership, since such blockholders can facilitate takeovers (Shleifer and Vishny, 1986). In addition, we control for Institutional Ownership since such shareholders might play a monitoring role. Finally, we also control for the dividend yield. As can be seen, adding these controls does not change the relation between takeover defenses and NPM.¹¹

According to column 2, variation in NPM across industries (using a one-standard deviation shock in NPM) can explain a difference of approximately 0.66 ($=0.09 \times 7.3$) in the G-index levels between industries. Since the variation in the industry level G-indices is 1.1 (see Table 1), the link between takeover defenses and NPM is economically important as well.

We also find that industries with higher dividend yields and lower institutional block ownership are associated with a higher frequency of takeover defenses. These associations are generally significant in the subsequent robustness regressions, except when using the ATI index to measure takeover defenses.

In column 3 and still using the G-index as the dependent variable, we report results using an OLS regression and clustering the errors by industry. Unreported Fama-MacBeth type regression results (where the coefficients are the average of the year-by-year cross-sectional regressions and the standard errors are based on the time series distribution of the coefficients) give very similar results as well. The negative coefficients on the NPM variable indicate that our first main result, that more competition is associated with more takeover defenses, holds also in the combined time-series and cross-section of industries.

In column 4, we use a more refined measure of shareholder rights proposed by Bebchuk, et al. (2004). Using this measure, denoted by E-index, we again find a negative association between takeover defenses and NPM that is significant with a p-value of 3.3%. Finally, we use

¹¹ This relation is also robust to controls for industry heterogeneity in return, volatility, ROA, TQ and block ownership measured as the within-industry standard deviation in these variables. In the interests of space, these results are not reported, and are available from the authors.

the anti-takeover index (ATI) proposed in Cremers and Nair (2005) that incorporates only three of the 24 defenses. Once again, we find that firms in competitive industries have more defenses. Variation in NPM, again using a one-standard deviation shock, can explain a difference of approximately 0.3 ($= 0.09 \times 3.3$ and 0.09×3.1 , respectively) in the E-index and ATI between industries. Since the variation in the industry-level E-index is 0.55 and in the ATI is 0.35 (see Table 1), the link between defenses and NPM is once again economically important.

Table 3 addresses some robustness concerns with our basic regression using the G-index. First, the IRRC data from which these shareholder rights indices are formed are not updated every year.¹² To ensure that our results are not driven by this, in column 1 we use only those years where IRRC updates its data. In column 2, we use industry classifications based on the 48 Fama-French industries rather than 2-digit SIC codes. We find that the negative relation between industry-level takeover defenses and NPM is robust to these changes.

The other four columns employ the Herfindahl sales-concentration index as an alternative competition proxy. A higher value of the Herfindahl index means a more concentrated industry and thus less competition. Columns 3 and 4 of Table 3 provide the results using the Herfindahl index computed using all firms in Compustat, using two-digit SIC and 48 Fama-French industry groups, respectively. In column 5, we use the measure of industry concentration reported in the Census data. Since these data are available for only the manufacturing sector, the number of available observations is now lower. Also, this measure is available only for 1992 and, consequently, we can only test our hypothesis using OLS. Finally, in column 6, we adjust the concentration index for the number of firms in the industry and calculate the Normalized Herfindahl index for each industry, again using all firms in Compustat. This may be important as the measure of concentration as determined by the Herfindahl index can be higher either because the number of firms is lower or because there is a higher asymmetry in the market shares across

¹² The years during which IRRC updates are 1990, 1993, 1995, 1998, 2000, 2002. We also run OLS regressions where the variables are constructed as differences between years with updated information. This limits the sample to firms that survive the years between IRRC updating. The inferences from this regression are the same as with the fixed effect regression and confirm that at least part of the effect we are capturing is coming from firms that change their shareholder rights as opposed to new firms entering the industry.

firms. Across all five different specifications involving the Herfindahl concentration index, we robustly find that it has a negative coefficient. As a result, lower industry concentration (i.e., more competition) is associated with more takeover defenses.

In conclusion, the results from Tables 1, 2 and 3 provide strong evidence against our first hypothesis, that competition forces firms to reduce the use of costly or inefficient takeover defenses and predicting fewer defenses in more competitive industries.¹³

III. 2. The Substitutes and Agency Problem Hypotheses

This section investigates two possible interpretations of our finding of more frequent takeover defenses in competitive industries. First, competition and the market for corporate control could be substitutes, and second, agency costs could be stronger in competitive markets, which leads managers to advocate for more takeover defenses with detrimental implications for shareholder value.

The first ‘substitutes’ explanation is given by Holmstrom (1982), Nalebuff and Stiglitz (1983) and Hart (1983), arguing that competition leads to greater transparency and lower monitoring costs. If product market competition decreases agency costs by disciplining managers, competition can serve as a substitute for other governance mechanisms. Since strong shareholder rights (i.e., lack of takeover defenses) are less important when agency costs are lower, strong shareholder rights would then be less important in competitive markets. If the costs of strong

¹³ A related paper on competition and governance is Kadyrzhanova and Rhodes-Kropf (2007), who focus on manufacturing firms and find that firms in more concentrated industries have more takeover defenses. Their proxy for concentration is based on the sales concentration of the largest four firms as provided by the Census in the years 1992, 1997, and 2002. As shown in Table 3, we find the opposite result at the industry level using the 1992 concentration measure. One issue with the Census data is that it is updated infrequently. This leads to statistical problems, since dependent and independent variables of interest are the same for two or more years in a row. We solve this by using competition proxies that are changing year-by-year and by clustering errors (industry for industry-level and firm for firm-level analysis), see also section III.2. A second issue is that in the years 1997 and 2002 the Census uses NAICS industry classifications, which cannot be perfectly allocated to the SIC classification (see also the Census webpage <http://www.census.gov/epcd/ec97brdg/E97B1311.HTM>). This introduces errors in the concentration proxy relative to other variables that are constructed based on SIC.

shareholder rights are uniform across industries or higher in competitive industries, this may produce a positive association between higher competition and more defenses.¹⁴

The second ‘agency problem’ explanation is based on the findings of Bertrand and Mullanaithan (2003) that managers prefer a ‘quiet life’. In competitive markets, the greater pressure from the product market gives managers more incentives to shield themselves from a disciplining mechanism that may threaten their removal in case of poor performance.

To distinguish between these two hypotheses, we perform the following test. The substitutes hypothesis implies that the players in the product market (suppliers and/or customers) might have different incentives to monitor the trade partner depending on the relationship they have with the trade partner. The idea is that in competitive industries, the firm needs to reveal more information about itself in order to attract the business from the stakeholders (i.e., customer and / or suppliers). Those customer and/or suppliers then have more information to monitor.

The stakeholder incentives to monitor should be highest in industries where long-term relationships between customers/suppliers and the trade partner are established. As an example and as mentioned in the introduction, Intel requires its suppliers to file financial and other information (mostly related to productivity and quality of supplied products) which allows Intel to monitor its suppliers. Such monitoring seems to have benefits primarily if this relationship is on-going and foreseen to last, especially if the product market is competitive and stakeholders have plenty of alternatives available. As a result, the substitutes hypothesis suggests that greater competition should lead to less exposure to the market for corporate control most directly in those industries where long-term relationships are formed and the customers and suppliers have greater incentives to monitor the trade partner.

III. 3. Relationship Industries and the Role of Stakeholders

¹⁴ More generally, the documented relation might be due to some omitted variable that is related to both shareholder rights and competition but is independent of takeovers and firm survival. As a result, competition and the market for corporate control become substitutes, as either could reduce agency costs.

We characterize industries into relationship and non-relationship industries within two-digit-SIC industry groups. The following two-digit-SIC industries are classified as relationship industries: 15-17, 34-39, 42, 47, 50-51, 55, 60-65, 67, 75-76, and 87 (Appendix 1 contains a short description of those industries). Broadly, relationship industries are likely to operate in the service sector or the durable goods sector. Industries that provide longer-term services have an ongoing relationship with the client/trade partner and hence are relationship-based. The software industry in which firms such as Oracle or Microsoft operate is an example. Industries that sell durable goods are also likely to deal with the trade partner again, for either maintenance or servicing reasons. Prior literature has used this feature to argue that customers in durable industries are forward looking (see e.g. Chevalier and Goolsbee, 2005).¹⁵ An example is the auto industry – as is confirmed by a recent article in the Wall Street Journal (Dec. 27, 2005) that reports that “only 26% of those polled in a recent survey said they would purchase or lease a new car from an auto maker that had declared bankruptcy.”¹⁶ Our classification also overlaps with Titman and Wessels’ (1988) who classify manufacturing firms in the 3400-4000 SIC codes as firms producing goods that require future, specialized service or spare parts.

To investigate whether the link between competition and takeover defenses documented earlier is stronger in such relationship industries, we add two regression variables to the basic industry-level regressions in Tables 2 and 3. The first is an interaction term between the competition proxies and a dummy signifying whether the industry is a relationship industry or not, and the second is the relationship industry dummy by itself. The results are presented in Table 5.

The first three specifications use NPM as a proxy for competition. Column 1 reports that it is only in relationship industries, where customers are more likely to care about firm survival, that more competition (i.e., lower NPM) is associated with more takeover defenses. Moreover, the relationship industry dummy itself has a positive and significant coefficient, indicating that

¹⁵ At the same time, there are some durable goods where the customers are not likely to interact with the firm once the purchase has been made, and hence are less likely to be ‘relationship industries’.

¹⁶ Interestingly, based on our classification, the level of debt in relationship industries is significantly lower than the level of debt in non-relationship industries. See Titman (1984) and Campello and Fluck (2005) for more evidence on how firm survival affects capital structure decision.

firms in those industries adopt more defenses regardless of the level of competition. Column 2 confirms this finding using only those years where the IRRC data is updated.¹⁷ Strikingly, in both regressions there is no significant relation at all between the level of competition and the number of defenses for the non-relationship industries. This is an important finding, as it suggests that takeover defenses are not simply a proxy for the likelihood of takeover (in which case we would observe the same, negative correlation between takeover defenses and competition even in non-relationship based industries).

Column 3 uses an alternative classification of industries to proxy for where the costs of disruption from takeovers are highest. It is based on Yogo (2006), who classifies firms into durable and non-durable industries using only industries in the manufacturing and the retail sector. Using this alternative classification of relationship industries as a robustness test, the negative association between NPM and defenses exists again only in durable industries, i.e., where customers are more likely to care about firm survival.

Columns 4 – 6 repeat the first three regressions using Herfindahl rather than NPM as our proxy for competition. We again find that more competition is only related to more defenses in relationship (or durable goods) industries.¹⁸

III.4. Firm-Level Analysis

Thus far we have performed industry-level analyses to test the hypotheses. In Table 6, we provide additional evidence using firm-level data on takeover defenses. These results confirm that our previous industry-level results are robust to firm-level analysis, documenting more takeover defenses in competitive relationship industries.

¹⁷ We also perform the robustness tests shown earlier that use a census based Herfindahl measure and a normalized Herfindahl measure and find similar results that, in the interests of space, are omitted.

¹⁸ The same applies in Regression 3 using NPM with the alternative durable goods industry classification. There is even evidence of the opposite result for firms in competitive, non-relationship industries. This last result would imply that competition per se is not always sufficient to act as a substitute for the market for corporate control. It seems necessary that the information generated about the firm is used to monitor the firm, in particular used by customers and suppliers. If there is less incentives to monitor, the market for corporate control seems to rather act as a complement to the product market, consistent with the first hypothesis.

We try to control for the probability of becoming a takeover target by controlling for firm size, which is one of the most important explanatory factors for being a target (e.g., Cremers, Nair and John, 2007). Smaller firms are more likely to be taken over than large ones.¹⁹ In Table 6, we use firm-level data and investigate whether smaller firms in more competitive industries are more likely to have strong takeover defenses.

Further support for the ‘relationship’ hypothesis comes from the addition of the relationship industry variable in the second and fourth columns. In relationship industries the correlation between competition and takeover defenses is clearly strongest for small firms. Indeed, this relation is significantly stronger for relationship industry firms than for non-relationship industry firms. This finding also alleviates the concern that the level of takeover defenses is purely endogenous and thus merely measures the probability of a takeover in our analysis.²⁰

IV. An Extension: The Design of Governance

The evidence presented is consistent with the hypothesis that the market for corporate control and the product market are substitute governance mechanisms. In this section, we introduce another, internal governance mechanism, to test whether firms in competitive-relationship industries that display more takeover defenses potentially substitute more performance-sensitive executive compensation for the reduced exposure to the market for corporate control. In particular, if the increased monitoring in competitive relationship industries leads to firms optimally choosing more takeover defenses, we may expect that this increased monitoring also affects other parts of the firm’s corporate governance.

Looking at stock-based executive compensation also sheds light on a possible alternative explanation of more takeover defenses in competitive industries, which is that firms in

¹⁹ Ideally, we would like to estimate the takeover probability without the defenses in place. Since this is a latent variable, the proper treatment would be to estimate this latent variable in a first stage. However, since the takeover defenses are infrequently changed we were unable to set up valid two stage process. Instead, we have to rely on the assumptions that firm size is reasonable exogenous to serve as a proxy.

²⁰ That is, unless one argues that the takeover probability of small firms in relationship industries is significantly higher than in non-relationship industries. However, in unreported results, we find that mergers and acquisitions are not more likely to happen in relationship industries, either for small or larger firms (using the sample from Cremers, Nair and John (2007)).

competitive-relationship industries could have the highest agency costs with managers entrenching themselves most. For example, firms whose customers are ‘locked in’ because of switching costs (which could be higher in relationship industries) may be attractive targets, and agency costs lead managers to be reluctant to loose control and thus they increase the number of defenses.

We investigate if competitive industries are associated not only with more takeover defenses but also with higher performance-based pay. To characterize the level of performance-based compensation, we use the ratio of equity compensation to the total compensation of the CEO from the ExecuComp database in Compustat, and compute the industry average.

Indeed, as shown in Table 7 (columns 1 and 3), the fraction of equity compensation is higher in competitive industries, while significantly so only if using Herfindahl as a concentration measure.²¹ Most interestingly and again using the Herfindahl, the positive relation between incentive pay and competition is three times as strong in relationship industries as in non-relationship industries.

In sum, industries where competition and the market for corporate control are strong substitutes appear to be accompanied by a higher level of stock-based compensation. To the extent such performance-based pay is viewed as a device to align managers’ interests with shareholders’, we do not expect dramatic misalignment between managers and shareholders, despite weaker shareholder rights, apart from increased monitoring from the product market stakeholders. Therefore, this increased use of the alternative governance mechanism of incentive pay renders the alternative explanation of *greater* agency conflicts in competitive relationship industries less likely.⁴

V. Conclusion

²¹ Cunat and Guadalupe (2005) find evidence that an increase in product market competition is accompanied by an increase in the pay-for-performance sensitivity using UK data.

Several corporate governance critics have advocated making firms more vulnerable to takeovers and the discipline imposed by the market for corporate control (see, e.g., Bebchuk, 2005). However, these arguments ignore substitute mechanisms to monitor and reduce agency costs, as well as the possible costs of increased vulnerability to the market for corporate control on customer, supplier and employee decisions.

This paper presents evidence that product market competition and the market for corporate control are substitutes. We find many fewer takeover defenses in competitive markets. Next, we introduce a novel instrument for the incentives of stakeholders in the product market to monitor, by considering the nature of the relationship between the firm and its customers. For firms in industries with long-term relationships with customers and suppliers, these stakeholders have greater incentives to monitor. We document that stronger competition is linked to more defenses only in these ‘relationship’ industries.

If there is a tradeoff of the costs and benefits of a firm’s exposure to the market for corporate control, what could these costs be? We speculate that again the stakeholders could provide a possible explanation, as takeovers can be disruptive to a target firm’s existing suppliers, customers and employees, especially in long-term relationships. While a detailed analysis of such costs is outside the scope of this paper, we believe this to be an interesting area of further study.

Finally, increased monitoring may also affect other parts of the firm’s corporate governance. We document evidence consistent with this view, and show that in competitive relationship industries with more frequent takeover defenses, we also find high stock-based compensation. By showing the importance of product markets in the design of governance, we hope to have made a first step in understanding the limitations of strong shareholder power.

References

- Alchian, Armen A., (1950), "Uncertainty, Evolution, and Economic Theory", *Journal of Political Economy*, 58-3, 211-221.
- Allen, Franklin, Carletti, Elena and Marquez, Robert S., (2007), "Stakeholder Capitalism, Corporate Governance and Firm Value", Working Paper.
- Andrade, Gregor, Mark L. Mitchell, and Erik Stafford (2001), "New evidence and perspectives on mergers", *Journal of Economic Perspectives* 15, 103-120.
- Arlen, Jennifer, (2006), "Regulating post-bid embedded defenses: Lessons from Oracle versus PeopleSoft", *Harvard Negotiation Law Review*, 1-24.
- Bebchuk, Lucian. A., (2005), "The Case for Increasing Shareholder Power", *Harvard Law Review*, 118-3, 833-913.
- Bebchuk, L. A. and A. Cohen (2005), "The Cost of Entrenched Boards," *Journal of Financial Economics* 78, 409-433.
- Bebchuk, Lucian A., Cohen, Alma and Ferrell, Allen (2004), "What Matters in Corporate Governance?", Harvard Law School John M. Olin Center Discussion Paper No. 491.
- Bertrand, M. and S. Mullainathan (2003), "Enjoying the Quiet Life? Corporate Governance and Managerial Preferences," *Journal of Political Economy* 115, 1043-75.
- Campello, Murillo and Zsuzsanna Fluck, (2005), "Product Market Performance, Switching Costs, and Liquidation Values: The Real Effects of Financial Leverage", Working Paper.
- Carlton, D. W., and J. M. Perloff, (1989), *Modern industrial organization*. Glenview, IL: Scott, Foresman.
- Chevalier, Judith, (1995), Debt and product market competition: Local market entry, exit, and expansion decisions of supermarket chains", *American Economic Review*, 85, 415-435.
- Chevalier, Judith and Austan Goolsbee, (2005), "How do consumers make durable goods purchase decisions? Demand for college textbooks" Working Paper.
- Chevalier, Judith and David Scharfstein, (1996), "Capital-Market Imperfections and Countercyclical Markups: Theory and Evidence", *American Economic Review*, 86, 703-725.
- Cremers, K.J.M. and V.B. Nair, (2005), "Governance Mechanisms and Equity Prices", *Journal of Finance*, 60, 6, 2859-2894.
- Cremers, K.J.M., V.B. Nair and K. John, (2007), Takeovers and the Cross-Section of Stock Returns, *Review of Financial Studies*, forthcoming
- Cunat, V., and M. Guadalupe (2005), "How Does Product Market Competition Shape Incentive Contracts?" *Journal of the European Economic Association* 3, 1058-1082.
- Daines, Rob, Davina Drabkin, and Vinay Nair, (2005), "Oracle's hostile takeover of PeopleSoft", Stanford Business School Case CG-4.

- Domowitz, Ian, Glenn Hubbard, and Bruce Petersen, (1988), "Market Structure and Cyclical Fluctuations in U.S. Manufacturing", *Review of Economics and Statistics*, 70/1, 55-66.
- Economic Census, (1992), U.S. Census Bureau, <http://www.census.gov/epcd/www/92result.html>.
- Fama, E. F., (1980), "Agency Problems and the Theory of the Firm," *Journal of Political Economy*, 88, 288-307.
- Fama, E. F., and M. C. Jensen, (1983), "Separation of Ownership and Control," *Journal of Law and Economics*, 26, 301-325.
- Fama, E. F., and K. R. French, (1997), "Industry Costs of Equity," *Journal of Financial Economics*, 93, 153- 194.
- Fee, Edward, Charles Hadlock, and Shawn Thomas, (2006), "Corporate Equity Ownership and the Governance of Product Market Relationships", forthcoming *Journal of Finance*.
- Feenstra, Robert C., (1996), "U.S. Imports, 1972-1994: Data and Concordances," NBER Working Paper 5515.
- Gompers, P.A., J.L. Ishii, and A. Metrick, (2003), "Corporate governance and equity prices," *Quarterly Journal of Economics*, Vol. 118.
- Harford, Jarrad, (2005), "What drives merger waves?", *Journal of Financial Economics*, 529-560.
- Hart, Oliver, (1983), "The Market Mechanism as an Incentive Scheme," *Bell Journal of Economics*, 14-2, 366-382.
- Holmstrom, Bengt, (1982), "Managerial Incentive Problems--A Dynamic Perspective," Republished in *Review of Economic Studies* 66 (1999): 169-82.
- Irvine, Paul and Jeffrey Pontiff, (2005), "Idiosyncratic Return Volatility, Cash Flows, and Product Market Competition," Working Paper.
- Klemperer, Paul, (1987), "Markets with Consumer Switching Costs", *Quarterly Journal of Economics*, 102, 375-94.
- Kadyrzhanova, Dalida, and Matthew Rhodes-Kropf (2007), "Concentrating on Governance", Working paper.
- Lerner, A., (1934), "The concept of monopoly and the measurement of monopoly power." *Review of Economic Studies* 1 (June): 157-73.
- Machlup, F., (1967), "Theories of the Firm: Marginalist, Behavioral, Managerial." *American Economic Review*, 57, 1-33.
- Maksimovic, V., and S. Titman, (1991), "Financial Policy and Reputation for Product Quality," *Review of Financial Studies*, 4, 175-200.
- Masulis, R., C. Wang, and F. Xie (2007), "Corporate Governance and Acquirer Returns," *Journal of Finance* 62, 1851-1889.
- Mitchell, M. and J. H. Mulherin, (1996), "The impact of industry shocks on takeover and restructuring activity," *Journal of Financial Economics* 41, 193-229.

- Nalebuff, B. and J. Stiglitz, (1983), "Information, competition, and markets" *American Economic Review*, 73(2): 278-283.
- Phillips, G., (1995), "Increased Debt and Industry Product Markets: An Empirical Analysis", *Journal of Financial Economics*, 37, 189-238.
- Rossi, Stefano and Volpin, Paolo, (2004), "Cross-Country Determinants of Mergers and Acquisitions", *Journal of Financial Economics*, 74, 277-304.
- Scharfstein, D., (1988), "Product Market Competition and Managerial Slack," *Rand Journal of Economics*, 19, 147-155.
- Shleifer, Andrei and Robert Vishny, (1986), "Large Shareholders and Corporate Control," *Journal of Political Economy*, 94, 461-488.
- Shleifer, Andrei and Robert Vishny, (1997), "A Survey of Corporate Governance," *Journal of Finance*, 52, 737-783.
- Stigler, George, (1958), "The economies of scale," *Journal of Law and Economics* 1, 54-71.
- Titman, Sheridan, (1984), "The Effect of Capital Structure on a Firm's Liquidation Decision," *Journal of Financial Economics* 13, 137-151.
- Titman, Sheridan, and Roberto Wessels, (1988), "The determinants of capital structure choice," *Journal of Finance* 43, 1-19.
- Yogo, M., (2006) "A Consumption-Based Explanation of Expected Stock Returns," *Journal of Finance*, 61, 539-580.

Appendix 1 - Relationship Industries

The following table contains the description of the relationship industries. The industry classification is based on the two-digit SIC code. The detailed description is from the webpage of the U.S. Department of Labor at http://www.osha.gov/pls/imis/sic_manual.html.

SIC code	Industry	Detailed description
15	Building construction – general contractors and operative builders	This major group includes general contractors and operative builders primarily engaged in the construction of residential, farm, industrial, commercial, or other buildings. General building contractors who combine a special trade with the contracting are included in this major group.
16	Heavy construction other than buildings construction – contractors	This major group includes general contractors primarily engaged in heavy construction other than building, such as highways and streets, bridges, sewers, railroads, irrigation projects, flood control projects and marine construction, and special trade contractors primarily engaged in activities of a type that are clearly specialized to such heavy construction and are not normally performed on buildings or building-related projects. Specialized activities that are covered here include grading for highways and airport runways; guardrail construction; installation of highway signs; trenching; underwater rock removal; and asphalt and concrete construction of roads, highways, streets and public sidewalks.
17	Construction – Special trade contractors	This major group includes special trade contractors who undertake activities of a type that are specialized either to building construction, including work on mobile homes, or to both building and nonbuilding projects. These activities include painting (including bridge painting and traffic lane painting), electrical work (including work on bridges, power lines, and power plants), carpentry work, plumbing, heating, air-conditioning, roofing, and sheet metal work.
34	Fabricated metal products	This major group includes establishments engaged in fabricating ferrous and nonferrous metal products, such as metal cans, tinware, handtools, cutlery, general hardware, nonelectric heating apparatus, fabricated structural metal products, metal forgings, metal stampings, ordnance (except vehicles and guided missiles), and a variety of metal and wire products, not elsewhere classified.
35	Industrial machinery and equipment	This major group includes establishments engaged in manufacturing industrial and commercial machinery and equipment and computers. Included are the manufacture of engines and turbines; farm and garden machinery; construction, mining, and oil field machinery; elevators and conveying equipment; hoists, cranes, monorails, and industrial trucks and tractors; metalworking machinery; special industry machinery; general industrial machinery; computer and peripheral equipment and office machinery; and refrigeration and service industry machinery. Machines powered by built-in or detachable motors ordinarily are included in this major group, with the exception of electrical household appliances. Power-driven handtools are included in this major group, whether electric or otherwise driven.
36	Electronic and other electric equipment	This major group includes establishments engaged in manufacturing machinery, apparatus, and supplies for the generation, storage, transmission, transformation, and utilization of electrical energy. Included are the manufacturing of electricity distribution equipment; electrical industrial apparatus; household appliances; electrical lighting and wiring equipment; radio and television receiving equipment; communications equipment; electronic components and accessories; and other electrical equipment and supplies. The manufacture of household appliances is included in this group.
37	Transportation equipment	This major group includes establishments engaged in manufacturing equipment for transportation of passengers and cargo by land, air, and water. Important products produced by establishments classified in this major group include motor vehicles, aircraft, guided missiles and space vehicles, ships, boats, railroad equipment, and miscellaneous transportation equipment, such as motorcycles, bicycles, and snowmobiles.
38	Instruments and related	This major group includes establishments engaged in manufacturing instruments

	products	(including professional and scientific) for measuring, testing, analyzing, and controlling, and their associated sensors and accessories; optical instruments and lenses; surveying and drafting instruments; hydrological, hydrographic, meteorological, and geophysical equipment; search, detection, navigation, and guidance systems and equipment; surgical, medical, and dental instruments, equipment, and supplies; ophthalmic goods; photographic equipment and supplies; and watches and clocks.
39	Miscellaneous manufacturing industries	This major group includes establishments primarily engaged in manufacturing products not classified in any other manufacturing major group. Industries in this group fall into the following categories: jewelry, silverware, and plated ware; musical instruments; dolls, toys, games, and sporting and athletic goods; pens, pencils, and artists' materials; buttons, costume novelties, miscellaneous notions; brooms and brushes; caskets; and other miscellaneous manufacturing industries.
42	Motor freight transportation and warehousing	This major group includes establishments furnishing local or long-distance trucking or transfer services, or those engaged in the storage of farm products, furniture and other household goods, or commercial goods of any nature. The operation of terminal facilities for handling freight, with or without maintenance facilities, is also included.
47	Transportation services	This major group includes establishments furnishing services incidental to transportation, such as forwarding and packing services, and the arrangement of passenger and freight transportation.
50	Wholesale trade – durable goods	This major group includes establishments primarily engaged in the wholesale distribution of durable goods.
51	Wholesale trade – nondurable goods	This major group includes establishments primarily engaged in the wholesale distribution of non-durable goods.
55	Automotive dealers and gasoline service stations	This major group includes retail dealers selling new and used automobiles, boats, recreational vehicles, utility trailers, and motorcycles including mopeds; those selling new automobile parts and accessories; and gasoline service stations. Automobile repair shops maintained by establishments engaged in the sale of new automobiles are also included.
60	Depository institutions	This major group includes institutions that are engaged in deposit banking or closely related functions, including fiduciary activities.
61	Nondepository credit institutions	This major group includes establishments engaged in extending credit in the form of loans, but not engaged in deposit banking.
62	Security and commodity brokers, dealers, exchanges, and services	This major group includes establishments engaged in the underwriting, purchase, sale, or brokerage of securities and other financial contracts on their own account or for the account of others; and exchanges, exchange clearinghouses, and other services allied with the exchange of securities and commodities.
63	Insurance carriers	This major group includes carriers of insurance of all types, including reinsurance.
64	Insurance agents, brokers and services	This major group includes agents and brokers dealing in insurance, and also organizations offering services to insurance companies and to policy holders.
65	Real estate	This major group includes real estate operators, and owners and lessors of real property, as well as buyers, sellers, developers, agents, and brokers.
67	Holding and other investment offices, except trusts	This major group includes investment trusts, investment companies, holding companies, and miscellaneous investment offices.
75	Automotive repair, services, and parking	This major group includes establishments primarily engaged in furnishing automotive repair, rental, leasing, and parking services to the general public. Similar facilities owned and operated by concerns for their own use and not for the general public are treated as auxiliary establishments.
76	Miscellaneous repair services	This major group includes establishments engaged in miscellaneous repair services.
87	Engineering, accounting, research, management, and related services	This major group includes establishments primarily engaged in providing engineering, architectural, and surveying services; accounting, auditing, and bookkeeping services; research, development, and testing services; and management and public relations services.

Table 1
Industry Level Univariate Statistics and Correlations

The table presents univariate statistics and correlations for equally-weighted averages at the industry level using firms between 1990 and 2003. Industries are defined as the two-digit SIC. G-index is the governance index based on IRRC data and is constructed following Gompers, Ishii and Metrick (2003) based on 24 anti-takeover provisions. E-index is the entrenchment index of Bebchuk, Cohen, and Ferrell (2004), which is based on staggered boards, limits to shareholder bylaw amendments, supermajority requirements for mergers, and supermajority requirements for charter amendments, and two “takeover readiness” provisions that boards put in place to be ready for a hostile takeover (poison pills and golden parachutes). The ATI governance index is using three common anti-takeover provisions that create significant obstacles for takeovers: preferred blank check, staggered boards, and restrictions on calling special meetings and action through written consent. The equally-weighted average per industry of the G, E and ATI-indices are computed based on firms with available information only and assessed in 1990, 1993, 1995, 1998, 2000, and 2002. We assume no change for years where the provisions are not updated. Herfindahl-index is based

on sales of all firms with data available in Compustat: $H = \sum_{i=1}^n (\Pi_i)^2$, where Π_i is the market share of company i and n is the number of firms in the industry. The Normalized Herfindahl-index is defined as $(n \times \text{herf} - 1)/(n - 1)$. Net profit margin (NPM) is defined following Gompers, Ishii and Metricks (2003) as income before extraordinary items available for common equity divided by sales (Compustat items #237/#12). The industry/year level variable is the median net profit margin of the firms in the industry in a particular year. Panel A shows univariate statistics. Panel B contains the piece-wise correlation coefficients and their p-value underneath.

Panel A: Univariate statistics

<i>Industry Level Variables</i>	<i>Obs</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Min</i>	<i>Max</i>
Gindex	873	9.11	1.11	5	14
Eindex	873	2.08	0.55	0	5
ATI	873	1.77	0.35	0.5	3
Net Profit Margin	873	0.04	0.09	-0.59	0.64
Herfindahl	873	0.21	0.24	0.01	1
Normalized Herfindahl	873	0.14	0.15	0.00	0.98

Panel B: Pair-wise correlation coefficients and p-value (underneath)

<i>Industry Level Variables</i>	<i>Gindex</i>	<i>Eindex</i>	<i>ATI</i>	<i>NPM</i>	<i>Herf.</i>
Eindex	0.681				
	0.000				
ATI	0.537	0.560			
	0.000	0.000			
NPM	-0.049	-0.084	-0.087		
	0.016	0.017	0.013		
Herfindahl	-0.082	-0.046	-0.086	-0.034	
	0.019	0.019	0.015	0.307	
Normalized Herfindahl	0.013	-0.063	0.017	0.053	0.966
	0.701	0.072	0.632	0.120	0.000

Table 2
Industry Level Shareholder Rights and Industry Concentration

The table displays coefficients and p-values of pooled panel regressions with industry-between effects (BE) and year-dummies. Errors are clustered at the industry level. Regression three is an ordinary least squares (OLS) regression using the panel data and clustering the errors by industry. Regression four is a Fama-MacBeth type regression where coefficients are based on the average of year-by-year cross-sectional OLS regressions. The t-statistics are based on the standard errors of the 14 annual observations. Industry is defined at the two-digit SIC code. All variables are equally-weighted at the industry level using firms between 1990 and 2003. The dependent variables are the industry average G-index, the entrenchment E-index, and the anti-takeover index (ATI). See Table 1 for a description of these indices and the Herfindahl-index. Equity Value is the average of the market value of equity of all firms in a particular industry in a particular year, measured in millions. TQ is the average Tobin's Q computed as market value of equity + book value of assets – book value of equity – deferred taxes divided by book value of assets. If deferred taxes are missing then it is set to zero. TradingVolume is the average trading volume divided by the number of shares outstanding over the past five years. Prior Return is the average monthly return over the five years prior to the fiscal year end. ROA is the average return-on-assets calculated as net income divided by book value of assets. Sales Growth is the average growth of sales in the prior five years. Dividend Yield is the average dividend-to-share price ratio at fiscal year end. Institutional Ownership is the average fraction of shares owned by institutional owners as identified by 13-D filings. Block Ownership is the average fraction of shares held (in percent) by the largest institutional owner. The block ownership is measured in the 4th quarter of the prior fiscal year. The R-square reported is the between r-square.

<i>Industry Level Variables</i>	<i>Gindex</i>		<i>Gindex</i>		<i>Gindex</i>		<i>Eindex</i>		<i>ATI</i>	
	<i>coef</i>	<i>p-value</i>	<i>coef</i>	<i>p-value</i>	<i>coef</i>	<i>p-value</i>	<i>coef</i>	<i>p-value</i>	<i>coef</i>	<i>p-value</i>
NPM	-4.883	0.057	-7.287	0.026	-2.814	0.055	-3.288	0.033	-3.149	0.009
Equity Value			0.000	0.593	0.000	0.474	-0.051	0.003	0.000	0.216
TQ			0.270	0.393	0.178	0.020	0.102	0.492	0.116	0.311
TradingVolume			-4.246	0.461	-1.657	0.232	-1.323	0.626	-0.747	0.720
Prior Return			7.297	0.798	9.043	0.157	-18.914	0.163	-0.495	0.962
ROA			-0.398	0.900	-0.728	0.411	0.621	0.677	1.397	0.224
Sales Growth			-0.056	0.544	-0.066	0.006	0.006	0.881	-0.025	0.458
Dividend Yield			37.027	0.078	20.734	0.000	18.324	0.065	11.430	0.132
Institutional Ownership			1.640	0.450	0.776	0.186	1.205	0.241	-0.767	0.330
Block Ownership			-0.137	0.014	-0.044	0.002	-0.068	0.010	-0.006	0.762
Regression type	BE		BE		OLS		BE		BE	
Errors Clustered	Industry		Industry		Industry		Industr y		Industry	
R-square	0.06		0.29		0.11		0.41		0.29	
Observations	876		876		876		876		876	

Table 3
Industry Level Shareholder Rights and Industry Concentration: Robustness Tests

The table displays coefficients and p-values of pooled panel regressions with the G-index as the dependent variable. Errors are clustered at the industry level. All variables are equally-weighted at the industry level using firms between 1990 and 2003. See Table 1 and 2 for a description of this index and the regression variables. Industry is defined as the 48 Fama-French industries (FF48) or at the two-digit SIC (SIC2), as indicated. The regressions are industry between effects, except for the fifth regression. The first regression restricts the sample to years where the IRRC updates the governance index (years: 1990, 1993, 1995, 1998, 2000, and 2002). The second regression shows results using the FF48 as industry unit. The third and fourth regressions use the Herfindahl index based on sales. The fifth regression is an OLS regression using a Census Bureau measure of concentration (Census). It is defined as the shipment value weighted average of the market share of the largest four firms in each four-digit SIC by aggregating it at the two-digit SIC level. It is established in 1992 and is only available for SIC2 \geq 20 and SIC2 $<$ 40. The last regression uses the Normalized Herfindahl index, which is defined as $(n \times \text{Herfindahl} - 1)/(n - 1)$, using the full sample and the FF48 industry definition.

<i>Industry Level Variables</i>	<i>Gindex</i>		<i>Gindex</i>		<i>Gindex</i>		<i>Gindex</i>		<i>Gindex</i>		<i>Gindex</i>	
	<i>coef</i>	<i>p-value</i>	<i>coef</i>	<i>p-value</i>	<i>coef</i>	<i>p-value</i>	<i>coef</i>	<i>p-value</i>	<i>coef</i>	<i>p-value</i>	<i>coef</i>	<i>p-value</i>
Net Profit Margin	-8.230	0.019	-1.716	0.023								
Herfindahl					-1.647	0.000	-3.998	0.000				
Census									-0.196	0.076		
Normalized Herfindahl											-3.884	0.000
Equity Value	-0.024	0.491	-0.084	0.001	0.020	0.098	-0.088	0.000	0.006	0.537	-0.092	0.000
TQ	0.350	0.275	0.078	0.454	0.415	0.000	0.183	0.059	0.071	0.510	0.213	0.030
TradingVolume	-6.453	0.246	-0.210	0.889	-1.238	0.379	-2.767	0.058	-4.295	0.026	-2.521	0.083
Prior Return	6.258	0.750	3.987	0.372	4.309	0.300	4.294	0.303	-16.558	0.102	5.640	0.177
ROA	-0.428	0.887	1.064	0.368	-3.143	0.002	-0.561	0.584	-1.880	0.116	-0.301	0.768
Sales Growth	-0.046	0.562	0.038	0.050	-0.062	0.001	0.014	0.470	0.056	0.135	0.010	0.577
Dividend Yield	44.545	0.015	22.091	0.010	22.030	0.001	6.758	0.416	28.657	0.003	7.822	0.346
Institutional Ownership	1.811	0.391	1.467	0.060	-2.133	0.003	1.240	0.095	-0.568	0.607	0.599	0.424
Block Ownership	-0.106	0.053	0.008	0.589	-0.002	0.838	0.001	0.951	0.009	0.725	0.009	0.529
Industry	SIC2		FF48		SIC2		FF48		SIC2		FF48	
Errors Clustered	Industry		Industry		Industry		Industry		Industry		Industry	
R-square	0.31		0.11		0.15		0.20		0.19		0.20	
Observations	375		665		876		665		280		665	

Table 4
Foreign Product Market Competition: Imports

The table displays coefficients and p-values of pooled panel regressions with industry-fixed effects and year-dummies. Errors are clustered at the industry level. All variables are equally-weighted at the industry level using firms between 1990 and 2003. The dependent variable is the G-index. See the previous tables for a description of this index and the regression variables. Import is computed as $\ln(1+\text{imports}/\text{domestic sales})$ based on Irvine and Pontiff (2005). Imports (as a fraction of domestic sales) is the value of shipments aggregated at the industry level of imports (sales of US firms) based on data from the NBER-CES Manufacturing Industry Database (Feenstra, 1996). The import measure is only available for manufacturing industries (SIC codes 2000-4000) and the sample years are limited to 1990-2001. The R-square reported is the within r-square.

<i>Industry Level Variables</i>	<i>Gindex</i>		<i>Gindex</i>		<i>Gindex</i>	
	<i>coef</i>	<i>p-value</i>	<i>coef</i>	<i>p-value</i>	<i>coef</i>	<i>p-value</i>
NPM	-2.247	0.032				
Herfindahl			-5.258	0.000		
Imports					-1.024	0.076
Equity Value	0.001	0.859	0.023	0.510	0.032	0.413
TQ	-0.170	0.208	0.000	0.997	-0.183	0.173
TradingVolume	-0.243	0.908	-3.620	0.056	0.853	0.684
Prior Return	1.789	0.765	2.719	0.591	-0.467	0.934
ROA	0.515	0.732	-1.837	0.125	-0.220	0.868
Sales Growth	0.034	0.156	-0.003	0.878	0.035	0.134
Dividend Yield	28.956	0.011	7.256	0.474	28.085	0.012
Institutional Ownership	1.930	0.075	1.562	0.104	2.029	0.060
Block Ownership	0.043	0.065	0.054	0.009	0.045	0.052
Errors Clustered	Industry		Industry		Industry	
R-square	0.18		0.35		0.18	
Observations	341		341		341	

Table 5
Relationship Industries and Industry Level Shareholder Rights

The table displays coefficients and p-values of pooled panel OLS regressions with year-dummies. Errors are clustered at the industry level. All variables are equally-weighted at the industry level using firms between 1990 and 2003. The dependent variable is the G-index. See the previous tables for a description of this index and the regression variables. The following two-digit-SIC industries are classified as Relationship industries: 15-17, 34-39, 42, 47, 50-51, 55, 60-65, 67, 75-76, 87. The variable *Relationship Industry* takes a value of one if the company operates in one of those two-digit-SIC industries and zero otherwise. In order to classify the industries, we ask whether customers might care whether the products or services are delivered by this particular company or people. For the second regression, the sample is limited to years where the IRRC data is updated (i.e., 1990, 1993, 1995, 1998, 2000, and 2002). The third regression uses the classification of durables in the manufacturing and retail industries only, following Yogo (2006). The following two-digit-SIC industries are classified as *Durable Goods Industries*: 25, 36, 37, 39, 50, 52, 53, 55, and 57. Non-durable industries are: 20-23, 26-28, 31, 51, 54, 56, 58, and 59. The remaining industries are excluded from the fourth regression. We report the p-value of the F-test that the sum of the coefficients on NPM (Herfindahl) and NPM (Herfindahl) x Relationship Industry (durable good industry) is equal to zero.

<i>Industry Level Variables</i>	<i>Gindex</i>		<i>Gindex</i>		<i>Gindex</i>		<i>Gindex</i>		<i>Gindex</i>		<i>Gindex</i>	
	<i>coef</i>	<i>p-value</i>	<i>coef</i>	<i>p-value</i>	<i>coef</i>	<i>p-value</i>	<i>coef</i>	<i>p-value</i>	<i>coef</i>	<i>p-value</i>	<i>coef</i>	<i>p-value</i>
NPM	-0.531	0.656	1.272	0.527	2.715	0.072						
NPM x Relationship Industry	-7.558	0.000	-7.811	0.004								
NPM x Durable Goods Industry					-5.432	0.010						
Herfindahl							1.135	0.001	0.836	0.110	1.137	0.083
Herfindahl x Relationship Industry							-2.099	0.000	-2.349	0.010		
Herfindahl x Durable Goods Industry											-2.575	0.006
Relationship Industry	0.263	0.006	0.259	0.076			0.257	0.028	0.277	0.110		
Durable Goods Industry					0.080	0.671					0.355	0.028
Equity Value	0.000	0.859	0.000	0.806	-0.030	0.131	0.001	0.850	0.001	0.860	-0.036	0.128
TQ	0.145	0.098	0.213	0.104	0.165	0.294	0.055	0.532	0.118	0.383	0.104	0.503
TradingVolume	-2.771	0.046	-2.819	0.142	-2.728	0.119	-1.386	0.321	-2.528	0.227	-4.957	0.016
Prior Return	7.901	0.137	-4.616	0.517	6.778	0.342	3.801	0.477	-5.038	0.516	5.508	0.528
ROA	-0.957	0.274	-0.900	0.487	-0.383	0.801	-1.101	0.206	-0.382	0.768	-0.790	0.593
Sales Growth	-0.047	0.023	-0.082	0.006	0.059	0.099	-0.037	0.080	-0.045	0.147	0.072	0.042
Dividend Yield	25.366	0.000	21.639	0.003	47.884	0.000	17.830	0.001	20.521	0.004	37.752	0.000
Institutional Ownership	-0.067	0.903	0.705	0.375	0.984	0.177	0.956	0.093	0.877	0.307	1.094	0.214
Block Ownership	-0.049	0.000	-0.040	0.020	-0.032	0.068	-0.052	0.000	-0.044	0.010	-0.040	0.028
F-test: p-value	0.000		0.021		0.083		0.045		0.048		0.033	
R-square	0.11		0.10		0.11		0.08		0.11		0.17	
Obs	876		375		308		876		375		308	

Table 6
Firm Level Shareholder Rights and Takeover Probability

We report coefficients of ordinary least square (OLS) regressions using the panel of firm level data for the years 1990-2003. The p-values are based on clustered standard errors by firm. The dependent variable is the firm's Gindex. NPM is the industry median net profit margin based on the two-digit SIC industry definition. Herfindahl is the Herfindahl index based on the two-digit SIC code industry definition. The small firm dummy is equal to one if the firm's book value of assets is below the sample firms' median in a given year. The following two-digit-SIC industries are classified as Relationship industries: 15-17, 34-39, 42, 47, 50-51, 55, 60-65, 67, 75-76, 87. The variable *Relationship Industry* takes a value of one if the company operates in one of those two-digit-SIC industries and zero otherwise. The other control variables are at the firm-level and are defined in Table 2.

<i>Firm Level Variables</i>	<i>Gindex</i>		<i>Gindex</i>		<i>Gindex</i>		<i>Gindex</i>	
	<i>coef</i>	<i>p-value</i>	<i>coef</i>	<i>p-value</i>	<i>coef</i>	<i>p-value</i>	<i>coef</i>	<i>p-value</i>
NPM	-2.264	0.039	1.510	0.252				
NPM x Relationship Industry			-3.352	0.026				
Herfindahl					-0.354	0.627	0.938	0.333
Herfindahl x Relationship Industry							-2.650	0.064
Relationship Industry			0.175	0.263			0.392	0.015
Equity Value	0.000	0.350	0.000	0.360	0.000	0.355	0.000	0.328
TQ	-0.109	0.001	-0.107	0.001	-0.110	0.001	-0.107	0.001
TradingVolume	-3.278	0.000	-3.302	0.000	-3.322	0.000	-3.333	0.000
Prior Return	-11.111	0.000	-11.455	0.000	-11.133	0.000	-11.420	0.000
ROA	-0.359	0.354	-0.231	0.557	-0.348	0.387	-0.192	0.632
Dividend Yield	14.907	0.000	15.511	0.000	14.763	0.000	15.594	0.000
Institutional Ownership	3.508	0.000	3.481	0.000	3.513	0.000	3.482	0.000
Block Ownership	-0.052	0.000	-0.052	0.000	-0.052	0.000	-0.053	0.000
Errors Clustered		Firm		Firm		Firm		Firm
R-square		0.08		0.08		0.08		0.09
Observations		16806		16806		16658		16658

Table 7
Industry Concentration and Industry Level Equity Compensation

The table displays coefficients and p-values of pooled panel regressions with industry-fixed effects (FE) and year-dummies for the first two columns and an OLS regression in the third column. Errors are clustered at the industry level. All variables are equally-weighted at the industry level using firms between 1990 and 2003. The dependent variable is the proportion of total CEO compensation that consists of equity compensation using data from ExecuComp. See the previous tables for a description of all other variables. Industries are defined as either the Fama-French (1997) industries (FF48) or at the two-digit SIC level (SIC2). The variable *Relationship Industry* takes a value of one if the company operates in one of following two-digit-SIC industries: 15-17, 34-39, 42, 47, 50-51, 55, 60-65, 67, 75-76, 87, and zero otherwise.

<i>Equity Compensation Relative to Total Compensation</i>								
<i>Industry Level Variables</i>								
	<i>coef</i>	<i>p-value</i>	<i>coef</i>	<i>p-value</i>	<i>coef</i>	<i>p-value</i>	<i>coef</i>	<i>p-value</i>
NPM	-0.261	0.324	0.178	0.499				
NPM x Relationship Industry			-0.728	0.063				
Relationship Industry			0.049	0.017			0.019	0.319
Herfindahl					-0.325	0.008	-0.154	0.014
Herfindahl x Relationship Ind.							-0.279	0.020
Equity Value	0.005	0.091	0.003	0.084	0.000	0.414	0.001	0.051
TQ	-0.025	0.301	-0.024	0.117	0.033	0.174	-0.021	0.153
TradingVolume	2.080	0.000	1.844	0.000	0.300	0.389	1.816	0.000
Prior Return	-0.165	0.839	0.408	0.689	2.582	0.007	0.223	0.817
ROA	-0.064	0.826	-0.647	0.000	-0.725	0.004	-0.486	0.001
Sales Growth	0.018	0.000	0.016	0.002	0.014	0.005	0.016	0.001
Dividend Yield	3.432	0.037	0.346	0.784	0.811	0.691	1.272	0.282
Institutional Ownership	0.527	0.000	0.125	0.217	0.084	0.658	0.034	0.723
Block Ownership	0.004	0.078	0.004	0.167	-0.005	0.173	0.004	0.092
Industry	SIC2		SIC2		FF48		SIC2	
Regression type	FE		OLS		FE		OLS	
Errors Clustered	Industry		Industry		Industry		Industry	
R-square	0.19		0.20		0.34		0.20	
Obs	747		747		566		747	