

Compensation of Divisional Managers: Peer Effects inside the Firm

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Abstract

Using hand-collected data on divisional managers at S&P 1500 firms, we study how changes in one divisional manager's compensation affect the compensation of other divisional managers inside the same conglomerate. An increase in a manager's pay driven by an industry shock generates large positive intra-firm spillovers on the pay of other divisional managers. These spillovers operate only within firm boundaries and are non-existent for the same industry pairs in standalone firms. The intra-firm spillovers are stronger when managers share social networks, suggesting that informal interactions facilitate peer effects. The intra-firm convergence in executive pay is associated with weaker governance and lower firm value. Overall, we provide evidence on corporate socialism in executive pay.

Introduction

The majority of day-to-day corporate decisions are made by managers outside of the executive suite, such as divisional managers and functional area supervisors. Yet, despite the direct responsibility of these managers for a firm's performance, we know relatively little about how firms establish compensation for divisional managers. This paper seeks to provide one of the first pieces of evidence in this direction.

Using a novel hand-collected dataset on divisional managers at S&P1500 firms, we study how the compensation of divisional managers is affected by the compensation of managers' peers within the same firm. Our focus on within-firm peer effects in compensation is motivated by the evidence in labor economics that managers value not only the absolute, but also the relative level of pay with respect to other managers in the same firm. In particular, recent theoretical frameworks explicitly model a manager's utility as a function of his relative compensation with respect to other managers in the same firm. For example, in recent work, Hart and Moore (2008) show analytically that compensation contracts serve as reference points to support the notion of compensation fairness, a concept that dates back at least to Akerlof and Yellen (1990).

Our empirical analysis seeks to answer two main questions. First, how does a shock to one divisional manager's compensation affect the compensation of his peers inside the firm? Second, what are the consequences on divisional performance and firm value?

Our identification exploits variation in divisional managers' compensation driven by industry-specific shocks, which raise industry surplus and managerial compensation in specific business sectors. To study within-firm peer effects in managerial compensation, we examine how

these industry-specific shocks affect divisional managers' compensation in unrelated business segments within the boundaries of the same firm.

Our main finding is that a positive shock to one divisional manager's compensation is associated with a large increase in the compensation of other divisional managers within the same firm, even if these managers oversee divisions in unrelated industries (e.g., telecommunications vs. paper products). The economic magnitude of this effect is substantial. In our base specification, for every percentage point of an industry-driven increase in a divisional manager's compensation, divisional managers in unrelated segments inside the same conglomerate receive a pay raise of approximately 31-42 basis points. When the components of managerial compensation are analyzed separately, we find that within-firm spillovers affect all of the main components of managerial pay: salary, bonus, equity, and stock options.

We demonstrate that the boundaries of a firm serve as a key mechanism through which compensation shocks promulgate. In particular, industry pay shocks affect the compensation of divisional managers *only* for the segments that operate as a unified firm. In contrast, in the analysis of standalone firms, we show that the same industry pairs exhibit no spillovers in managerial pay outside of the firm boundaries when each firm operates as a separate entity. This evidence suggests that managerial pay spillovers inside conglomerates are unlikely to be explained by industry linkages alone.

One alternative interpretation of the within-firm peer effects in managerial pay is that a positive shock to one industry creates positive externalities for other industries, thereby increasing the marginal product of managerial effort in other business segments. For example, technological innovations in one industry could be applied to another industry, raising a manager's marginal product. We address this issue in several ways.

First, we extract the residual component of a pay shock in a given industry after accounting for all pairwise correlations in pay between this industry and every other industry in the Fama-French 48-industry classification. This approach controls for comovement in industry pay driven by cross-industry spillovers of technological shocks, while allowing for a model-free correlation structure at the level of each industry pair. Also, this approach accounts for common variation in executive pay driven by economy-wide economic shocks and time trends.

Second, we allow for the possibility that cross-industry technological spillovers affect a manager's marginal product differently in each conglomerate. To the extent that a manager's marginal product is ultimately reflected in the bottom line of his division or the entire firm, our estimates reflect changes in managerial pay over and above such performance-related effects captured by controls for the division's and firm's financial performance. In addition, we account for intangible or future (expected) changes in a manager's productivity by controlling for changes in the market valuation of the division's industry.

Third, we would expect that compensation spillovers driven by synergies from technological shocks should be stronger among those divisions that operate in related industries. In contrast, we find that within-firm peer effects manifest themselves equally strongly across unrelated industries that have virtually no overlap in their input-output matrix.

We consider direct and indirect channels through which peer effects in managerial pay may operate inside conglomerates. The direct channel presumes that a pay shock to one industry inside a conglomerate affects the pay of other divisional managers via intra-firm compensation benchmarking. For example, a conglomerate's compensation committee may take into account considerations of equity when determining annual pay raises for the management team.

Alternatively, a pay shock to one divisional manager's pay may provide his peers with a credible reason, founded in compensation fairness, to lobby for a compensation increase.

The indirect channel presumes that a positive industry shock to one division inside a conglomerate affects the compensation of other divisional managers via the distribution of firm-level cash surplus. For example, when a conglomerate experiences an increase in cash flow as a result of a positive shock to one of its divisions, it may distribute a part of the surplus as extra pay to *all* divisional managers, even those whose marginal product was unaffected by the shock. This scenario represents an indirect form of corporate socialism where the allocation of cash surplus is affected by the notion of equity across peers in addition to the consideration of merit.

To estimate the economic magnitude of the direct peer effect associated with compensation benchmarking over and above the indirect effect of firm-level cash surplus, we proceed along three directions. First, we explicitly control for changes in a firm's free cash flow and the valuation of its stock. In addition, in all regressions, we also control for changes in compensation resulting from firm-level profit sharing agreements, as proxied by changes in a firm's profitability (ROA), earnings per share, and stock returns. We find that compensation shocks to one divisional manager's industry have a reliable effect on the compensation of other managers after accounting for a wide array of firm-level and division-level controls.

Second, we distinguish between the peer effects of positive and negative industry shocks inside the firm. We find that the effect on managerial pay appears to be asymmetric in direction, being driven primarily by pay increases. In contrast, a negative industry shock to a divisional manager's pay does not promulgate to other managers within the same firm, consistent with downward rigidity in compensation. This analysis provides additional evidence in support of the direct peer channel. In particular, if the peer effects inside conglomerates were driven by firm-

level cash surplus alone, we would expect that these effects would be symmetric with respect to increases and decreases in total surplus. In contrast, if the promulgation of compensation shocks inside conglomerates is related to intra-firm bargaining, we would expect managers to bargain for pay increases in response to positive shocks and to bargain against pay reductions in response to negative shocks, consistent with the observed evidence.

Third, in support of the direct channel, we present evidence from the analysis of intra-firm social ties—common memberships in social clubs, shared alumni networks, and joint board appointments among the conglomerate’s managers. We conjecture that social ties between divisional managers facilitate intra-firm benchmarking of executive pay and that social ties between divisional managers and the CEO facilitate lobbying for equitable pay increases. We find that both types of social ties amplify the spillovers of compensation shocks across divisions. A one standard deviation increase in social ties between divisional managers (between divisional managers and the CEO) increases the peer effect by 14.6% (8.3%). This evidence suggests that social interactions may serve as one mechanism that transmits the peer effects in managerial pay inside conglomerates.

In our final analysis, we study the relation between intra-firm peer effects in managerial compensation and subsequent outcomes. This analysis seeks to distinguish between two possible interpretations. On the one hand, greater equity in managerial pay can be value-increasing because it can improve collaboration and information sharing across divisions, increase managerial effort and utility from work, and lead to better operating performance. On the other hand, intra-firm convergence in managerial pay can be symptomatic of corporate socialism and agency issues.

Our evidence is more consistent with the agency explanation. We find that an increase in pay convergence among divisional managers is associated with lower firm value and greater conglomerate discount. For example, a one standard deviation reduction in the dispersion of pay across divisions is associated with a 6.5% increase in the conglomerate discount.

Consistent with the agency explanation, we also find that the convergence in divisional managers' pay is significantly more pronounced at firms with weaker governance, as measured by low block holdings, low board independence, and weak shareholder rights proxied by the Gompers, Ishii, and Metrick (2003) governance index.

Overall, our findings have several implications. First, we provide one of the first pieces of evidence on the convergence in executive compensation inside a firm and demonstrate that firm boundaries serve as a key mechanism through which this effect operates. Second, in contrast to most previous work, which has focused on the internal capital market inside conglomerates, we focus on the internal labor market for executives and document the evidence of socialism in conglomerates' executive pay. Finally, we find that within-firm convergence in executive compensation helps to explain the conglomerate discount.

Our findings are most closely related to the literature at the intersection of internal capital markets and internal labor markets inside a firm. Several recent papers, such as Graham, Harvey, and Puri (2010), Duchin and Sosyura (2013), and Glaser, Lopez-de-Silanes, and Sautner (2013), show that divisional managers play a central role in a firm's capital budgeting and have a direct effect on divisional performance. We complement this work by providing evidence on the compensation structure of divisional managers and highlighting the importance of within-firm peer benchmarking in executive compensation.

We also add to the recent strand of the literature that studies internal labor markets within conglomerates. So far, internal labor markets at conglomerates have been examined primarily in the context of factory workers. In a recent working paper, Tate and Yang (2013) show that workers in diversified firms benefit from greater intra-firm mobility, which provides displaced workers with better opportunities for redeployment within the same firm. In another working paper, Silva (2013) shows that factory workers in lower-skill industries earn higher hourly wages in conglomerates when these conglomerates also operate in high-wage industries, a pattern the author attributes to frictions in the internal labor market of conglomerates. Our paper adds to this literature by providing evidence on the compensation of executives with control rights over divisional cash flows, whose incentives are likely to have the strongest effect on shareholder value. We also extend this literature by establishing a link between the compensation structure for divisional managers and conglomerate value.

Finally, we add to the literature on the role of peer effects in executive compensation. So far, this literature has focused primarily on peer benchmarking in executive compensation across different firms (Bizjak, Lemmon, and Naveen, 2008; Bizjak, Lemmon, and Nguyen, 2011; Faulkender and Yang, 2010, 2013). In contrast, we identify a new type of peer benchmarking – namely, the benchmarking of executive compensation against that of managers’ peers in the same firm. We demonstrate that firm boundaries play a key role in establishing a peer group and provide evidence on the effect of intra-firm peer benchmarking in executive pay on managerial incentives and firm value.

The rest of the paper is organized as follows. Section I describes the data. Section II examines peer effects in the compensation of divisional managers and their impact on efficiency and conglomerate value. Section III concludes.

I. Sample and Data

A. Firms and Divisions

We begin constructing our sample with all firms included in the S&P 1500 index during any year in our sample period, January 2000 to December 2008. We start our sample in 2000 because BoardEx coverage in earlier years is very limited. Following the literature, we exclude financial firms (SIC codes 6000-6999) and utilities (SIC codes 4900-4949), as well as any divisions that operate in these sectors, because they are subject to capital structure regulations.

Since we are interested in studying the joint determination of the compensation of divisional managers inside the same firm, we exclude single-segment firms, firms whose divisional managers' compensation data are unavailable in Execucomp, BoardEx, or Equilar, and firms whose financial data at the business segment level are unavailable on Compustat. We also exclude divisions with zero sales, such as corporate accounts, and various allocation adjustments, such as currency translations.

Our final sample includes 212 firms and 1,864 firm-division-year observations. We obtain stock return and firm financial data from the CRSP and Compustat databases, respectively. Division-level financial data are obtained from Compustat business segment files. We report summary statistics in Table I. An average (median) conglomerate operates in 3.5 (3) business segments, generates an annual return on assets (ROA) of 4.4% (5.1%), and earns an annual stock return of 6.5% (2.5%) during our sample period. The average (median) division produces \$3.04 billion in sales, generates an annual ROA of 5.9%, and has an industry market-to-book ratio of 1.77.

B. Divisional Managers

We collect data on divisional managers responsible for each business segment by reading biographical sketches of our firms' executives in annual reports. We consider a manager to be in charge of a division if he or she is the highest-level executive with direct responsibility over the particular business segment during a given time period. Divisional managers typically have the title of divisional president, executive vice president, or senior vice president. In many cases, divisional managers' responsibilities are relatively transparent from their job title, biographic summary, the firm's organizational structure, and the description of segments in the annual report.

For example, according to Compustat, ADC Telecommunications (ADCT) had three business segments in 2008: Connectivity, Professional Services, and Network Solutions. By referencing the annual report of ADCT, we find that Patrick O'Brien, President, Connectivity, was in charge of the connectivity division in 2008. Next, we collect the starting and ending dates of each manager's tenure. To obtain these dates, we supplement the annual data from form 10-K with executive biographies from the Forbes Executive Directory, Reuters, BoardEx, Marquis's Who's Who, and Notable Names Database (NNDB), as well as corporate press releases. We use these sources to cross-check and complement division-manager matches.

Throughout the data collection process, we identify a subset of conglomerates that use a functional organization structure to define the responsibilities of their managers. At such companies, managers are assigned to functional roles, such as vice president of marketing, vice president of operations, and vice president of finance, and each manager supervises his or her entire functional area across all business units. Because we are unable to establish a one-to-one connection between a manager and a business segment, we exclude these firms from our sample.

Our managerial sample includes 688 divisional managers with available compensation data, who served at 212 conglomerates between 2000 and 2008.

C. Compensation

We use three measures of compensation in all of our tests: (1) salary and bonus (*Comp1*), (2) salary, bonus, stock grants, and stock option grants (*Comp2*), and (3) total compensation (*Comp3*). The definitions of these variables appear in the Appendix. Data on the compensation of divisional managers come from Execucomp, BoardEx, and Equilar.¹

Our simplest measure, *Comp1*, is the annual salary and bonus paid to a divisional manager. Table I shows that the average (median) divisional manager earns \$0.70 (\$0.56) million per year. Our second measure of compensation, *Comp2*, augments the previous measure with stock and stock option grants. As shown in Table I, the average (median) value of a divisional manager's salary, bonus, and stock and stock option grants is \$2.1 (\$1.19) million per year.

Our third measure of compensation, *Comp3*, is the total compensation of the divisional manager, including the annual salary, bonus, other annual compensation, long-term incentive payouts, and other cash payouts. The average (median) value of a divisional manager's total compensation is \$2.41 (\$1.57) million per year.

¹ In subsequent analyses, we show that our results are robust to the adoption of new executive compensation disclosure rules by the SEC in 2006.

II. Empirical Results

A. Industry Pay Shocks and Executive Compensation in Standalone Firms

We begin our analysis by presenting evidence on the relation between the annual percentage change in industry-level compensation and the annual percentage change in executive compensation in standalone firms. Since our primary focus is on compensation spillovers across divisions in the same conglomerate, a key identifying assumption is that these compensation spillovers are not a general feature of executive compensation at U.S. firms. We test this assumption by investigating the relation between changes in executive compensation in standalone firms and shocks to executive compensation in: (1) the same industry and (2) other industries. We hypothesize that executive compensation in standalone firms responds to compensation shocks in the same industry, but is not materially affected by compensation shocks in other industries. This view is consistent with separate labor market equilibrium in each industry.

We test this assumption in a panel of standalone firm-year observations of U.S. public firms with executive compensation data available from Execucomp, BoardEx, and Equilar, and financial data available from Compustat. To be included in our sample, the firm must appear in the Compustat's segment file and report a single business segment.

Table II presents evidence on the relation between the annual percentage changes in the compensation of managers of standalone firms and industry-level shocks to the compensation of managers of other standalone firms. The dependent variable is the annual percentage change in CEO compensation in standalone firms. As discussed earlier, we consider different ingredients of compensation: *Comp1*, *Comp2*, and *Comp3*. The first independent variable of interest is the average annual percentage change in CEO compensation across all single-segment firms that

operate in the firm's industry (Δ *Industry compensation*). The second independent variable of interest is the average annual percentage change in CEO compensation in the industries outside of the firm's core industry (Δ *Other industry compensation*). Industries are defined according to the Fama-French 48 industry classification.

In addition to the measures of industry-level changes in executive compensation, we also include proxies for percentage changes in firm performance and size. We measure firm performance using both accounting-based and market-based measures. Accounting based measures include the return on assets (ROA), free cash flow, and earnings per share. Market-based measures include the market-to-book ratio (which is also viewed as a measure of growth opportunities) and stock returns. We also control for changes in firm size, an important factor in executive compensation. Our regressions also include year fixed effects to control for national time trends in executive compensation. Standard errors are clustered at the firm level.

Table II reports the regression results. Each column corresponds to a separate regression, with a different measure of compensation as the dependent variable. The results in Table II indicate that changes in CEO compensation are strongly positively related to the average changes in CEO compensation in the same industry. This relation is reliably statistically significant at the 1% level and holds across all three measures of compensation. The economic magnitude of the effect is similar across the three measures of compensation, with the coefficient estimates ranging between 1.00 and 1.07.

Most importantly, we find that changes in CEO compensation in other industries do not have a significant effect on CEO compensation in a given industry, after controlling for firm characteristics and national time trends. The coefficients on the term Δ *Other Industry*

compensation are never statistically significant at conventional levels, flip signs, and are economically small, ranging from -0.11 to 0.26.

We also find that changes in CEO compensation are positively related to changes in both accounting-based and market-based measures of performance, as well as changes in firm size. These findings are consistent with pay-for-performance at U.S. firms and with higher pay at larger firms.

Taken together, these findings suggest that executive compensation is strongly related to same-industry compensation shocks, consistent with industry-specific human capital and labor market clearing at the industry level. However, executive compensation in single-segment firms is not significantly related to compensation shocks in other industries. In the next subsection, we test whether the equilibrium is different in conglomerate firms. Specifically, we test whether industry-level shocks to executive compensation in one division in a conglomerate affect the compensation of divisional managers in other divisions.

B. Industry Shocks and Divisional Managers' Compensation

In this subsection, we investigate how a divisional manager's compensation is associated with (1) compensation shocks in his own industry and (2) compensation shocks in industries of other divisional managers inside the same conglomerate. In particular, we would like to test whether the compensation of a divisional manager is affected by the compensation of other divisional managers over and above the division- and firm-level variables that jointly affect the compensation of all the divisional managers in a conglomerate. Our framework focuses on industry-level shocks to executive compensation, with the identifying assumption that same-

industry shocks affect compensation within the industry, but do not directly affect compensation in other industries outside the conglomerate, as shown in Table II.

An important consideration in our analysis is that an industry-level compensation shock may be correlated with a change in a divisional manager's marginal product. Moreover, such changes in a manager's marginal product may affect the marginal product of other divisional managers within the same conglomerate through intra-firm synergies. To account for this possibility, our regressions control for financial performance (ROA and cash flow) both at the level of the division and at the level of the firm. While these controls capture the changes in the marginal product that directly affect the bottom line, some of the changes in the marginal product may be intangible or expected to be realized slowly in the future. To the extent that stock prices reflect such information, we account for intangible or expected productivity gains at the level of a firm and division's industry by controlling for changes in their market valuation, as proxied by firm stock returns and industry market-to-book ratios. Finally, to account for the possibility that industry pay shocks are associated with asset growth, which may affect compensation through changes in firm size, we control for changes in division size and firm size.

Table III considers two regression specifications. In columns (1)-(3), the variables $\Delta Industry\ compensation$ and $\Delta Industry\ compensation\ in\ other\ divisions$ are defined as the average percentage change in the annual CEO compensation at standalone firms that operate in the same industries and in the industries of the other divisions in the conglomerate, respectively. Formally, $\Delta Industry\ compensation\ in\ other\ divisions$ is defined as follows:

$$\Delta Industry\ compensation\ in\ other\ divisions_i = \frac{\sum_{j \neq i} \Delta Industry\ Compensation_j}{n-1} \quad (1)$$

where the subscript i corresponds to division i and the subscript j corresponds to the industries of all other divisions in the conglomerate, with a total of n divisions.

The empirical results in columns (1)-(3) of Table III indicate that industry-level shocks to the compensation of other divisional managers have a strong positive effect on the compensation of a given divisional manager. These results hold across the three measures of executive compensation. Across columns (1)-(3), the effects are significant at the 1% level and are similar in economic magnitude. A one percentage point increase in the average industry compensation of other divisional managers corresponds to an increase of 0.31 to 0.42 percentage points in the compensation of the divisional manager.

An analysis of control variables indicates that same-industry shocks to executive compensation are strongly related to the compensation of divisional managers, consistent with the evidence from single-segment firms in Table II. The regression coefficients on the term $\Delta Industry\ compensation$ are always statistically significant at the 1% level and have economically large point estimates ranging from 0.70 to 0.82. Importantly, these point estimates are smaller than those for standalone firms (ranging from 1.00 to 1.07), suggesting that the executive pay inside conglomerate firms is less sensitive to industry pay shocks than executive pay in standalone firms.

As expected, a divisional manager's compensation is positively related to his division's performance, as measured by divisional cash flow and ROA. These effects are always positive and statistically significant at the 5% level or better in three of the six cases. There is also evidence that asset growth within a division is associated with higher divisional manager's compensation, as shown by the coefficients on $\Delta Division\ size$, which are uniformly positive and statistically significant at the 1% level. As expected, we also find a positive relation between the

changes in a firm's financial performance (proxied by EPS, stock returns, free cash flow, and ROA) and divisional managers' compensation.

So far, we have been agnostic about the nature of compensation shocks. The most significant changes in industry-level compensation typically fall into one of the following three categories: technology-related shocks (such as the discovery of the fracking technology in the oil and gas industry), regulation-related shocks (such as industry deregulation), and commodity price shocks.

Rather than imposing a pre-determined structure on the source of the industry compensation shocks, we rely on statistical analysis to extract the idiosyncratic component of changes in industry-level pay. In particular, we regress changes in industry-level CEO compensation at standalone firms on industry-level changes in CEO compensation at standalone firms in all other industries, thus extracting the industry-specific residual change in pay after accounting for all pair-wise correlations in compensation between a given industry and all other industries in the Fama-French 48-industry classification. Next, we replace the percentage change in industry-level compensation in earlier analysis with the new measure of industry-specific residual change in pay and investigate how the idiosyncratic shocks to a divisional manager's industry pay affect the pay of other divisional managers within the same conglomerate.

Columns (4)-(6) of Table III present evidence on the relation between the compensation of divisional managers and *residual* industry-level shocks to the compensation of other divisional managers. As before, the dependent variable is the annual percentage change in one of the measures of a divisional manager's compensation. In columns (4)-(6), $\Delta Industry\ compensation$ is defined as the residual from regressing the average percentage change in CEO compensation of standalone firms in each industry on the average percentage change in CEO compensation of

standalone firms in all other industries. Analogously, *ΔIndustry compensation in other divisions* is defined as the average *Residual ΔIndustry compensation* of all other divisional managers operating in different industries. As before, all regressions include year fixed effects to control for national time trends in executive compensation.

The results in columns (4)-(6) of Table III are consistent with the conclusions from the earlier analysis of raw changes in industry pay. Residual industry-level pay shocks to the compensation of other divisional managers have a strong positive effect on the compensation of a given divisional manager in the same conglomerate. These results hold across all measures of executive compensation. Across columns (4)-(6) of Table III, this effect is significant at the 5% level or better and remains stable in economic magnitude across different specifications. As expected, industry residual compensation shocks are reliably positively related to the compensation of divisional managers in the same industry, as indicated by positive and statistically significant coefficients on the variable *ΔIndustry compensation* across the columns.

Overall, the results in this subsection indicate that idiosyncratic industry shocks to one divisional manager's compensation affect the compensation of other divisional managers inside the same conglomerate. To obtain clean estimates, which are less likely to be affected by the confounding effects of cross-industry pay spillovers, we focus on the idiosyncratic changes in industry-level pay for the rest of the paper. Our conclusions are very similar if we use raw changes in industry pay instead.

C. Robustness and Extensions

In Table IV, we test whether our results are affected by the adoption of new executive compensation disclosure rules in 2006. The new rules modified the tabular disclosure of

executive compensation and added a narrative disclosure concerning the top-paid corporate executives. As part of the new disclosure rules, firms are required to report tables with grants of plan-based awards, outstanding equity awards, options exercises, and stock vested. While our regressions generate estimates that are detrended by the inclusion of year fixed effects, and therefore are less affected by economy-wide shocks to compensation disclosure, in Table IV we estimate the regressions separately for the period 2000-2006 (before the change) and 2006-2008 (after the change). This robustness test is also important because changes in compensation disclosure may affect the intensity and nature of compensation benchmarking (e.g., Faulkender and Yang, 2013; Gartenberg and Wulf, 2013).

Columns (1)-(3) of Table IV report the results for the period before the change (2000-2005) and columns (4)-(6) report the results for the period after the change (2006-2008). Across all 6 columns, the regression coefficient on $\Delta Industry\ compensation\ in\ other\ divisions$ is reliably statistically significant at the 5% level or better, and the economic magnitudes are stable, ranging from 0.285 to 0.345. Our tests do not detect a significant effect of the common shock to disclosure rules on the magnitude of the peer effects. In unreported results, we do not find a statistically significant difference between the regression coefficients in 2000-2005 and 2006-2008.

Next, we distinguish between the peer effects of positive and negative industry shocks inside the firm. We define $\Delta Industry\ compensation\ in\ other\ divisions^+$ as the average percentage change in the industry compensation of the other divisional managers when the average change is positive and zero otherwise. Similarly, we define $\Delta Industry\ compensation\ in\ other\ divisions^-$ as the average percentage change in the industry compensation of the other divisional managers when the average change is negative and zero otherwise. Note that by construction, $\Delta Industry$

compensation in other divisions⁺ + Δ *Industry compensation in other divisions* = Δ *Industry compensation in other divisions*.

The results in Table V suggest that the effect of industry shocks to the pay of other divisional managers is asymmetric in direction, being driven by pay increases. Across all 3 columns of Table V, the coefficient on Δ *Industry compensation in other divisions*⁺ is positive and reliably statistically significant at the 1% level. In contrast, a negative industry shock to a divisional manager's pay does not promulgate to other managers within the same firm, consistent with downward rigidity in compensation. The coefficient on Δ *Industry compensation in other divisions*⁻ is never statistically significant at conventional levels, and its point estimate is less than half that of the coefficient on Δ *Industry compensation in other divisions*⁺.

Overall, this analysis suggests that the promulgation of compensation shocks inside conglomerates is related to intra-firm bargaining, since we would expect managers to bargain for pay increases in response to positive shocks and to bargain against pay reductions in response to negative shocks.

We also present evidence from the analysis of intra-firm social ties. We study two types of social ties: (1) those between a divisional manager and the CEO and (2) those between a divisional manager and other divisional managers. We conjecture that social ties between divisional managers facilitate intra-firm benchmarking of executive pay and that social ties between divisional managers and the CEO facilitate lobbying for equitable pay increases.

Consistent with prior literature, we define three types of social ties: connections via education, previous employment, and nonprofit organizations. Two managers are connected via *Nonprofit Organizations* if they share membership in the same nonprofit. These organizations typically include social clubs, religious organizations, philanthropic foundations, industry

associations, and other nonprofit institutions defined in BoardEx as managers' other activities. These connections are specific to the organization's local chapter (e.g., Greenwich Country Club, United Way of Greater Toledo, the First Presbyterian Church of New Canaan, etc.). This level of granularity results from the highly detailed classification of nonprofit organizations in BoardEx, which includes over 15,000 local organizations for our sample of managers.

Educational ties foster a sense of belonging to a common group, which is evidenced by alumni clubs, donations to the home school, and college sports. We define two managers as connected via an *Educational* tie if they belong to the same alumni network, i.e. if they earned degrees from the same university. We define two executives as connected via *Previous Employment* if they worked together at another firm or served on the same board of directors.

To measure the effect of social ties, we would also like to capture the uniqueness of a particular tie for a given firm, since the evidence in sociology suggests that social ties have a stronger effect when they are rare (McPherson, Smith-Lovin, and Cook, 2001). For example, if a divisional manager worked with the CEO at another firm, we expect the effect of this connection to be stronger if no other managers share this type of connection. Therefore, we evaluate connections of each divisional manager relative to those of other divisional managers in the same firm. Our measure of social ties for each divisional manager in a given year is defined as the average number of connections between the divisional manager and the CEO or between a divisional manager and the other divisional managers in the same conglomerate based on education history, nonprofit work, and prior employment, adjusted for the average number of the respective social ties within the same firm:

$$Social\ ties_j = tie_j - \frac{\sum_{k=1}^n (tie_k)}{n}$$

where:

n – number of divisional managers in the firm in a given year;

tie_j – average number of social ties between manager j and the CEO or the other divisional managers in a given year.

Table VI presents the results on the effects of social ties. The key independent variables are Δ *Industry compensation in other divisions* \times *Social ties to CEO*, which captures the impact of ties to the CEO on the peer effects in pay, and Δ *Industry compensation in other divisions* \times *Social ties to other divisional managers*, which captures the impact of ties to the other divisional managers on the peer effects in pay.

We find that both types of social ties amplify the spillovers of compensation shocks across divisions. The interaction term Δ *Industry compensation in other divisions* \times *Social ties to CEO* is always positive and statistically significant at the 10% level or better in two of the three columns. The interaction term Δ *Industry compensation in other divisions* \times *Social ties to other divisional managers* is always positive and statistically significant at the 5% level in two of the three columns. The economic magnitudes are nontrivial. A one standard deviation increase in social ties across divisional managers (between divisional managers and the CEO), increases the peer effect by 14.6% (8.3%).

Overall, this evidence suggests that social interactions may serve as one mechanism that transmits the peer effects in managerial pay inside conglomerates.

D. Economic Spillovers across Divisions

One potential explanation for the impact of industry compensation shocks in other divisions on the compensation of the divisional manager is that the divisions are economically linked inside the conglomerate. In particular, it is possible that the compensation of divisional managers that

oversee the larger, more important divisions inside the conglomerate affects the compensation of the other divisional managers because the performance of those divisions reflects or determines the overall performance of the firm. It is also possible that there are important intra-firm spillovers across divisions that affect compensation but remain uncaptured by our controls for financial performance and market valuation at the firm and division level.

We test these possible explanations by interacting our measures of industry compensation shocks in other divisions with the relative size (book value of division's assets divided by the sum of book assets across all divisions of the firm), share in revenue (division's cash flow divided by the sum of cash flows across all divisions of the firm), and industry relatedness (based on trade flows between industries obtained from input-output data provided by the Bureau of Economic Analysis)² of the other divisions. According to the above hypotheses, the interaction terms $\Delta \text{Industry compensation in other divisions} \times \text{Division attribute}$ (Relative size, Share in revenue, and Industry relatedness) should be positive and statistically significant, implying that the compensation spillover effects are stronger when the other divisions are large, important, or operate in a related industry.

Table VII reports the results from regressions that include these interaction terms. As before, the regressions control for both firm-level and division-level changes in performance and size.

The empirical results in Table VII indicate that the spillover effects of compensation across divisions are not driven by division size. The regression coefficient on the interaction term $\Delta \text{Industry compensation in other divisions} \times \text{Relative size}$ is never statistically significant at conventional levels in columns (1)-(3). The results also suggest that a division's share in the firm

² Industry relatedness is constructed using data from the 2002 IO table. Following Ahern and Harford (2014), we calculate the percentage of industry i 's sales that are purchased by industry j and the percentage of industry j 's inputs that are purchased by industry i . We define industries i and j as related if either percentage is greater than 1%.

total revenue and industry relatedness across divisions do not explain the cross-effects on divisional managers' compensation. The coefficients on the interaction terms $\Delta Industry$ compensation in other divisions \times Share in revenue and $\Delta Industry$ compensation in other divisions \times Industry relatedness are always insignificant at conventional levels.

E. Divisional Managers' Compensation, Corporate Governance, and Conglomerate Value

The evidence so far indicates that the compensation of other divisional managers inside a conglomerate affects the compensation of a given divisional manager. These findings are consistent with both the fairness and the agency hypotheses. The fairness hypothesis suggests that pay equity across divisional managers increases their sense of fairness and therefore increases their job satisfaction and productivity. Under this view, pay equity should be correlated with good corporate governance and higher conglomerate value.

An alternative explanation for the cross-division effects in compensation is that this is one manifestation of the agency problem between managers and shareholders. Typical characterizations of the agency conflict focus on top managers and overinvestment and perquisites. In this case, the agency conflict is further down in the organization where divisional managers exploit compensation shocks that affect other divisional managers to increase their own compensation. The industry shocks in other divisions provide the divisional managers with a credible reason, founded in compensation fairness, to argue for a compensation increase. This creates an agency conflict that is not mitigated by ex post settling up in the labor market as described by Fama (1980). Alternatively, if a conglomerate experiences an increase in free cash flow as a result of a positive shock to one of the industries in which it operates, the firm may increase executive compensation for *all* divisional managers, even those who had little to do with

the industry of the pay shock and whose productivity was unaffected by it. Both of these scenarios represent forms of corporate socialism, a strategy in which pay allocation is affected by the notion of equity in addition to the considerations of merit. Under this view, pay equity should be correlated with poorer corporate governance and lower conglomerate value.

We distinguish between these hypotheses in two ways. First, we investigate whether the impact of compensation shocks in other divisions on the divisional manager's compensation is stronger in poorly governed firms. Second, we investigate whether the value of the conglomerate is higher when there is less uniformity across the compensation of divisional managers.

To disentangle the fairness hypothesis from the agency view, we interact the industry change in the compensation of other divisional managers with measures of corporate governance. We use three measures of corporate governance: (1) the Gompers, Ishii, and Metrick (2003) governance index; (2) an indicator variable equal to one if the percentage of shares held by any single institutional investor is greater than 5%; (3) board independence, defined as the ratio of the number of independent directors to the total number of directors. Details on these variables are provided in the Appendix.

Table VIII presents the results of division-year panel regressions in which the dependent variable is one of the measures of divisional manager's annual percentage change in compensation. The independent variable of interest is the interaction term between *ΔIndustry compensation in other divisions* and *Governance*. This term captures whether the association between the compensation of the divisional manager and the compensation of other divisional managers varies with governance quality. Other independent variables include: *ΔIndustry compensation in other divisions*, the governance measure, and the same set of controls as in our

main specification in Table III (which are omitted to conserve space). As before, we include year fixed effects.

The interaction terms between managers' Δ *Industry compensation in other divisions* and the G-index (block holder dummy and board independence) are positive (negative) and significant for two of the three measures of divisional managers' compensation. This evidence suggests that the compensation of other divisional managers has a stronger effect on the compensation of the divisional managers in firms characterized by weaker governance.

To study the value implications of the pay equity of divisional managers, we examine the relation between the variation in divisional managers' pay equity across firms and these firms' market valuations. In particular, we construct two firm-level measures of the overall intra-firm pay equity of divisional managers. The first variable, which we label *Compensation heterogeneity*, is the standard deviation of the compensation of divisional managers for a given firm-year. The second variable, which we label *Average compensation gap*, is the average difference between the percentage change in the compensation of the divisional manager and the average percentage change in the industry compensation of the other divisional managers, in absolute terms. We conjecture that a higher overall variation in compensation between divisional managers may amplify both the fairness and the agency effects on firm value.

To study the relation between pay equity and firm value, we follow Lang and Stulz (1994) and Berger and Ofek (1995) and define the excess value of a conglomerate as the natural logarithm of the ratio of the conglomerate's actual value to its imputed value. A firm's actual value is the sum of the book value of debt, liquidation value of preferred stock, and market value of equity. A firm's imputed value is the sum of the imputed values of its segments, where each segment's imputed value is equal to the segment's book assets multiplied by the median ratio of

the market- to-book ratio for single-segment firms in the same industry (industry is defined based on the 48 Fama-French industry classification).

It should be noted that using single-segment firms as a benchmark for the valuation of conglomerates' segments is subject to self-selection bias (i.e., the firm's endogenous decision to diversify). Graham, Lemmon, and Wolf (2002) empirically document this effect by showing that a large part of the difference in value between single-segment firms and their diversified peers can be explained by the decisions of conglomerates to acquire discounted firms. Campa and Kedia (2002) and Villalonga (2004) raise similar methodological issues and show that after controlling for selection, the diversification discount disappears. Hoberg and Phillips (2012) show that the traditional matching of conglomerates to pure-play firms by industry SIC codes can be imprecise, and propose an alternative matching scheme based on the textual analysis of firms' business descriptions. Whited (2001) and Colak and Whited (2007) stress the importance of accurate measurement of Tobin's Q. However, to the extent that the dispersion in pay within each conglomerate is not correlated with the measurement error in Tobin's Q, these issues are less likely to affect our results.

Table IX presents the results of pooled regressions of conglomerates' excess values on firm compensation heterogeneity (columns 1-3) and on firm average compensation gap (column 4-6). Other independent variables include controls such as firm size, cash flow, and the intra-firm dispersion in Tobin's Q across the firm's segments.

The coefficient on the variable *Compensation heterogeneity* is positive and statistically significant at the 10% level or better, suggesting that pay equity across divisional managers is associated with lower conglomerate value. Similarly, the coefficient on the variable *Average compensation gap* is also positive and statistically significant at the 10% level or better,

suggesting that the conglomerate value is higher when the compensation of the divisional manager is not pegged to the compensation of other divisional managers.

In summary, pay equity across divisional managers is more pronounced in poorly governed firms and is negatively associated with firm value. These findings are consistent with the agency hypothesis, in which the compensation of corporate executives increases with that of other executives, regardless of the divisions they oversee. These findings suggest the prevalence of corporate socialism in executive compensation in at least some conglomerate firms.

III. Conclusion

This article examines peer effects in the compensation of divisional managers. Our empirical findings show significant peer effects in compensation inside conglomerate firms. The effects are stronger at firms with weak governance and are associated with lower conglomerate value.

A large body of empirical research has focused on the efficiency of capital allocation and investment inside conglomerate firms. Our evidence indicates that executive compensation inside conglomerate firms is also an important channel, which may provide new insights into the efficiency of internal resource allocation, agency problems, and conglomerate value.

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Appendix: Variable Definitions

Note: Entries in parentheses refer to the annual Compustat item name.

A. Firm-level Financial Variables

Excess Value – The natural logarithm of the ratio of the conglomerate's actual value to its imputed value. A firm's actual value is the sum of the book value of debt, liquidation value of preferred stock, and market value of equity. A firm's imputed value is the sum of the imputed values of its segments, where each segment's imputed value is equal to the segment's book assets multiplied by the median ratio of the market-to-book ratio for single-segment firms in the same industry (same Fama-French 48 industry).

Free cash flow – Operating income before depreciation (oibdp) - total taxes (txt) – interest expense (xint) / total assets (at) as of the beginning of the year.

Market-to-book – Market value of assets (book assets (at) + market value of common equity (csho*prcc) – common equity (ceq) – deferred taxes (txdb)) / (0.9*book value of assets (at) + 0.1*market value of assets).

Market-to-book Heterogeneity – The standard deviation of the industry-median market-to-book ratio of all divisions in the firm.

ROA – Net income (ni) / total assets (at) as of the beginning of the year.

Size – The natural logarithm of the book assets (at) at the beginning of the year for the firm.

Earnings per share (EPS) – Basic EPS, including extraordinary items (epspi).

Stock return – Realized annual return on the firm's stock.

B. Division-level Financial Variables

Industry market-to-book – The median market-to-book ratio across all single-segment firms in the segment's industry (Fama-French 48 industry).

Industry relatedness – An indicator based on trade flows between industries obtained from input-output data provided by the Bureau of Economic Analysis. This measure is constructed using data from the 2002 IO table. Following Ahern and Harford (2014), we calculate the percentage of industry i 's sales that are purchased by industry j and the percentage of industry j 's inputs that are purchased by industry i . We define industries i and j as related if either percentage is greater than 1%.

ROA – Annual operating profit of a segment (ops) divided by its book assets (at) as of the beginning of the year.

Cash flow – Annual net sales (sale) divided by book assets (at) as of the beginning of the year.

Size – The natural logarithm of the book assets (at) at the beginning of the year for the segment.

C. Compensation Variables

Average compensation gap – The average absolute difference between the annual change in the compensation of the divisional managers and the average change in compensation in their industries.

Compensation heterogeneity – The annual standard deviation of the compensation of the divisional managers for a given firm.

Comp1 – Annual salary and bonus.

Comp2 – Annual salary and bonus plus stock and stock option grants.

Comp3 – Total compensation (annual salary, bonus, other annual compensation, long-term incentive payouts, and other cash payouts).

Δ *Industry compensation* – The average percentage change in the annual compensation of all the managers of standalone firms in the industry (Fama-French 48 industry).

Δ *Industry compensation in other divisions* – The average percentage change in the industry compensation of the other divisional managers (Fama-French 48 industry).

Δ *Other industry compensation* – The average percentage change in the compensation of all the managers of standalone firms in other industries (Fama-French 48 industry).

D. Governance Variables

G-index – The Gompers, Ishii, and Metrick (2003) index of shareholder rights.

Block holder dummy – An indicator equal to 1 if any single institutional investor holds more than 5% of the firm's outstanding shares.

Board independence – The number of independent directors divided by the total number of directors on the board.

$Social\ ties_j = tie_j - \frac{\sum_{k=1}^n (tie_k)}{n}$, where:

n – number of divisional managers in the firm in a given year;

tie_j – average number of social ties between manager j and the CEO or the other divisional managers in a given year.

TABLE I
Summary Statistics

This table reports summary statistics for the sample, which consists of all industrial companies in the S&P 1500 index that operate at least two divisions with nonmissing data on the compensation of the divisional managers. The values reported are time-series averages over the sample period. The sample period is from 2000 to 2008. We define three measures of managers' compensation: *Comp1* is salary and bonus; *Comp2* is salary and bonus plus stock and option grants; *Comp3* is total compensation. All other variable definitions are given in Appendix A.

Variable	Mean	25th percentile	Median	75th percentile	Standard deviation
Firm Level					
Earnings per share (EPS)	1.599	0.640	1.530	2.760	3.283
Stock return	0.065	-0.227	0.025	0.243	0.579
Free cash flow	0.062	0.022	0.049	0.081	0.083
Return on assets (ROA)	0.044	0.018	0.051	0.084	0.089
Size (log assets)	8.207	7.358	8.074	8.986	1.378
Number of divisions	3.458	2.000	3.000	4.000	1.397
Division level					
ROA	0.059	-0.021	0.052	0.121	0.108
Cash flow	0.179	0.067	0.124	0.212	0.884
Sales, \$millions	3,037	378	1,043	2,662	6,936
Size (log assets)	6.925	5.942	6.953	7.888	1.524
Industry market-to-book	1.771	1.338	1.618	2.120	0.654
Compensation					
Comp1, \$millions	0.704	0.387	0.555	0.871	0.502
Comp2, \$millions	2.054	0.645	1.192	2.356	3.056
Comp3, \$millions	2.412	0.886	1.567	2.740	2.712

TABLE II

The Effect of Industry Pay Shocks on Compensation in Standalone Firms

This table presents evidence on the relation between annual changes in the compensation of managers of standalone firms and industry-level shocks to the compensation of managers of other standalone firms. Each column reports estimates from a single regression, with standard errors (robust and clustered by firm) in brackets. The dependent variable is the annual percentage change in the compensation of a manager in a standalone firm. The key independent variables are Δ Industry compensation, defined as the average percentage change in the annual compensation of all the managers of standalone firms in the industry, and Δ Other Industry compensation, defined as the average percentage change in the compensation of all the managers of standalone firms in the other industries. The industry definition is based on the Fama-French 48 industries. All regressions include year fixed effects, which are not shown. Variable definitions are given in Appendix A. Significance levels are indicated as follows: *=10%, **=5%, ***=1%.

Dependent variable	Δ Comp1	Δ Comp2	Δ Comp3
Model	(1)	(2)	(3)
Δ Industry compensation	0.997*** [0.297]	1.064*** [0.319]	1.072*** [0.371]
Δ Other Industry compensation	0.077 [3.051]	0.264 [6.525]	-0.107 [8.714]
Δ Earnings per share (EPS)	0.005** [0.002]	0.092** [0.045]	0.095** [0.045]
Δ Stock return	0.000 [0.001]	0.016*** [0.004]	0.017*** [0.003]
Δ Market-to-book	0.019** [0.010]	0.160** [0.074]	0.195** [0.093]
Δ Free cash flow	0.052* [0.032]	0.051** [0.023]	0.052** [0.022]
Δ Return on assets (ROA)	0.025 [0.126]	0.061*** [0.022]	0.066** [0.020]
Δ Size	0.125*** [0.020]	0.167*** [0.057]	0.165*** [0.058]
Year fixed effects	Yes	Yes	Yes
Adjusted R ²	0.251	0.267	0.265
N_obs	6,747	6,678	6,669

TABLE III
The Effect of Industry Pay Shocks on the Compensation of Divisional Managers

This table presents evidence on the relation between annual changes in the compensation of divisional managers and industry-level shocks to the compensation of other divisional managers. Each column reports estimates from a single regression, with standard errors (robust and clustered by division) in brackets. The dependent variable is the annual percentage change in the compensation of a divisional manager. The key independent variables are Δ Industry compensation, defined as the average percentage change in the annual compensation of all the managers of standalone firms in the industry, and Δ Industry compensation in other divisions, defined as the average percentage change in the industry compensation of the other divisional managers. In columns 4-6, we use the residual percentage change in industry compensation, defined as the residual from regressing Δ compensation of all the managers of standalone firms in each industry on Δ compensation of the managers of standalone firms in all other industries. The industry definition is based on the Fama-French 48 industries. All regressions include year fixed effects, which are not shown. Variable definitions are given in Appendix A. Significance levels are indicated as follows: *=10%, **=5%, ***=1%.

Dependent variable	Industry shocks			Residual industry shocks		
	Δ Comp1	Δ Comp2	Δ Comp3	Δ Comp1	Δ Comp2	Δ Comp3
Model	(1)	(2)	(3)	(4)	(5)	(6)
Δ Industry compensation	0.701*** [0.140]	0.739*** [0.156]	0.815*** [0.162]	0.647*** [0.122]	0.668** [0.185]	0.659*** [0.207]
Δ Industry compensation in other divisions	0.314*** [0.096]	0.338*** [0.102]	0.424*** [0.113]	0.295*** [0.081]	0.317** [0.154]	0.333** [0.159]
Δ Division cash flow	0.032 [0.033]	0.035 [0.022]	0.057*** [0.020]	0.037 [0.037]	0.029 [0.023]	0.060*** [0.018]
Δ Division ROA	0.032 [0.129]	0.053*** [0.019]	0.047** [0.021]	0.030 [0.130]	0.066*** [0.018]	0.054** [0.021]
Δ Division size	0.118*** [0.019]	0.168*** [0.060]	0.152*** [0.054]	0.104*** [0.022]	0.185*** [0.057]	0.134** [0.052]
Δ Industry market-to-book	0.011 [0.013]	0.150** [0.074]	0.191** [0.092]	0.023* [0.012]	0.152** [0.077]	0.195** [0.096]
Δ Firm earnings per share (EPS)	0.016*** [0.001]	0.095** [0.041]	0.085* [0.045]	0.030*** [0.004]	0.103** [0.044]	0.089* [0.048]
Δ Firm stock return	-0.002 [0.004]	0.018** [0.007]	0.034*** [0.002]	-0.006* [0.003]	0.028*** [0.005]	0.049*** [0.002]
Δ Firm free cash flow	0.060** [0.029]	0.047* [0.026]	0.042* [0.025]	0.052* [0.027]	0.035 [0.025]	0.026 [0.021]
Δ Firm return on assets (ROA)	0.038 [0.130]	0.066*** [0.019]	0.061*** [0.023]	0.022 [0.130]	0.057*** [0.020]	0.053** [0.023]
Δ Firm size	0.135*** [0.018]	0.185*** [0.055]	0.175*** [0.059]	0.123*** [0.017]	0.204*** [0.053]	0.193*** [0.062]
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.258	0.244	0.251	0.253	0.248	0.250
N_obs	1,864	1,784	1,803	1,864	1,784	1,803

TABLE IV
Robustness to Changes in Executive Compensation Disclosure Rules in 2006

This table presents evidence on the relation between annual changes in the compensation of divisional managers and industry-level shocks to the compensation of other divisional managers. Each column reports estimates from a single regression, with standard errors (robust and clustered by division) in brackets. The dependent variable is the annual percentage change in the compensation of a divisional manager. The key independent variable is Δ Industry compensation in other divisions, defined as the average residual change in the industry compensation of all other divisional managers. The regressions are estimated for two disclosure sub-periods: 2000-2005 (columns 1-3) and 2006-2008 (columns 4-6). All regressions include year fixed effects, which are not shown. Variable definitions are given in Appendix A. Significance levels are indicated as follows: *=10%, **=5%, ***=1%.

Dependent variable	2000-2005			2006-2008		
	Δ Comp1	Δ Comp2	Δ Comp3	Δ Comp1	Δ Comp2	Δ Comp3
Model	(1)	(2)	(3)	(4)	(5)	(6)
Δ Industry compensation	0.655*** [0.123]	0.681*** [0.183]	0.650*** [0.207]	0.644*** [0.122]	0.658*** [0.183]	0.671*** [0.211]
Δ Industry compensation in other divisions	0.285*** [0.081]	0.328** [0.157]	0.345** [0.161]	0.300*** [0.080]	0.334** [0.152]	0.335** [0.156]
Δ Division cash flow	0.023 [0.033]	0.038 [0.025]	0.078*** [0.022]	0.025 [0.037]	0.029 [0.023]	0.041** [0.018]
Δ Division ROA	0.029 [0.132]	0.056*** [0.020]	0.051** [0.021]	0.025 [0.128]	0.075*** [0.020]	0.054*** [0.018]
Δ Division size	0.093*** [0.023]	0.189*** [0.061]	0.134*** [0.051]	0.095*** [0.021]	0.166*** [0.054]	0.123** [0.051]
Δ Industry market-to-book	0.030** [0.015]	0.161** [0.076]	0.181* [0.094]	0.037*** [0.011]	0.165** [0.073]	0.200** [0.098]
Δ Firm earnings per share (EPS)	0.041*** [0.003]	0.087* [0.047]	0.077* [0.045]	0.019** [0.007]	0.115** [0.047]	0.078 [0.050]
Δ Firm stock return	-0.001 [0.004]	0.032*** [0.001]	0.059*** [0.001]	-0.021*** [0.005]	0.029*** [0.005]	0.059*** [0.001]
Δ Firm free cash flow	0.038 [0.030]	0.030 [0.028]	0.030 [0.021]	0.059** [0.027]	0.047** [0.024]	0.011 [0.022]
Δ Firm return on assets (ROA)	0.041 [0.127]	0.068*** [0.023]	0.040* [0.024]	0.032 [0.133]	0.074*** [0.021]	0.052** [0.023]
Δ Firm size	0.110*** [0.016]	0.210*** [0.051]	0.208*** [0.063]	0.128*** [0.020]	0.191*** [0.052]	0.175*** [0.061]
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.255	0.253	0.257	0.246	0.241	0.251
N_obs	1,351	1,262	1,297	513	522	506

TABLE V

The Asymmetric Effect of Positive and Negative Industry Pay Shocks

This table presents evidence on the relation between annual changes in the compensation of divisional managers and industry-level shocks to the compensation of other divisional managers. Each column reports estimates from a single regression, with standard errors (robust and clustered by division) in brackets. The dependent variable is the annual percentage change in the compensation of a divisional manager. The key independent variables are: (1) Δ Industry compensation - defined as the residual average percentage change in the annual compensation of all the managers of standalone firms in the industry; (2) Δ Industry compensation in other divisions+ - defined as the average percentage change in the industry compensation of the other divisional managers when the average change is positive and zero otherwise; (3) Δ Industry compensation in other divisions- - defined as the average percentage change in the industry compensation of the other divisional managers when the average change is negative and zero otherwise. The regressions use the residual percentage change in industry compensation, defined as the residual from regressing Δ compensation of all the managers of standalone firms in each industry on Δ compensation of the managers of standalone firms in all other industries. The industry definition is based on the Fama-French 48 industries. All regressions include year fixed effects, which are not shown. Variable definitions are given in Appendix A. Significance levels are indicated as follows: *=10%, **=5%, ***=1%.

Dependent variable	Δ Comp1	Δ Comp2	Δ Comp3
Model	(1)	(2)	(3)
Δ Industry compensation	0.653*** [0.119]	0.669*** [0.188]	0.662*** [0.208]
Δ Industry compensation in other divisions +	0.386*** [0.082]	0.411*** [0.154]	0.447*** [0.156]
Δ Industry compensation in other divisions -	0.162 [0.149]	0.177 [0.312]	0.150 [0.569]
Δ Division cash flow	0.057* [0.033]	0.031 [0.025]	0.062*** [0.019]
Δ Division ROA	0.011 [0.133]	0.055*** [0.019]	0.045** [0.022]
Δ Division size	0.122*** [0.025]	0.170*** [0.056]	0.134*** [0.052]
Δ Industry market-to-book	0.008 [0.010]	0.161** [0.080]	0.206** [0.093]
Δ Firm earnings per share (EPS)	0.039*** [0.003]	0.114*** [0.042]	0.087* [0.047]
Δ Firm stock return	0.010*** [0.004]	0.015* [0.008]	0.043*** [0.001]
Δ Firm free cash flow	0.039 [0.026]	0.017 [0.022]	0.036* [0.020]
Δ Firm return on assets (ROA)	0.016 [0.134]	0.060*** [0.018]	0.039* [0.022]
Δ Firm size	0.130*** [0.018]	0.200*** [0.054]	0.199*** [0.060]
Year fixed effects	Yes	Yes	Yes
Adjusted R ²	0.259	0.255	0.262
N_obs	1,864	1,784	1,803

TABLE VI
The Effect of Social Ties

This table presents evidence on the effect of social ties between the divisional manager and the CEO and among the divisional managers themselves. Each column reports estimates from a single regression, with standard errors (robust and clustered by division) in brackets. The dependent variable is the annual percentage change in the compensation of a divisional manager. The key independent variables are the interaction terms Δ Industry compensation in other divisions \times Social ties, defined as the average residual change in the industry compensation of all other divisional managers multiplied by the manager's social ties. All regressions include year fixed effects, which are not shown. Variable definitions are given in Appendix A. Significance levels are indicated as follows: *=10%, **=5%, ***=1%.

Dependent variable	Δ Comp1	Δ Comp2	Δ Comp3
Model	(1)	(2)	(3)
Δ Industry compensation	0.648*** [0.118]	0.676*** [0.184]	0.662*** [0.206]
Δ Industry compensation in other divisions	0.247*** [0.062]	0.286** [0.134]	0.325** [0.156]
Δ Industry compensation in other divisions \times Social ties to CEO	0.068** [0.029]	0.061* [0.034]	0.059 [0.039]
Δ Industry compensation in other divisions \times Social ties to other divisional managers	0.132** [0.057]	0.145** [0.064]	0.144** [0.068]
Social ties to CEO	0.021** [0.009]	0.024** [0.010]	0.020** [0.010]
Social ties to other divisional managers	0.032 [0.026]	0.036 [0.031]	0.041 [0.037]
Δ Division cash flow	0.043 [0.037]	0.015 [0.019]	0.074*** [0.018]
Δ Division ROA	0.041 [0.127]	0.074*** [0.016]	0.063*** [0.018]
Δ Division size	0.116*** [0.022]	0.196*** [0.053]	0.120** [0.055]
Δ Industry market-to-book	0.021 [0.013]	0.147* [0.077]	0.213** [0.094]
Δ Firm earnings per share (EPS)	0.047*** [0.007]	0.094** [0.042]	0.096** [0.044]
Δ Firm stock return	0.009*** [0.003]	0.040*** [0.004]	0.050*** [0.004]
Δ Firm free cash flow	0.064** [0.029]	0.051** [0.022]	0.045* [0.025]
Δ Firm return on assets (ROA)	0.009 [0.130]	0.047** [0.019]	0.057** [0.025]
Δ Firm size	0.111*** [0.021]	0.207*** [0.054]	0.189*** [0.061]
Year fixed effects	Yes	Yes	Yes
Adjusted R ²	0.261	0.255	0.268
N_obs	1,864	1,784	1,803

TABLE VII
The Effect of the Division's Relative Importance and Industry Relatedness

This table presents evidence on the effect of the division's relative size (columns 1-3), the division's share in revenue (columns 4-6), and the division's relatedness to the industries of the other divisions (columns 7-9). Each column reports estimates from a single regression, with standard errors (robust and clustered by division) in brackets. The dependent variable is the annual percentage change in the compensation of a divisional manager. The key independent variable is the interaction term Δ Industry compensation in other divisions \times Division attribute, defined as the average residual change in the industry compensation of all other divisional managers multiplied by the division's attribute (relative size, share in revenue, industry relatedness). All regressions include year fixed effects, which are not shown. Variable definitions are given in Appendix A. Significance levels are indicated as follows: *=10%, **=5%, ***=1%.

Division attribute	Relative size			Share in revenue			Industry relatedness		
Dependent variable	Δ Comp1	Δ Comp2	Δ Comp3	Δ Comp1	Δ Comp2	Δ Comp3	Δ Comp1	Δ Comp2	Δ Comp3
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Δ Industry compensation	0.663*** [0.119]	0.683*** [0.182]	0.669*** [0.205]	0.642*** [0.122]	0.660*** [0.188]	0.672*** [0.205]	0.645*** [0.119]	0.649*** [0.188]	0.660*** [0.204]
Δ Industry compensation in other divisions	0.275*** [0.079]	0.335** [0.155]	0.341** [0.157]	0.280*** [0.078]	0.319** [0.156]	0.342** [0.158]	0.284*** [0.081]	0.308** [0.156]	0.353** [0.160]
Δ Industry compensation in other divisions \times Division attribute	0.086 [0.114]	0.092 [0.138]	0.087 [0.257]	0.116 [0.290]	0.138 [0.255]	0.123 [0.336]	0.035 [0.088]	0.041 [0.079]	0.044 [0.083]
Division attribute	0.136** [0.061]	0.124** [0.057]	0.146*** [0.043]	0.158* [0.089]	0.183** [0.087]	0.180** [0.084]	0.013 [0.072]	-0.023 [0.065]	-0.011 [0.069]
Δ Division cash flow	0.034 [0.041]	0.022 [0.018]	0.059*** [0.020]	0.042 [0.037]	0.028 [0.018]	0.081*** [0.018]	0.037 [0.033]	0.001 [0.022]	0.064*** [0.019]
Δ Division ROA	0.038 [0.131]	0.083*** [0.016]	0.048** [0.021]	0.036 [0.131]	0.078*** [0.015]	0.082*** [0.019]	0.055 [0.128]	0.059*** [0.019]	0.079*** [0.014]
Δ Division size	0.113*** [0.019]	0.200*** [0.055]	0.105* [0.059]	0.110*** [0.022]	0.190*** [0.054]	0.135** [0.059]	0.101*** [0.024]	0.193*** [0.052]	0.114** [0.056]
Δ Industry market-to-book	0.021 [0.016]	0.158** [0.081]	0.211** [0.095]	0.012 [0.013]	0.148* [0.079]	0.204** [0.091]	0.027* [0.014]	0.140* [0.077]	0.230** [0.092]
Δ Firm earnings per share (EPS)	0.037*** [0.010]	0.094** [0.046]	0.087* [0.046]	0.059*** [0.009]	0.103** [0.045]	0.105** [0.045]	0.054*** [0.005]	0.100** [0.043]	0.112** [0.047]
Δ Firm stock return	-0.003 [0.007]	0.043*** [0.004]	0.034*** [0.000]	0.028*** [0.004]	0.045*** [0.003]	0.052*** [0.000]	0.028*** [0.006]	0.050*** [0.001]	0.065*** [0.005]
Δ Firm free cash flow	0.047* [0.027]	0.044** [0.019]	0.034 [0.027]	0.079** [0.032]	0.040* [0.023]	0.027 [0.024]	0.078** [0.032]	0.039** [0.018]	0.061*** [0.021]
Δ Firm return on assets (ROA)	0.010 [0.131]	0.057*** [0.018]	0.056** [0.026]	-0.005 [0.130]	0.060*** [0.020]	0.065** [0.026]	0.021 [0.131]	0.047** [0.023]	0.059** [0.028]
Δ Firm size	0.096*** [0.020]	0.208*** [0.054]	0.178*** [0.058]	0.125*** [0.020]	0.198*** [0.053]	0.196*** [0.058]	0.117*** [0.019]	0.193*** [0.054]	0.193*** [0.063]
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.252	0.245	0.251	0.250	0.246	0.256	0.251	0.248	0.249
N_obs	1,864	1,784	1,803	1,864	1,784	1,803	1,864	1,784	1,803

TABLE VIII
The Effect of Corporate Governance

This table presents evidence on the effect of corporate governance, measured by the G-index (columns 1-3), a block holder dummy (columns 4-6), and board independence (columns 7-9). Each column reports estimates from a single regression, with standard errors (robust and clustered by division) in brackets. The dependent variable is the annual percentage change in the compensation of a divisional manager. The key independent variable is the interaction term Δ Industry compensation in other divisions \times Governance, defined as the average residual change in the industry compensation of all other divisional managers multiplied by the firm's quality of corporate governance (G-index, block holder dummy, board independence). All regressions include year fixed effects, which are not shown. Variable definitions are given in Appendix A. Significance levels are indicated as follows: *=10%, **=5%, ***=1%.

Governance measure	G-index			Block holder dummy			Board independence		
Dependent variable	Δ Comp1	Δ Comp2	Δ Comp3	Δ Comp1	Δ Comp2	Δ Comp3	Δ Comp1	Δ Comp2	Δ Comp3
Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Δ Industry compensation in other divisions	0.633*** [0.118]	0.642*** [0.184]	0.636*** [0.211]	0.702*** [0.122]	0.744*** [0.187]	0.779*** [0.207]	0.695*** [0.122]	0.689*** [0.185]	0.696*** [0.211]
Δ Industry compensation in other divisions \times Governance	0.031** [0.013]	0.036** [0.018]	0.017 [0.014]	-0.066** [0.027]	-0.082** [0.035]	-0.068* [0.038]	-0.042* [0.025]	-0.087** [0.039]	-0.103** [0.045]
Corporate governance	0.029 [0.062]	0.072 [0.060]	0.040 [0.048]	-0.059 [0.060]	-0.085 [0.082]	-0.084 [0.090]	-0.082 [0.082]	-0.086* [0.047]	-0.100 [0.066]
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.257	0.246	0.252	0.271	0.266	0.269	0.257	0.272	0.262
N_obs	1,864	1,784	1,803	1,864	1,784	1,803	1,864	1,784	1,803

TABLE IX
Conglomerate Value

This table presents estimates from panel regressions in which the dependent variable is the firm's excess value. Each column reports estimates from a single regression, with standard errors (robust and clustered by firm) in brackets. Compensation heterogeneity is the annual standard deviation of the compensation of the divisional managers for a given firm. Average compensation gap is the average absolute difference between the annual change in the compensation of the divisional managers and the average change in compensation in their industries. All variable definitions are given in Appendix A. All regressions include year fixed effects, which are not shown. Significance levels are indicated as follows: * = 10%, ** = 5%, and *** = 1%.

Compensation measure	Comp1	Comp2	Comp3	Comp1	Comp2	Comp3
Model	(1)	(2)	(3)	(4)	(5)	(6)
Compensation heterogeneity	0.042* [0.022]	0.112*** [0.041]	0.127** [0.062]			
Average compensation gap				0.077* [0.042]	0.084** [0.035]	0.069** [0.031]
Tobin's Q heterogeneity	-0.025*** [0.008]	-0.031*** [0.008]	-0.055*** [0.016]	-0.029** [0.011]	-0.040*** [0.008]	-0.033** [0.013]
Cash flow	1.833*** [0.098]	2.948*** [0.199]	3.027*** [0.301]	1.841*** [0.102]	2.939*** [0.198]	3.045*** [0.302]
Size	0.011 [0.019]	-0.004 [0.006]	0.023*** [0.008]	0.025* [0.013]	0.025** [0.010]	0.032*** [0.010]
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R ²	0.142	0.137	0.141	0.143	0.138	0.149
N_obs	902	878	862	902	878	862