CEO Marketability, Employment Opportunities, and Compensation: Evidence from Compensation Peer Citations[*]

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Abstract

We present evidence that the 2006 compensation-peer disclosure rule increased executive labor market efficiency by revealing information about executives' outside opportunities. Difference-in-differences tests provide evidence of increased CEO mobility and compensation levels after the rule was enacted. Executives of firms with more peer citations – especially from larger firms – are more likely to leave for better positions or to receive compensation increases. Highly-cited firms are more likely to increase equity-based compensation, which helps with executive retention. These results are noteworthy since the intent of the rule was to limit opportunistic benchmarking to justify higher compensation.

Keywords: compensation peers, outside opportunities, 2006 disclosure rule, labor market efficiency, compensation

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Abstract

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1. Introduction

Motivated by shareholder concern over opportunistic CEO compensation practices, the Securities and Exchange Commission (SEC) in 2006 began requiring firms that practice executive compensation benchmarking to disclose which other firms they view as compensation peers. Following this regulatory change researchers began providing empirical evidence that some firms indeed use biased peer benchmarking to justify higher CEO compensation (Faulkender and Yang, 2010, 2013; Bizjak, Lemmon, and Naveen, 2008; Bizjak, Lemmon, and Nguyen, 2011). In this paper, we consider an important, but overlooked, aspect of the new compensation peer disclosure rule. While earlier researchers evaluated firms' own practices of identifying peers, we focus on the extent to which *other firms* identify a firm as a peer. Under the new rule, firms for the first time can identify those other firms that consider their executives to be compensation peers. We propose that this under-appreciated consequence of the peer-group disclosure requirement increases labor market transparency by providing a clearer picture of executives' outside opportunities, which should enhance executive mobility and put upward pressure on executive compensation packages.

The new rule requires firms to disclose a list of peer firms used for evaluating and setting the compensation of their top executives. The theoretical work of Holmström and Kaplan (2003) and empirical work by Bizjak, Lemmon, and Naveen (2008) and Albuquerque, De Franco, and Verdi (2013) argue that firms cite as compensation peers firms whose executives have similar human capital and with whom they may compete in the labor market. Anecdotally, Coca-Cola states in its 2006 proxy statement, "We use a peer group of companies as a reference for determining competitive total compensation packages…We also compete with these companies for executive talent." Similarly, in 2009 Panera Bread Co. states in its proxy statement that when selecting compensation peers they consider, "…companies that we believe are generally

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comparable to us … and against which we believe we compete for executive talent." Thus, a firm's compensation peers should indicate the firms where the board believes it's executives could be viable candidates for an executive position. This also *indirectly* reveals that the citing firm views executives at the listed peer as competitive candidates for executive roles at their firm. Peer citations can therefore reflect interest in a CEO's talents. Anecdotally, it appears that citations as a peer indeed reflect potential executive fit. For example, in 2011 Anthony Earley Jr., the CEO of DTE Energy Corp., left to become the CEO of the larger PG&E Corp. In 2010, DTE Energy Corp. was cited by 20 firms as a compensation peer (the median is 5), one of which was PG&E Corp.[1]

This new economy-wide information set can thus potentially provide managers with a clearer picture of outside opportunities as executives can more easily discover if a particular firm is interested in their skill set. Furthermore, since human resources officials, compensation consultants, placement firms, industry groups, and the media all facilitate the aggregation of this information, it is easy for firms' executives and directors to identify those firms that cite them as peers.[2] The more peer citations an executive's firm receives, the more likely the executive will find a more desirable match in another firm (Jovanovic, 1979; Kuratani, 1973; Lucas and Prescott, 1974; Burdett, 1978; Mortensen, 1978; Wilde, 1979).[3]

To examine the impact of this exogenous increase in labor market transparency on

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[1] Other examples include Albert Stroucken, CEO of Fuller (H.B.) Corp. leaving to become the CEO of Owens-Illinois Inc. in 2007. In 2006, Fuller (H.B.) Corp. was cited as a compensation peer by 17 firms, one of which was the larger Owens-Illinois Inc. In 2008, CEO Gregory Lang left Integrated Device Tech Inc. to become the CEO of PMC-Sierra Inc. Prior to his departure, Integrated Device Tech Inc. was cited as a compensation peer by 13 firms, including PMC-Sierra Inc.

[2] See for example articles by Equilar (*http://paygovernance.com/wp-content/uploads/2015/10/Equilar-2015-Peer-Group-Report.pdf*), Audit Analytics (*https://www.auditanalytics.com/blog/peer-benchmarking-and-trends-in-executive-compensation*) and The Seattle Times (*https://www.seattletimes.com/business/public-companies-cite-peers-to-justify-big-pay-packages*) on firms being cited as a compensation peer.

[3] An important aspect of outside compensation peer citations is that they provide clarity about outside options in the labor market in a way that general media attention does not. In addition to the level of demand, they also reveal the source of the demand. In fact, among all 878 C-suite executives appointed in the 8 years after the disclosure rule was implemented, 172 (19.6%) were hired by firms that had cited the executive's former firm as a compensation peer.

executive departure and compensation packages we first conduct a difference-in-differences (DiD) analysis around the implementation of the new rule. It is possible that the new disclosures did not reveal information about the labor market, but merely provided a new observable way of measuring outside opportunities that labor market participants already understood. If this were so, we would not expect to see changes to compensation levels or evidence of greater executive mobility around the disclosure. Conversely, if the new rule increased labor market transparency and efficiency, we would expect to observe higher CEO departure rates and compensation (particularly equity-based pay) after 2006, especially among more mobile CEOs. Increased clarity should allow risk-averse CEOs to bargain for a greater share of the surplus value generated from the particular firm-CEO match (Holmström, 2004), while motivating boards to negotiate for stronger retention incentives.

For our main DiD tests, we contrast labor market outcomes for founder CEOs with those of non-founders. Our expectation is that enhanced marketability is more important for non-founders, who may be willing to change firms, than for founders, who are unlikely to leave their firm.[4] We find that after 2006 non-founder CEOs experienced a greater increase in departure likelihood than did founder CEOs and that the compensation, particularly equity-based compensation, of non-founders who did not depart their firm increased by a greater amount than that for founders.

Next we evaluate whether there is a link between the amount of attention a particular CEO recieves in the peer groups disclosed by other firms and their subsequent labor market outcomes. For this analysis, we hand collect data on S&P 1500 firms' yearly disclosed compensation peers

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[4] Founders have more human capital invested in their firms than non-founder CEOs and prior research finds that founder CEOs have higher cash flow and control rights and are more entrenched (Gao, Harford, and Li, 2015; Mullins and Schoar, 2016).

from 2006 to 2011. For each firm-year in our sample, we measure the degree of outside attention given to the firm's executives by aggregating the number of firms citing it as a compensation peer in the prior year. We also construct several alternative peer citation measures with attention given to the relative size and industry of the citing and cited firms.

We find that the intensity of compensation peer citations is associated with an increase in the likelihood of a firm's CEO departing for another firm. In particular, the implied probability of departure for a CEO in the 75th percentile of peer citations is 2.49 percentage points greater than that for a CEO in the 25th percentile. The probability of CEO departure is most strongly associated with citations by relatively larger firms, which are less likely motivated by opportunistic benchmarking and more likely due to the larger firms recognizing the executive talent in the smaller firms.

To identify whether highly-cited CEOs depart for better employment opportunities, we study the relation between peer citations and the destinations of departing CEOs. There are 527 CEO departures in our sample. Of those, 84 departed for another S&P 1500 firm, 43 took another CEO position, 30 went to larger firms, and 19 became CEOs of larger firms. Logistic regressions indicate that CEOs moved to better positions at other firms when they were more highly cited as compensation peers. These results suggest that the number of external peer citations, especially by larger firms, is an indicator of executive marketability and attractive outside opportunities.

We next consider whether directors respond to indications of demand, or greater clarity of their CEO's outside opportunities, by adjusting executive compensation. We find that CEO compensation is positively and significantly associated with the number of compensation peer citations by other firms in the past year. The estimates from our baseline regression imply that a one standard deviation increase in lagged peer citations corresponds to an increase in total

compensation of $595,614. We also find that CEOs of firms with more peer citations subsequently receive greater equity-based compensation, without any offsetting reductions in cash-based compensation. Our regressions imply that a one standard deviation increase in peer citations is associated with a 3.4% increase in the percentage of total compensation that is equity-based. This is consistent with firms increasing non-vested compensation to strengthen retention incentives for their executives (Balsam and Miharjo, 2007). Both of these results are strongest when peer citations are by relatively larger firms.

The results discussed thus far provide evidence that requiring firms to disclose compensation peers increased the transparency and efficiency of the labor market and enhanced executives' ability to negotiate for compensation and boards' motivation to bargain for stronger retention incentives. We conduct a number of additional tests to explore the robustness of our results and the appropriate level of confidence in an interpretation that the new information available through peer group disclosures caused the labor market outcome we have identified. We start by considering further the possibility that these patterns are determined endogenously and driven by other economic factors. We submit that endogeneity concerns are lessened by the fact that, unlike the selection of one's own compensation peers, being cited by other firms is more likely to be exogenous.[5] In addition, our baselien DiD tests suggest that a causal interpretation is most natural. Nonetheless, we would like to further explore the possibility that reverse causation drives our results or that they are otherwise spurious.

To further address endogeneity concerns, we conduct additional DiD tests on firms partitioned by the degree of shock to a boards' information about their executives' marketability

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[5] Mutual citations between firms is an exception. However, the primary results continue to hold when we exclude these firms from the analysis.

arising from the initial compensation peer disclosures in 2006. We examine (1) firms that received an unusually greater number of peer citations relative to the number of firms they named as compensation peers, (2) firms where the current CEO was an internal hire, and thus has not experienced the external labor market, and (3) small firms where the CEO labor market is relatively opaque compared to that for larger firms. In all cases, we find evidence consistent with the new disclosure rule leading to increased transparency in the CEO labor market and putting upward pressure on CEO compensation in firms most affected by increases in labor market efficiency. Furthermore, post-2006 the number of peer citations continues to relate positively to compensation changes for non-founder CEOs but not for founder CEOs. Thus, while other components of the 2006 disclosure rule changes could have created one-time shocks to compensation practices, peer citations continue to relate to CEO compensation practices in the years following.

Since firm performance can drive both compensation peer citations and outside opportunities, it is possible that the relation we identify between peer citation intensity and CEOs leaving for new job opportunities is spurious. We address this concern in two ways. First, we include firm performance variables in our regressions to capture the relation between performance and outside opportunities. Second, we analyze subsamples of CEOs at firms that are underperforming their industry peers, and find that the results continue to hold.

Reverse causality is another possible concern. If highly paid CEOs attract more compensation peer citations, this could lead to a positive relation between peer citations and the level and/or composition of CEO compensation. Our first strategy for addressing this concern is to use lagged peer citations as our primary measure. For reverse causality to hold, it would require firms to select peers based on expected changes in the peer firm CEO's future compensation. Second, we analyze two subsets of CEOs that are unlikely to receive opportunistic peer citations,

those who receive abnormally *low* compensation and those who are at small firms. The positive relation between compensation peer citations and future compensation continues to hold in both cases. Third, we generate a measure of abnormal peer citations as the residual from a peer citations determinants model that accounts for firm size and the abnormal level of CEO pay. After accounting for these effects, we find abnormal peer citations are positively associated with CEO departure, CEO total compensation, and the fraction of compensation that is equity-based.

In other robustness tests we find that the relation between compensation peer citations and future compensation is weaker in firms whose CEO is more entrenched but stronger when outside citations come from local firms or when the observable signals of CEO talent are stronger. We also find the effect is not limited to CEOs and that peer citations by other firms – particularly larger ones – have similar labor market implications for non-CEO executives. The relation between compensation peer citations and executive marketability also appears to be unique to any matching role played by compensation consultants. While consultants can provide similar information on executive marketability, the use of compensation consultants does not explain our results. The relation between peer citations and CEO compensation is in fact driven by citations from firms that are not also represented by the same consultant, which further supports the informative role of unanticipated peer citations.

Our findings contribute to the literature in several ways. First, we provide new evidence of the impact of the 2006 compensation disclosure rule on CEO compensation that comes through the greater clarity it provides to the board and the executives on the executives' outside opportunities in the labor market. Prior studies focus on a firm's self-selected compensation peers from an agency perspective (Bizjak, Lemmon, and Naveen, 2008; Bizjak, Lemmon, and Nguyen, 2011; Albuquerque, De Franco, and Verdi, 2013; Faulkender and Yang, 2010, 2013). In contrast,

we focus on the information revelation aspect of the disclosure rule by considering the extent to which other firms in the labor market cite a firm as a compensation peer. From this new perspective, we find that the greater transparency arising from the new disclosure rule can also be associated with increases in CEO compensation not driven by CEO entrenchment. Another contemporaneous working paper, Denis, Jochem, and Rajamani (2018), considers how firms respond to governance initiatives at other firms that they cite as compensation peers. That study is made possible by the new requirement that firms disclose compensation peers, but it relies on data that firms would have had access to before the rule change. In contrast, peer citations by other firms were unobservable prior to the exogenous rule change. Our results suggest that their public revelation had a unique unanticipated impact on the executive labor market (Murphy and Jensen (2018)).

Second, our findings contribute to our understanding of the mechanisms that affect CEO marketability. Fee and Hadlock (2003) argue that as the superior ability of the CEO is more visible in the external labor market, the manager is more likely to find better employment opportunities and move to another firm. Other studies have shown that media attention (Rajgopal, Shevlin, and Zamora, 2006; Butler and Gurun, 2012), social networks (Liu, 2014; Engelberg, Gao, and Parsons, 2013; Berger, Kick, Koetter, and Schaeck, 2013; Coles, Wang, and Zhu, 2017) and the departures of other executives (Gao, Luo and Tang (2015)) are mechanism that can increase CEO awareness of outside opportunities, which in turn can increase their marketability and compensation. Our results reveal that compensation peer disclosures are another mechanism that increases labor market transparency by revealing the demand for a CEO's talent and thus can proxy for the marketability of a CEO or executive.

Finally, our results may shed light on recent changes in compensation levels across different size firms. As discussed in Edmans, Gabaix, and Jenter (2017), CEO pay at large-cap and

mid-cap firms increased relative to pay at small-cap firms during the 1990s and early 2000s. However, there was an abrupt shift in this relationship around 2006 to 2008, when small-cap CEO compensation began increasing relative to pay at larger firms. The increased transparency and gains in labor market efficiency associated with the disclosure of compensation peer groups may have contributed to this pattern. The market for small firm executives would have been less transparent and efficient than the market for large firm executives before the rule was implemented. In addition, less-established executives at small firms could have gained relatively more additional bargaining power from the revelation of potential outside employment options.

2. Literature Review and Hypothesis Development

2.1. Executive Labor Market Inefficiency

Questions abound as to how well the market for executives functions. Equilibrium assignment models predict that if the market is efficient, larger firms will employ the more talented managers and thereby create more value. The mechanism for achieving efficient sorting of executives to firms is the level of compensation. Each firm will pay their executive an amount that is more than she could receive from the next largest firm, but that still optimizes firm value (Terviö, 2008; Gabaix and Landier, 2008). There is evidence that the market for top executives in the United States reflects this equilibrium, but there is considerable reason to believe that it is less efficient than one might hope.

Holmström (2004) observes that the CEO labor market is quite opaque. Larcker and Tayan (2011) discuss in detail a number of the challenges that make it difficult to gather information in this market. They observe that for the market to function well, information must be available about the skills of all relevant candidates and about the nature of the executive role at different companies.

The particular problems they identify include the difficulty in evaluating executives' skill sets, the small size of the executive labor market, the frictions limiting executives' ability to move between companies, and the lack of uniformity in the approach to securing executive talent across companies. They also present evidence that boards do not focus enough on evaluating executive performance and thus do not have very good information on the executive labor market.[6]

Furthermore, an abundance of empirical evidence suggests strong frictions persist. For example, Yonker (2016), shows evidence that the CEO labor market is geographically segmented as CEOs exhibit a home bias in their job search. Other research has found that the attractiveness of an area, nearby firms, and social networking also serve to segment top executive labor markets (Deng and Gao, 2013; Bouwman, 2014; Liu, 2014). This body of evidence suggests that the labor market for top executives is not frictionless and that executives may not be fully aware of their outside opportunities, which is why they rely on home bias, where they are more familiar with opportunities, or social networking, which can serve as a medium for learning about outside opportunities. In sum, these recent papers have revealed that avenues by which executives can learn more about their outside opportunities can serve to improve labor market efficiency.

One might expect executive search firms to have stepped in and created value by increasing the informational efficiency of this market. However, Khurana (2002) argues that executive search firms largely play the role of facilitator only between the boards they work for and the candidates they have identified, as opposed to effective intermediaries that create a market between all boards and executives. The fact that the data compiled by search firms is proprietary further impedes their ability to increase the efficiency of this market leaving it largely segmented. Overall, there is a

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[6] The evidence they summarize is taken from the Heidrick & Struggles 10th Annual Corporate Board Effectiveness Study (2007).

persistent lack of informational efficiency in the market for executives.

2.2. Compensation Peers Disclosure

In 2006, the SEC adopted new rules requiring firms to disclose comprehensive information about the level and structure of executive compensation and the process by which it is determined. The goal was to provide investors with additional information needed to evaluate firms' compensation policies and to decide whether to pressure firms to operate differently.[7] One important feature of the 2006 rules is the requirement that firms disclose the peer firms used to benchmark executive compensation. Prior to the 2006 rule change, firms practicing compensation peer benchmarking were only required to discuss the nature of the compensation peer group and did not necessarily have to disclose the exact peers. After the rule, precise compensation peer information is included in the Compensation Discussion and Analysis section in the firm's proxy statement (DEF 14A) available on the SEC EDGAR database.

The practice of benchmarking executive compensation to peer firms is common but also controversial. In theory, it can help firms gauge their executives' market value and determine appropriate compensation levels and incentive mechanisms, contributing to labor market efficiency (Holmström and Kaplan, 2003). However, this practice may lead to labor market distortions if firms biasedly select compensation peers to justify higher executive compensation.

Prior research has considered whether firms use compensation benchmarking as a mechanism for determining appropriate compensation or if they misuse the practice to justify inefficient pay arrangements. Bizjak, Lemmon, and Nguyen (2011) provide evidence that firms

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[7] The great deal of discussion focused on understanding whether the compensation structures of finance executives contributed to the financial crisis demonstrates the ongoing importance of these issues. In fact, in April 2015 the SEC proposed yet another round of compensation disclosure rules focused on additional pay-for-performance as required by the Dodd-Frank legislation.

outside the S&P 500 engage in this opportunistic behavior. Faulkender and Yang (2010) provide further evidence that firms with entrenched CEOs and weak corporate governance tend to select larger and better performing firms as peers to justify higher compensation. Faulkender and Yang (2013) provide additional evidence that the use of biased peer groups has intensified over time at firms with weaker governance. Since the new rule requires firms to list the companies they view as compensation peers, it enabled these researchers to evaluate these questions thoroughly.

In contrast, our research focuses on the information channel, rather than the agency concerns, and specifically evaluates the impact of the disclosure rule that allows firms to identify the set of firms *who are citing their firm* as a compensation peer. A key insight is that, in aggregate, this practice may increase the informational efficiency of the executive labor market by introducing a new element of transparency. Our analysis builds on the expectation that firms largely construct peer groups to identify the relevant market for their executives. Consistent with this expectation, a number of studies show that firms choose compensation peers that are representative of the labor market in which their executives compete (Bizjak, Lemmon, and Naveen, 2008; Faulkender and Yang, 2010). Albuquerque, De Franco, and Verdi (2013) state that firms often indicate that competition for executive talent drives their choice of specific compensation peers.[8] Similarly, Coles, Du, and Xie (2017) argue that firms select compensation peers based on transferable managerial human capital rather than firm characteristics. More recently, Larcker, McClure and Zhu (2019) report evidence suggesting that while some boards may select compensation peers to justify higher executive compensation, a majority of boards (67%) select peers based on managerial attraction and retention incentives. In practice, many firms

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[8] Our review of recent proxy statements confirms that firms often explicitly indicate that they select compensation peers based on firms with which they compete for executive talent. We reference two of these in the introduction.

reveal this motivation for selecting peers, as more than 60% of the S&P 500 companies disclosed that they used talent as a peer selection criterion.[9]

These observations indicate that firms cite other firms as compensation peers whose executives they view to be in a similar role and to have similar human capital to their executives. The reported list of compensation peers therefore serves as an indicator of the board's view of where a company's executives could be a viable candidate for an executive position; it is also, therefore, an *indirect* indicator that executives at the listed peers are viable candidates for an executive role at the citing firm. Now that all firms must disclose their compensation peers, it is easier for executives to get a better sense of their outside opportunity set, and for boards to acquire better information about the relevant labor market for their executives. Together these developments increase the transparency and informational efficiency of the executive labor market.

2.3. *Main Hypotheses*

We propose three main hypotheses based on expectations about how the new compensation peer disclosures will affect the market. The first hypothesis relates to the overall impact of the new disclosures on the executive labor market and the last two hypotheses predict how the new disclosures will affect individual executives' job market outcomes. In our first hypothesis we consider how the new disclosure rule may have impacted the executive labor market more generally. Any effects of the rule change on the overall executive labor market should be measureable around the time of its introduction.

Murphy and Zabojnik (2004, 2007) and Frydman (2016) have argued that as general executive skills become more important, greater competition for these transferable skills causes

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[9] Equilar Perspectives "Three Ways it Pays to Have the Right Peers", May 2017, by Dan Marcec (https://www.worldatwork.org/docs/workspan-past-issues/2017-issues/may-2017.pdf?language_id=1).

executive compensation levels to increase. Similarly, any increase in competition associated with CEOs increased awareness of outside options may have a similar impact on executive compensation levels in this context.

Clarity of outside options should give CEOs more bargaining power. Holmström (2004) argues that even appropriately matched CEOs and firms can bargain over a range of efficient compensation levels. Assuming that CEOs are more risk averse with respect to their employment than their boards, any surplus value created by the particular CEO-firm pair will disproportionately fall to the firm. This will be the case even when both parties accurately estimate the executive's outside options so long as there is uncertainty about those estimates. If the new disclosure regime brought greater clarity of outside opportunities, risk-averse executives will have been able to bargain for a greater share of the surplus created by the particular firm-CEO match in the form of higher compensation. Thus, it is important to note that even if firms and executives had accurate point estimates of executives' outside opportunities before the new rule on average, the enhanced information environment may still have contributed to generally higher levels of compensation due to the reduced uncertainty about those estimates.

Enhanced CEO mobility also impacts boards' incentives when determining executive compensation. In the new environment, boards must have greater concern that CEOs will leave for other positions, and should therefore value arrangements that reduce the probability of that occurring. Thus, while boards may agree to greater compensation, they can benefit from offering additional unvested equity-based pay that only has value if the CEO remains with the firm for an extended period of time. In contrast, increasing cash compensation would offer no such benefit. Because of these dynamics, there should be greater upward pressure on departure rates, average compensation levels, and the fraction of compensation that is equity-based for executives that are

most likely to participate in the broader labor market.

Hypothesis 1. *The disclosure of compensation peer groups will put upward pressure on CEO compensation levels and departure rates, while causing a shift toward more equity-based pay.*

Theoretical models of worker-firm match quality predict that greater transparency leads to increased labor market activity as managers have an easier time identifying employment matches (Jovanovic, 1979; Kuratani, 1973; Lucas and Prescott, 1974; Burdett, 1978; Mortensen, 1978; Wilde, 1979). In these models, managers can dissolve a match when they acquire new information about alternative prospects. Thus, mechanisms that reveal viable higher quality firm-manager matches can increase the efficiency of the CEO labor market by lowering search costs and reducing frictions arising from asymmetric information.

The 2006 disclosure rule increased visibility into the demand for a firm's executive talent, providing signals to executives that were not previously readily available. When an executive observes that another firm cites her firm as a compensation peer, she becomes aware that the citing firm views her talent as a match to their firm. When there are more firms citing an executive's firm this provides additional clarity and serves as a measure of demand for her talent. We therefore predict that executives whose firms are cited more often by others as compensation peers will subsequently be more likely to leave their firms for other positions. In addition, we expect that this relationship will be strongest when a greater number of larger firms cite the firm as a compensation peer, as these are more likely to represent the most attractive outside options.

Hypothesis 2. *CEOs will be more likely to leave their firms for outside opportunities as more firms cite their firm as a compensation peer.*

The third hypothesis, which we propose in two parts, predicts a positive relation between executives' marketability and their future compensation. Wang (2010) argues that the greater transparency of the external labor market provides useful information to a firm's board that can

affect their compensation and retention decisions regarding the firm's managers. Rajgopal, Shevlin, and Zamora (2006) find that when CEOs have greater outside opportunities, measured by business press citations, their firms increase the CEO's compensation in response to industry- or market-wide performance shocks. Similarly, Gao, Luo and Tang (2015) identify executive pay increases for retention purposes following the departure of other executives and the effects they document are stronger for executives with greater mobility. Again drawing on the intuition that compensation peer citations indicate outside options, we predict that executives at more frequently cited firms will subsequently receive higher compensation. If an executive and her board receive positive signals about the executives' marketability, the board will have an incentive to increase the executive's compensation to keep them from pursuing other options. In addition, frequently cited executives will enjoy stronger positions from which to negotiate over compensation.

The second part of this hypothesis is that firms whose executives receive more citations as compensation peers will be more likely to increase their executives' stock and option-based compensation for retention purposes (Oyer and Schaefer (2004) and Gao, Luo and Tang (2015)). As shown by Balsam and Miharjo (2007), non-vested equity-based compensation provides executives incentives to remain with their current firms. Since new option and stock grants typically vest over a number of years, the executives will have greater incentives to remain with their current firm than if they receive additional cash compensation alone.[10] Similarly, Kedia and Rajgopal (2009) argue that when employees know more about their outside opportunities the use of option grants is more important for retention purposes because these employees can more easily move to another firm. They find that local labor market conditions influence firms' use of stock

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[10] Several studies find that equity-based compensation is effective in retaining executives (Jackson and Lazear, 1991; Scholes, 1991; Mehran and Yermack, 1999; Carter and Lynch, 2001; Chidambaran and Prabhala, 2003; Carter and Lynch, 2004).

option plans for rank-and-file employees. Thus, if top executives become more aware of their outside opportunities they too may find it easier to change firms, which can motivate boards to increase the retention incentives in their executives' compensation plans.

Hypothesis 3. *Firms with more compensation peer citations will:*
      a. pay their CEOs greater total compensation, and
      b. pay their CEOs with a greater portion of equity-based compensation.

3. Sample data and descriptive statistics

3.1. Compensation peers

We begin our analysis of peer groups with the list of S&P 1500 firms available in the ExecuComp database for the fiscal years 2006 to 2011. After December 15, 2006, firms were required to disclose their compensation peer groups in their proxy statement. For each firm, we manually examine the Definitive Proxy Statement (DEF14A) filed with the SEC through the EDGAR database and identify compensation peers disclosed in the Compensation Discussion and Analysis (CD&A) section.

3.2. Compensation peer citations

To construct our peer citations variable, for each firm we annually aggregate the number of *other firms* that cite it as a compensation peer. Our primary measure is the natural logarithm of the number of peer citation plus one. Throughout our analysis, we use the peer citations measure from the prior year to ensure directors and executives have access to the most recent indicators of the external labor market's demand for the firm's executives as they negotiate annual compensation contracts. We also calculate two alternative peer citation measures. We define *Peer citations by Larger (Smaller) Market Cap. Firms* as the number of relatively larger (smaller) firms

by market capitalization that cite the firm as a compensation peer.[11] We define *Peer Citations – Industry Median Peer Citations* as the number of compensation peer citations minus the median peer citations in the same two-digit SIC industry.

3.3. Measurement of executive turnover and compensation

We obtain CEO and non-CEO turnover data from the ExecuComp database. We define turnover in fiscal year *t* if the CEO in that year is different from the CEO in the previous year, *t-1*. To ensure that the CEO indeed left the firm, our turnover variable excludes the cases wherein the CEO took another executive position at the same firm. We exclude turnover following a merger or acquisition, spin-off, CEO death, or an interim CEO. Since CEOs around the age of 65 are more likely to retire, for robustness, we further restrict turnover to departures of CEOs under age 65. We also create a non-executive turnover indicator that equals one if at least one non-CEO executive leaves the firm in that fiscal year.

To measure the level of compensation we use the log of total compensation (ExecuComp variable TDC1), which is comprised of salary, bonus, long-term incentive plan payouts, total value of restricted stock granted, total value of stock options granted (using Black-Scholes), long-term incentive payouts, and any other annual pay. We also examine the level of cash compensation and the percentage of total compensation that is equity-based (stock option grants and restricted stock).

3.4 Compensation consultants

Cadman, Carter and Hillegeist (2010) argue that compensation consultants are not the primary driver for excessive CEO pay. However, Murphy and Sandino (2019) find that CEO pay

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[11] In unreported robustness results, we scale the market capitalization differences between sample firm and citing firms by the sample firm's market capitalization. The alternative measure, *Peer Citations by Larger Market Cap. Firms Scaled* is the number of times a firm is cited as a compensation peer by firms in the top tercile of the scaled market capitalization differences [(Market capitalization of a citing firm – Market capitalization of a cited firm) / Market capitalization of a cited firm)]. The results are similar to those using our primary measures.

is both greater and more complex when firms hire a compensation consultant, indicating that their use can affect both the level and structure of compensation. Furthermore, the use of compensation consultants also became more widespread during the time period we study. We therefore control for the use of compensation consultants to help ensure that any relation between peer citations and compensation is not spuriously driven by their impact. We obtain data on compensation consultant use from Incentive Lab.

3.5. Other control variables

We control for firm size, growth opportunities, stock and accounting performance, stock volatility, CEO tenure and age, and the number of self-selected peers. We measure firm performance using contemporaneous and lagged stock returns obtained from CRSP and accounting performance with financial statement data from Compustat. We use Total Market Value as our firm size proxy following Gabaix and Landier (2008) who argue that this is the most appropriate proxy for firm size to predict compensation.[12] All variable definitions are in Appendix 1.

3.6. Descriptive statistics for compensation peer citations

Table I Panel A presents firm level summary statistics. The mean *Peer Citations* is 6.7, the median is 5, and the 25th and 75th percentiles are 1 and 10, respectively. The mean Total Market Value is $12.693 billion. The mean ROA, measured by net income before extraordinary items and discontinued operations scaled by total assets, is 14%, and the mean Annual Stock Return is 7.7%. The mean Market-to-Book ratio is 3.5 and about 60% of the firm-years use a compensation consultant. We exclude finance and utility firms due to differences in accounting and regulations.[13] Our final sample consists of 5,364 firm-year observations. We use one year lagged control

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[12] Total market value is computed by Compustat variables: [PRCC* abs(CSHO)+ AT - CEQ – TXDB]. In unreported results, when we include either total assets or total sales instead of total market value, we find similar results.
[13] In unreported analysis, our primary results are consistent when including finance and utility firms.

variables for the CEO departure tests and both contemporaneous and lagged control variables for the CEO compensation analysis.

3.7. Univariate results

Table I Panel B reports descriptive statistics for firms with above and below median compensation peer citations. Consistent with our hypotheses, firms with more peer citations have lower CEO tenure, higher CEO compensation, and a higher portion of CEO equity-based compensation relative to firms with fewer peer citations. In addition, firms with more peer citations tend to have greater Total Market Value, and higher ROA. The combination of better performance but shorter CEO tenure suggests that CEOs with greater compensation peer citations may be more likely to leave for other opportunities. We also find a greater portion of firms with more peer citations use compensation consultants. Thus, in addition to controlling for their use in our analyses, we examine their use more closely in a later section.

4. Exogenous shock to CEO marketability: Difference-in-Differences (DiD) analysis

In Hypothesis 1, we proposed that if the 2006 disclosure rule increased transparency in the CEO labor market, making it more competitive, we expect an overall increase in CEO departure rates and CEO compensation.[14] To test this hypothesis, we employ a DiD analysis around the exogenous shock of the 2006 mandated regulation, partitioning firms according to whether their CEOs are more or less likely to be affected by enhanced labor market transparency. Furthermore, by examining the differing effect of the exogenous rule change between firms whose executives

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[14] In addition, because the disclosure rule only reveals increases and not decreases in demand for an executive's talent in the labor market, the average effect on compensation is positive. As our primary results indicate, compensation increases more when demand is greater and not as much when it is less. However, there is no revelation of reduced demands (e.g. firms stating they would not cite a particular firm as a peer). Therefore, the average effect of the new regulation should be either to increase or to have no change on CEO compensation after controlling for time trends.

are more mobile and those whose executives are not, we can further alleviate concerns that endogenous relations our driving our findings. For the compensation analysis, we follow prior studies and adjust pre-2006 ExecuComp data to account for differences in the way ExecuComp reported compensation measures prior to 2006. These adjustments facilitate the comparison of executive compensation across the pre- and post-event periods.[15]

4.1 Non-Founder versus Founder CEOs

The main DiD analysis contrasts outcomes for non-founder and founder CEOs. Founder CEOs have much higher control rights, hold senior positions such as the Chairman of the Board, and have more human capital invested in their firms (Gao, Harford, and Li, 2015; Mullins and Schoar, 2016). Increased awareness of external labor market opportunities is therefore much less important for founder CEOs than it is for non-founders.

We create a matched sample of firms with a non-founder CEO (treatment firms) and firms with a founder CEO (control firms) as follows. In year 2006, we match each firm with a non-founder CEO to one with a founder CEO in the same industry (3-digit SIC defined) that is closest in total assets (within +/- 20%) and CEO compensation (within +/- 15%). We also require that each treatment and control firm have at least one compensation peer citation in fiscal years 2006 through 2008. Finally, we exclude firms with a CEO who is 65 or older as they are likely to depart for retirement. We then analyze the change in each of our three outcome variables around the 2006 disclosure rule for the firms in this matched sample.[16]

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[15] We follow Walker (2011) and Focke, Maug, and Niessen-Ruenzi (2017) and adjust pre-2006 CEO total compensation (tdc1) by subtracting the value of long term incentive plans (LTIP) and adding the ex-ante value of performance shares (shrtarg x year ending stock price). Similarly, we adjust equity-based compensation in the pre-event period by summing the value of restricted stock grants (rstkgrnt), the ex-ante value of the performance shares, and the Black-Scholes value of any stock option grants (option_awards_blk_value). Our results are also robust to not making these adjustments.

[16] We find similar results when using the full sample, rather than the matched sample.

The Post-Disclosure variables indicate observations that follow the rule change. For example, *Post-Disclosure (2-Years)* is an indicator variable that equals one in the two years following the 2006 SEC new-disclosure rule and zero in the two years prior.[17] We include year and firm fixed effects in all three models. Of primary interest is the coefficient on the interaction of the treatment-firm indicator and the post-disclosure variable, which represents the DiD effect in the dependent variables. Table II reports the results. We use the controls discussed in Section 3, but, for brevity, do not report them. In Panel A, the dependent variable is the natural logarithm of CEO total compensation. Model 1 reports the results for one year before and after the disclosure shock. We find that the coefficient estimate for the DiD interaction term is positive and significant at the 1% level, indicating that the compensation of CEOs who are most active in the labor market had greater increases in compensation around 2006. We find similar results in Models 2 and 3 when we consider two and three years pre- and post- the 2006 disclosure rule, respectively.

Figure 1 plots the interaction terms for each year around the rule change from a similar regression. Prior to 2006, the trend in CEO compensation is very similar across founder and non-founder CEOs, consistent with our matching requirements and the parallel trends condition for DiD analysis. However, after 2006 non-founder CEO compensation departs from founder CEO compensation. In 2007, the difference in total compensation across the two groups is significant at the 1% level and in 2008 the difference remains statistically significant at the 10% level, consistent with the DiD analysis in Table II Panel A.

Table II Panel B reports results from the DiD analysis of the percentage of CEO compensation that is equity-based. We continue to find a positive and significant DiD effect across

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[17] For the reported results we excluded fiscal year 2006 from the analysis, however, in unreported results we find similar results when we include 2006. We also find similar results when we limit our sample to those firms with December fiscal year-end.

all three specifications, providing further evidence that the increase in transparency under the new disclosure rule led to a greater overall use of equity compensation for CEOs.

In Table II Panel C, we examine the DiD effect in the likelihood of CEO turnover. In model 1, the DiD coefficient estimate is positive and significant at the 10% level. When we expand the pre- and post-disclosure period to two or three years in models 2 and 3, respectively, we find the DiD estimates are positive and significant at the 5% level. Furthermore, in unreported univariate analysis of the pre- and post-disclosure rule departure rates for the full sample, we find there is no statistical difference between the turnover rate in the Pre-Disclosure Period (2003-2005) and the Post-Disclosure Period (2007-2009) for Founder Firms. The rate is around 0.04 in both periods. In contrast, the CEO turnover rate for Non-Founder CEOs more than doubles from 0.03 to 0.08 (a statistically significant difference at the 1% level) after the disclosure rule is introduced.

In support of H1, these DiD results suggest that the vast majority of CEOs who are not firm founders – and are therefore more mobile – gained additional labor market power as a result of the new compensation peer disclosures. In addition, these results help assuage any concern that our results are driven by unaccounted for endogenous relations.[18]

4.2   *Difference-in-Differences Robustness Tests*

For robustness, we conduct a number of additional DiD tests around the initial peer group disclosure year. Our focus is on contrasting the results across samples partitioned according to dimensions capturing different expectations about the impact of the new disclosures.

First, we partition firms by size under the expectation that the greater clarity of outside options will have a greater impact on the bargaining positions of smaller firm CEOs. Larger firms

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[18] In unreported analysis, we run two falsification tests. We conduct one DiD test on data from before 2006 and a second using post-2006 data. In the earlier period, we use 2004 as the false post variable year and in the post-2006 period, we use 2009 as the false shock year. We find no significant DiD effect in these models.

and their executives are more visible and attract more attention from the markets. We expect that the labor market for large firm executives was relatively more transparent and competitive prior to the implementation of the new disclosure rule, allowing large firm executives to negotiate from relatively stronger positions. To the extent they reveal outside opportunities, the newly disclosed compensation peers would have had greater incremental impact on the relatively less transparent and less competitive market for smaller firm executives.

We define small (large) firms as those in the bottom (top) tercile of market capitalization in our sample in the year prior to the disclosure rule. In the DiD tests reported in Table III Panel A contrasting outcomes for small firms (treatment) to large firms (control), we find that following 2006 the CEOs of small firms were more likely to leave their firms. In addition, the small-firm CEOs who did not leave received significantly larger compensation packages and a greater percentage of their compensation was equity-based relative to the large-firm CEOs.

Next, we partition firms by whether they hired their CEO internally (treatment) or externally (control). Firms that hired external CEOs have to attract those candidates away from other employers. As a result, even before the compensation peer disclosure rule was implemented, they would have had a better understanding of the outside options available to their CEOs and those CEOs' compensation should have reflected market forces better than the compensation of CEOs promoted internally. Therefore, we expect new information about CEOs' labor market prospects to be a larger shock and to have a greater effect on the outcomes of internally promoted CEOs. The DiD regressions presented in Table III Panel B show that internally promoted CEOs indeed exhibited a higher frequency of departures after 2006 than externally-hired CEOs, and that they enjoyed greater increases in compensation. However, we do not find that their compensation increases were concentrated in equity awards. Given their tenure with their firms, it is possible that

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internally-hired CEOs would have already accumulated significant restricted equity and unvested options. This would make additional equity-based compensation less attractive, due to both the reduced marginal retention incentives of additional awards and the lower value the CEOs would place on awards that increased their already substantial undiversified positions.

For our final DiD test, we sort each firm according to whether the new disclosures appear to have provided a positive or negative shock to its own expectations about their CEO's marketability. We propose that a firms' initial set of self-reported compensation peers proxies for its ex ante expectations about the breadth of the market for its executives. To capture this shock, we sort firms (and thus CEOs) by whether more or fewer firms than they self-reported as peers cited them as a peer. Specifically, we define unexpected citations as the number of times a firm is cited as a peer in 2006 minus the number of compensation peers a firm lists in 2006. We restrict the sample to firms with a December fiscal year-end to help ensure that they would have selected their own peer groups before observing other firms' chosen peer groups as reported in their 2006 annual reports. In Table III Panel C, we report regressions capturing the DiD effect in CEOs' outcomes in firms in the top (treatment) and bottom (control) terciles of unexpected citations according to this measure. We find CEOs with positive citation surprises in 2006 were more likely to subsequently leave their firms, receive greater compensation increases, and receive a greater portion of equity-based pay.

Finally, since there were multiple disclosure changes in 2006, it may be difficult to identify the impact of just one change on the executive labor market. To address this concern, in unreported analysis, we consider the impact of peer citations by firms that did not start reporting compensation peers until some year after 2006. In other words, we consider sample firms to receive a peer compensation shock when they are cited by a larger peer and that peer had not previously disclosed

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any peers and this first year is after 2006. Although the sample is much smaller, we continue to find that all of our main results hold: when larger firms disclose compensation peers for the first time, in the following years the cited firms CEOs are more likely to depart, receive higher CEO pay, and a greater percentage of CEO equity-based pay.

Taken together, these additional DiD tests provide evidence that the shift to disclosing compensation peers had more of an impact in situations where the board previously had less information about the marketability of the firm's CEO. Next, we examine directly the link between the attention a firm receives, as revealed through compensation peer citations, and its CEO's likelihood of departure and compensation level and structure.

5. CEO departure

5.1. CEO departure: A first look

We first estimate logit models to examine the impact of peer citations on CEO departure probability. The dependent variable equals one if the CEO leaves the firm, and zero otherwise.[19] The primary explanatory variable is lagged *Peer Citations*. We control for various prior year firm and CEO characteristics. We also control for the number of peers the sample firm reported. We include year and industry fixed effects in our all models to control for aggregate industry conditions and time trends that affect CEO turnover probability.[20] All regressions use robust standard errors adjusted for firm-level clustering. In Table IV, Panel A, model 1 the coefficient

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[19] We do not exclude forced CEO departures, but including them should bias us against finding associations between peer citations and CEO departure rates or the likelihood of obtaining a better position. In addition, in unreported results, we find that our results hold in the subsample of firms with positive abnormal returns. CEO departures in this subsample are more likely voluntary (Kaplan and Minton (2012)). Our results continue to hold when we further restrict the sample to CEOs under age 65.
[20] We run additional analysis using a linear probability model (LPM) with firm fixed effects to address any potential incidental parameter problem. This alternative model yields qualitatively similar results.

estimate on *Peer Citations* is positive and significant at the 1% level. To gauge the economic magnitude of this result, in Panel B we report the implied probability of CEO departure when peer citations are at the 25th and 75th percentiles, holding other variables at their mean. The implied probability of turnover increases from 7.19% to 9.68% when a firm's peer citations increase from the 25th to 75th percentile. This is consistent with our hypothesis that compensation peer citations provide greater knowledge of outside employment opportunities to CEOs and thus are associated with an increase in CEO departure rates.

In Model 2, we examine peer citations by larger and smaller firms separately and find that citations by larger, not smaller, firms are significantly associated with CEO departure. In Model 3 we report results using the number of citations relative to the industry median peer citations and find this measure is also significantly associated with a greater likelihood of CEO departure.

5.2. CEO departure: A closer examination

To understand whether CEOs depart for better employment opportunities, we study the relation between peer citations and the destinations of departing CEOs. Of the 527 CEO departures in our sample, 84 departed for another S&P 1500 firm, 43 took another CEO position, 30 went to larger firms, and 19 became CEOs of larger firms. In Table V Panel A we present separate logit regressions predicting these different outcomes. In Model 1 of Panel A, the dependent variable equals one if the departing CEO joins another S&P 1500 firm between fiscal years 2007 and 2014, and zero otherwise. In Model 2, the dependent equals one if the departing CEO joins another S&P 1500 firm as CEO, and zero otherwise. In Models 3 and 4, the dependent variable equals one if the CEO joins a larger firm, by equity market capitalization, in any role or as CEO, respectively. In Model 5, the dependent variable is restricted to the 40 CEOs who departed for a citing firm. Across all specifications, we find positive and significant coefficient estimates for our peer citation

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measure. In unreported analysis, we find similar results for non-CEO executive departures.

In Panel B, we more closely examine departing CEO transitions. While in Panel A we considered all CEO departures, including non-voluntary departures, which biased against finding significant results, in this analysis we exclude likely involuntary departures. Specifically, we exclude departures of CEOs from firms that were in the bottom quartile of industry adjusted ROA prior to the departure. Furthermore, because a departing CEO can retire and elect not to work anywhere or elect to work in another non-citing firm or transition to a citing firm, we estimate a multinomial logit model. The dependent variable is zero for departures to no identifiable firm (base reference), is one if the departing CEO transitions to a non-citing firm and is two if the departing CEO transitions to a citing firm. We find peer citations are positive and significantly related to the likelihood of the CEO departing to another S&P 1500 firm, however, the results are strongest for transitions to a citing S&P 1500 firm. In unreported analysis, we find similar results when using an ordered logit specification. Overall, this analysis suggests that peer citations are associated with a greater likelihood that the firm's CEO departs for a better position.

6. CEO compensation

6.1. Total CEO compensation

Given the greater likelihood of CEO departure following the revelation of more peer citations, we next examine how the board responds to this new insight into the labor market demand for an executive. We first examine whether lagged peer citations relate to CEO compensation using an OLS regression framework. In Table VI, the dependent variable is the natural logarithm of CEO total compensation. All models include year and firm fixed effects to capture any time trends or unobserved firm characteristics that could affect peer citations or CEO

compensation. Standard errors are robust and clustered by firm. In model 1, we find a positive and significant association between peer citations and CEO total compensation. The coefficient estimate implies that a one standard deviation increase in peer citations corresponds to an increase in total compensation of $595,614[21] Models 2 and 3 reveal similar results when using our citation measures based on relative firm size and industry adjustment, respectively.

As noted, prior research examining self-selected peers (Bizjak, Lemmon, and Nguyen, 2011; Faulkender and Yang, 2010, 2013) finds that CEO compensation is positively associated with the median compensation of a firm's cited peers. Given this result, in Model 4 we also control for the median pay of firms' self-cited peers.[22] Consistent with prior studies, we find a positive and significant coefficient estimate for median peer pay. However, our main results continue to hold. Thus, the extent to which other firms are citing a firm's executives is meaningful beyond the information provided by a firm's own listed compensation peers.

Finally, in all four models, we find a positive but insignificant coefficient for the indicator variable for the presence of a compensation consultant. Because we use firm fixed effects in each of these regressions, if firms seldom change their consultant use, then it is difficult to detect their impact. For robustness, we conduct variants of this analysis using industry fixed effects, along with various measures for compensation consultant use, to examine cross-sectional effects. The results are reported in Table A.2 Panel A. In models 1-4, we find a positive and significant relation

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[21] We find similar results in a first difference model of OLS regressions of changes in total compensation on changes in peer citations. Our result reveals that CEOs receive pay increases in year t as firms' peer citations increase from year t-1 to t.

[22] Because not all firms in our sample report compensation peers we lose about 1,800 firm-year observations when we include median peer firm pay as a control. Thus, in our primary analysis we do not control for a firm's median peer pay. Table A.1 in the Appendix reports additional analysis of CEO compensation and CEO departure when controlling for the median peer pay. We use industry and year fixed effects in this analysis following prior studies. Using industry fixed effects yields a coefficient estimates for median peer pay of 0.32, which is similar in magnitude to that found in prior studies (Albuquerque, De Franco, Verdi (2013) report 0.38, Faulkender, Yang (2010/2013) report 0.581/0.576).

between compensation consultant use and CEO compensation, including when the consultant provides other services or is retained by the board. These results are consistent with prior studies (e.g. Murphy and Sandino (2010)). However, the effect from peer citations remains positive and significantly related to CEO pay.

6.2. CEO compensation structure

Next, we examine CEO compensation structure to test whether firms with more compensation peer citations are more likely to increase long-term retention incentives through a greater use of equity-based compensation. Table VII Models 1 and 2 report regressions examining the association between peer citations and the levels of cash and equity-based compensation, respectively. The controls are the same as those in Table VI. In Model 1, we find an insignificant association between peer citations and the level of cash compensation. However, in Model 2, we find a significant positive association between peer citations and equity-based compensation, which shows that the relation between peer citations and compensation increases appears to be concentrated in incentive compensation.

In Models 3-6, we report Tobit regressions explaining the percentage of total compensation that is equity-based.[23] These models incorporate SIC two-digit industry fixed effects. Model 3 provides evidence that firms with more peer citations use a significantly greater percentage of equity-based CEO compensation in the following year. Based on the marginal effects from this estimation, a one standard deviation increase in peer citations is associated with a 3.4% increase in the percentage of total compensation that is equity-based. This is consistent with the greater need for retention incentives corresponding to the revealed greater outside demand for the CEO.

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[23] We estimate Tobit regressions since the dependent variable is censored from below at zero and at one from above. Approximately 17% of the firm-year observations report zero equity pay.

We find similar results in Models 4 and 5 using the alternative peer citation measures. Model 6 controls for the median cited peer compensation and finds that it is not significantly associated with CEOs' percentage of equity-based compensation.

In Models 3-5, we find a positive and significant relation between the use of a compensation consultant and a greater use of equity-based pay, consistent with Murphy and Sandino (2019). We find similar results in Appendix Table A.2, models 5-8, when using industry fixed effects and the various measures of consultant use. However, we continue to find evidence of an incremental effect from the number of peer citations across all models.[24,25]

It is possible that firms that self-report more compensation peers also attract more citations from other firms. We find that our results continue to hold when the differences between peer citations and self-selected peers are larger. Appendix Table A.4 shows that CEO departure probability, CEO total compensation and the fraction that is equity-based all increase with the difference between the number of citing firms and those cited as peers. In unreported results, we also find similar results when we use the ratio of peer citations over compensation peers chosen.[26]

6.3 Additional Robustness Tests

In this section we briefly discuss a number of additional robustness tests. We begin by revisiting the nature of the contrasting DiD results across founder and non-founder CEOs found in Section 4. One possible concern with our interpretation of the DiD results is that the changes in compensation practices for non-founder CEOs relative to founders are driven by other

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[24] In unreported results, we also find consistent results when using peer citations by the same industry.

[25] We also analyzed an alternative peer citation in which we exclude interlocking citations (e.g. If firm A cites firm B as a peer, then we exclude firm B from firm A's number of peer citations measure. We report these results for each of the three outcomes we analyze in the Appendix (Table A.3). The results are consistent with our primary citations measures and thus suggest that endogenous relations arising through interlocking peer citations are not causing the observed relations.

[26] For these tests, we add two to both the number of peer citations and the number of peers chosen before taking the natural logarithm of each to avoid having zero in the denominator.

developments during this time period. The compensation peer disclosure rule was one piece of larger changes in the 2006 regulatory disclosure requirements for executive compensation. To assess the reasonableness of our proposed interpretation, Table A.5 reports regressions testing whether post-2006 compensation changes at non-founder CEO firms relate to peer citations in a different way than those at founder CEO firms using the same matched sample as in the DiD analysis. The coefficients on interaction terms between the compensation peer citation variables and an indicator for non-founder CEO firms show that the peer citation-total compensation relation is concentrated in non-founder CEO firms. This set of results suggest that the overall changes in compensation practices following the rule change indeed relate to the information available through peer citations.

In Appendix 2 we provide a number of additional in-depth analyses that explore the robustness of the CEO departure and compensation results. We find that the results are not driven by the selection as peers of CEOs of high performing firms, who are more likely to receive better outside opportunities regardless simply because of the firm's performance. In fact, the results continue to hold in a sample of under-performing CEOs. Nor are the results concentrated among firms with potentiall entrenched CEOs. In fact, there is a weaker relation between peer citations and subsequent CEO equity-based pay when the CEO is more entrenched. These findings are more consistent with greater labor market efficiency than with opportunistic behavior by entrenched CEOs.

Further analyses in Appendix 2 provide evidence that the results are not driven by firms' propensity to cite highly paid CEOs or the CEOs of larger firms as peers. However, consistent with our hypotheses, the results are stronger when more outside peer citations come from local firms (to which an executive is more likely to move) and when strong cited-CEO firm performance

provides an independent signal that the cited CEO is more talented.

6.4 A Closer Look at Compensation Consultant Use

A possible concern is that the relation between peer citations and executive compensation is spuriously driven by the shared use of compensation consultants. Compensation consultants may also gather outside information about the market for their clients' executives through interaction with their overall client base. Prior researchers have shown a link between compensation consultant use and higher compensation, and their use became more prevalent during this time period. It is possible that compensation consultants drove both the increase in CEO compensation at their client firms and also an increase in peer citations by other firms they represent.

To explore this further, we separate peer citations into those by firms using the same compensation consultant and those citations by firms using a different consultant. If peer citations represent new information, we would expect citations by firms using a different consultant, and thus difficult to predict, to provide more new information. The results are reported in Table VIII. For all three of our outcome variables, we find the strongest results when the peer citations are from firms using a different consultant. Thus, our analysis consistently suggests that compensation peer citations represent a new source of information on executive marketability beyond that provided by compensation consultants.

6.5 Non-CEO Executives

We examine the effect of peer citations on other C-suite executives in Table IX. Models 1, 4, and 7 report logit regressions where the dependent variable is one if at least one non-CEO executive leaves the firm in that fiscal year and zero otherwise. The coefficient on the most general measure of peer citations is positive and marginally significant at the 10% level (Model 1). The relation becomes significant at the 5% level when we measure compensation peer citations using

only the citations of larger firms (Model 4) and when we adjust the number of citations by the industry median number of citations (Model 7). Models 2, 5, and 8 report OLS regressions explaining the average total compensation given to the top four non-CEO executives in the fiscal year. Peer citations by larger firms are significantly associated with non-CEO executive compensation levels (Model 5), but the other two measures are not (Models 2 and 8). Similar relations hold in regressions evaluating the fraction of equity-based pay in Models 3, 6, and 9.[27]

7. Conclusion

As part of a broader set of changes to executive compensation reporting requirements, in 2006 the SEC began requiring firms that engage in compensation peer benchmarking to disclose the identities of their peers. While the intent of the new rule was to shed light on the possible biased use of peer benchmarking to justify greater compensation, it also inadvertently gave executives better information about potential outside opportunities. Because firms choose as compensation peers those they compete with for executive talent, these economy-wide disclosures revealed to executives which other firms may view them as a viable candidate for executive positions.

We conduct difference-in-differences analyses around this exogenous rule implementation to determine the impact of compensation peer disclosure on the executive labor market. We find evidence that executives' enhanced information about outside opportunities increased CEO departure rates, put upward pressure on total CEO compensation levels, and caused a shift toward more equity-based compensation. These effects were particularly strong for mobile executives

We further examine how compensation peer citations affect the probability that executives

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[27] Since the mean of non-CEO executives' compensation at the firm level could be highly skewed, we also examine the median compensation of the top 5 highest paid non-CEO executives. We continue to find that peer citations by larger firms are associated with higher total compensation and a greater fraction of equity-based compensation.

departure their firms and CEO compensation packages. We find that after 2006, CEOs are more likely to depart from firms with more peer citations and as peer citations increase, CEO compensation increases, and the portion of compensation that is equity-based increases. The results are strongest when more relatively larger firms cite the CEO's firm, which arguably represent more attractive outside options. These findings are robust to the inclusion of an array of controls and fixed effects, the use of alternative measures of peer citation intensity, and various sub-sample tests.

Overall, our findings suggest that the 2006 compensation peer disclosure rule enhanced the efficiency of the executive labor market and that the greater transparency arising from the rule appears to have had significant unintended consequences on the market for public firm executives. These developments appear to have put upward pressure on overall CEO comepnsaiton levels, which is interesting given that the intend of the new rule was to curb the biased use of peer benchmarking to justify compensation increases.

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Appendix 1: Variable Definitions

Variable	Definition and Data Source
Compensation Peers related variables	
Peer Citations	Number of times a firm is cited as a compensation peer by another S&P 1500 firm. Source: Proxy Statements in SEC Edgar database
Peer Citations by Larger Market Cap. Firms	Number of times a firm is cited as a compensation peer of another firm that has relatively large market capitalization.: # of [(Market cap. of citing firm – Market cap. of cited firm)] > 0 Source: Proxy Statements in SEC Edgar database and Compustat database
Peer Citations by Smaller Market Cap. Firms	Number of times a firm is cited as a compensation peer by another firm that have relatively small market capitalization.: # of [(Market cap. of citing firm – Market cap. of cited firm)] < 0 Source: Proxy Statements in SEC Edgar database and Compustat database
Peer Citations – Industry Median Citations	Number of Compensation peer citations minus the median of peer citations in two-digit SIC industry firms. Source: Proxy Statements in SEC Edgar database
Peer Citations – Peers Chosen	Number of Compensation peer citations minus the number of compensation peers that the cited firm reported. Source: Proxy Statements in SEC Edgar database
Peer Citations – Interlocking Citations	Number of Compensation peer citations minus the number of interlocking citations between cited firms and citing firms. Source: Proxy Statements in SEC Edgar database
Peer Citations by Local Firms	Number of times a firm is cited as a compensation peer by another S&P 1500 firm that is located within 150 miles of the cited firms headquarter. Source: Compustat database
Peer Citations by Non Local Firms	Number of times a firm is cited as a compensation peer by another S&P 1500 firm that is located outside 150 miles of the cited firms headquarter. Source: Compustat database
Peer Citations by Same two-digit SIC industry Firms	Number of times a firm is cited as a compensation peer by another firm in the same two-digit SIC industry. Source: Proxy Statements in SEC Edgar database
Peer Citations by Different two-digit SIC industry Firms	Number of times a firm is cited as a compensation peer by another firm in the different SIC 2 industry. Source: Proxy Statements in SEC Edgar database
Peer Citations by Firm with Same Consultant	Number of times a firm is cited as a compensation peer by another S&P 1500 firm that uses one or more of the same compensation consultants that the cited firm uses. Source: Proxy Statements in SEC Edgar database
Peer Citations by Firm with Different Consultant	Number of times a firm is cited as a compensation peer by another S&P 1500 firm that does not use the same compensation consultants that the cited firm uses. Source: Proxy Statements in SEC Edgar database
Firm with Over Citation	Indicator variable that equals one if the firm is cited by more firms than it cites in 2006. Source: Proxy Statements in SEC Edgar database
Firm with Under Citation	Indicator variable that equals one if the firm is cited by less firms than it cites in 2006. Source: Proxy Statements in SEC Edgar database
Number of Compensation Peers	Number of compensation peers that the cited firm reported. Source: Proxy Statements in SEC Edgar database
Firm Characteristics	
Annual Stock Return	Twelve month monthly compounded return during the fiscal year: Source: CRSP
ROA	(EBITDA) / Beginning-year Total Assets. Source: Compustat database
Total Market Value ($ millions)	Firm value as calculated in Gabaix and Landier (2008): (PRCC* abs(CSHO) + AT - CEQ - TXDB) Source: Compustat database
Leverage	(Year-ending Long-term Debt plus Debt in Current Liabilities) / year-end Total Assets. Source: Compustat database.
Volatility	Standard deviation of most recent 3 years of monthly stock returns: Source: CRSP

Market-to-Book	(Total Assets – Book Equity + Market Value of Equity) / Total Assets; all year end values. Source: Compustat database
S&P 500	Indicator variable that equals one if the firm is member of the S&P 500 during the fiscal year: Compustat database
Post-Disclosure (1-Year)	Indicator variable that equals one if the observation occurs in fiscal year 2007 and is 0 if the observation occurs in fiscal year 2005.
Post-Disclosure (2-Years)	Indicator variable that equals one in the two years following the 2006 SEC new-disclosure rule and zero in the two years prior to the disclosure rule.
Post-Disclosure (3-Years)	Indicator variable that equals one in the three years following the 2006 SEC new-disclosure rule and zero in the three years prior to the disclosure rule.

CEO / non-CEO executives characteristics

CEO Total Compensation ($1,000)	Total CEO compensation that consists of salary, bonus, the Black-Scholes value of option grants, restricted stock grants, long-term incentive payments and other annual compensation (tdc1). Source: ExecuComp
CEO Cash Compensation ($1,000)	Total CEO compensation that includes salary, and bonus, received by the CEO in the fiscal year. Source: ExecuComp.
CEO Equity Compensation ($1,000)	Total CEO compensation that is equity compensation, stock options and restricted stock grants, received by the CEO in the fiscal year. Source: ExecuComp.
CEO % Equity Compensation	Percentage of total CEO compensation that is equity compensation, stock options and restricted stock grants, received by the CEO in the fiscal year. Source: ExecuComp.
CEO Tenure	Number of years the CEO has served in the position. Source: Source: ExecuComp & ISS.
CEO Ownership	Percent of common shares outstanding owned by the CEO in the fiscal year, including stock options. Source: ExecuComp & ISS.
CEO Age > 60	Indicator variable that equals one if the CEO's age is greater than 60 and 0 otherwise. Source: ExecuComp
Non-Founder CEO Firm	Indicator that equals one if the CEO is not a founder during the fiscal year: ExecuComp
CEO Departure	Indicator variable that equals one if the CEO left the firm during the fiscal year. Source: ExecuComp
Inside Hire CEO	Indicator variable that equals one if if the CEO was hired within her current firm, and zero if a CEO was hired outside. Source: ExecuComp
Positive Abnormal Performance	Indicator variable that equals one if the firm's abnormal return is greater than zero. Abnormal return is calculated by the firm's stock return minus median stock return in the same two-digit SIC industry firms. Source: Compustat database
Small firm	Indicator variable that equals one if the firm has total market value in the bottom tercile and zero if the firm has total market value in the top tercile. Source: Compustat database
High E-Index	Indicator variable that equals one if the index is greater than the sample median. We use the most recent E-index (2006) for missing years. Source: Bebchuk's website.
Average Non-CEO Executives Compensation	Mean total compensation that is received by the top four highly paid non-CEO executives in the fiscal year. Source: ExecuComp
Average % Non-CEO Executives Equity Compensation	Mean Percentage of total compensation that is equity compensation, stock options and restricted stock grants, received by the top four highly paid (Salary + Bonus) non-CEO executives in the fiscal year. Source: ExecuComp
Non-CEO Executives Departure	Indicator variable that equals one if at least one of the non-CEO executives (Top 4) left the firm during the fiscal year. Source: ExecuComp

Appendix 2: Additional Robustness Tests

In this Appendix , we provide an extended analysis of the relation between the intensity with which a CEO is cited as a compensation peer and her labor market outcomes.

A.1 Endogenous Peer Selection: Well performing firms

One possible concern with our results is that firms cite high performing firms whose CEOs are more likely to receive better outside opportunities simply because of the firm's performance. If firm performance drives both CEO peer citations and outside opportunities, the relation between these two variables we have identified could be spurious. Our first approach to alleviating this concern is to include firm performance in all of our regressions. However, to address this issue more thoroughly, we also conduct an analysis on CEOs in a subsample of poorly performing firms. If the relation between peer citations and outcomes for CEOs continues to hold in these tests, this would be evidence that superior firm performance does not explain the relation.

In Table A.6 we repeat our primary analysis on CEO departures, CEO total compensation and the percentage of CEO compensation that is equity based using the subsample of poorly performing firms. The regressions in Panel A examine firms with negative industry-adjusted stock returns (using two-digit SIC industry definitions) and those in Panel B examine firms with negative industry-adjusted ROA. In both panels, our primary results hold. Thus, while some firms may rely on firm performance when selecting peers, the evidence in Table VI indicates that firms also consider more than firm performance and suggests executive talent is an important component.

A.2 Entrenched CEOs

Entrenched CEOs may be better able to leverage signals of marketability to increase their compensation. Alternatively, if the relation between CEO compensation and peer citations primarily reflects increased labor market efficiency then we expect weaker results for entrenched CEOs, as they are likely less willing to move and relinquish their entrenched position. Using the E-Index as a proxy for CEO entrenchment (Bebchuk, Cohen, and Ferrell (2009)), in Table A.7 we repeat our main

analyses conditioning on the level of CEO entrenchment. We add an indicator that equals one if the firm has an E-Index above the sample median and is zero otherwise, and we interact this indicator with our main peer citations measure. Across the three models, we continue to find positive relations between peer citations and CEO departure, total compensation and equity-based compensation. The interaction terms, however, reveal no evidence of a stronger effect for entrenched CEOs. In fact, Model 3 reveals a weaker relation for equity-based pay when the CEO is more entrenched. These findings are more consistent with greater labor market efficiency than with opportunistic behavior by entrenched CEOs.

A.3 Endogenous Peer Selection: Reverse causality and highly paid CEOs

Another possible concern with our results is that firms are choosing to cite firms with highly paid executives or are simply citing larger firms as peers. While our primary analysis addresses this concern with lagged peer citations, in this section we address this concern by directly accounting for citations driven by firm size and high CEO pay.

To account for these effects, we first estimate a determinants model explaining the number of compensation peer citations a firm might expect to receive. Specifically, we control for firm size and a measure of CEO abnormal pay. We calculate abnormal pay by subtracting estimates of expected pay (from the compensation regression in Table VI, excluding peer citation variables) from CEOs' actual pay. This model estimates the number of peer citations likely caused by firm size and CEO compensation. We estimate abnormal peer citations as the number of peer citations less the estimated number of peer citations from this model, which should result in citations motived by the identification of managerial talent. In Table A.8 we report results from our three primary tests using this measure of abnormal peer citations. We continue to find strong evidence that abnormal peer citations are positively and significantly associated with the likelihood of CEO departure, CEO total compensation, and the portion of equity-based pay.

To examine these possibilities further, in unreported analysis we evaluate the effect of peer

citations in a sub-sample of firms where the CEO receives abnormally low pay and a sub-sample of small firms (total market value in the bottom tercile). We find that the results continue to hold in these sub-samples. Together these results suggest that our primary findings do not merely reflect the fact that higher paid CEOs or CEOs of larger firms attract more citations from other firms.

A.4 Local Citations

If compensation peer citations reflect outside opportunities, we would expect them to affect a CEO's labor market power more if they represent opportunities that are more attractive. The stronger effect associated with citations by larger firms suggests this is the case. Likewise, one might expect opportunities at local firms to be more attractive to CEOs, and thus expect the citations of local firms to be a stronger indicator of their labor market power. In Table A.9, we separate the peer citations measure by whether or not the citing firms are within 150 miles of the cited firm's headquarters. F-tests reveal that peer citations by local firms have a significantly stronger relation than those of non-local firms to CEO departure rates and total compensation. These results are consistent with the disclosure rule increasing CEO labor market efficiency.

A.5 Talented CEOs

If the disclosure of compensation peers represents the breadth of possible outside opportunities, we would expect this information to be more important for the outcomes of more talented CEOs. CEOs who have signaled high ability should therefore benefit the most from greater peer citations by outside firms. To test this, we proxy for CEO talent with positive abnormal past firm performance. Specifically, we identify abnormal performance as the firm's past stock return measured relative to the industry median return (Fee and Hadlock, 2003; Rajgopal, Shevlin, and Zamora, 2006).[31] Then we create an indicator variable that equals one if the abnormal performance is positive and is zero otherwise. CEOs in firms with a positive abnormal return should experience a stronger effect relative to other CEOs. In

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[31] Our results are robust to the use of accounting measures of the firm's performance.

Table A.10 we report results incorporating this measure and its interaction with peer citations. In Model 1, we find that CEOs who are more talented are less likely to leave their firms, as evident from the significantly negative coefficient estimate on the positive abnormal performance indicator. The insignificant coefficient on the interaction term indicates that the number of compensation peer citations does not affect this relation. However, in Models 2 and 3, the compensation regressions, the interaction terms are positive and significant, suggesting that CEOs that are more talented benefit even more when the market signals that they have more outside opportunities.

Table A.1. Additional Control: Median Peer Pay

This table presents results from regression analysis of various dependent variables on compensation peer citations. The data are for fiscal years 2006 to 2011 and excludes financial and utility firms. The dependent variable in the first two models is one if a CEO departure occurred during the fiscal year and zero otherwise. The dependent variable in the last two models is the natural logarithm of CEO total compensation, which consists of salary, bonus, the Black-Scholes value of option grants, restricted stock grants, long-term incentive payments and other annual compensation (*tdc1* in ExecuComp). *Peer Citations* is the natural logarithm of one plus the number of times a firm is cited as a compensation peer by another S&P 1500 firm. *Median Peer Pay* is the natural logarithm of the median of total compensation of the firm's selected compensation peers. The first and second models report results from Logit regression analysis of CEO departure. The third and fourth models report results from OLS regression analysis of CEO total compensation. All control variables used in Table II are included in the logit regression analysis. All control variables used in Table IV are included in the OLS regression analysis. In all models, year and two-digit SIC industry fixed effects are included. Standard errors are robust and clustered by firm and t-statistics are in parentheses beneath the coefficients. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	Dependent Variable			
Explanatory variables	*CEO Departure* (1)	*CEO Departure* (2)	*CEO Total Comp* (3)	*CEO Total Comp* (4)
Peer Citations$_{(t-1)}$		0.251**		0.080***
		(2.32)		(2.67)
Median Peer Pay$_{(t)}$	0.089	-0.024	0.320***	0.018***
	(0.69)	(-0.16)	(3.21)	(2.84)
Other Controls	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
Observations	3,871	3,084	4,149	3,195
R-squared / Pseudo	0.049	0.059	0.456	0.447

Table A.2. Compensation Consultant Use

This table presents results from the main regression analysis of Tables IV and V, examining CEO total compensation and CEO % Equity Compensation. The data are for fiscal years 2006 to 2011 and excludes financial and utility firms. The dependent variable in the first four models is one if a CEO departure occurred during the fiscal year and zero otherwise. The dependent variable in Models 1-4 is the natural logarithm of the total compensation, which consists of salary, bonus, the Black-Scholes value of option grants, restricted stock grants, long-term incentive payments and other annual compensation (*tdc1* in ExecuComp). The dependent variable in Models 5-6 is the percentage of total CEO compensation that is equity compensation, stock options and restricted stock grants, received by the CEO in the fiscal year. *Peer Citations* is the natural logarithm of one plus the number of times a firm is cited as a compensation peer by another S&P 1500 firm. *Consultant Used* is an indicator variable that equals one if the firm used a compensation consultant. *Consultant provided other services* is an indicator variable that equals one if the firm used an compensation consultant and the consultant also provided other services to the firm. *Consultant retained by the board* is an indicator variable that equals one if the firm used a compensation consultant and the consultant was retained by the board rather than management. All control variables are the same as in Tables IV and V. In all models, year and two-digit SIC industry fixed effects are included. Standard errors are robust and clustered by firm and t-statistics are in parentheses beneath the coefficients. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	Dependent Variable							
	CEO Total Compensation				% Equity Compensation			
Explanatory variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Peer Citations$_{(t-1)}$	0.081***	0.088***	0.084***	0.080***	0.025***	0.028***	0.026***	0.025***
	(3.52)	(3.86)	(3.65)	(3.51)	(2.61)	(2.90)	(2.72)	(2.61)
Consultant Used$_{(t)}$	0.188***			0.196***	0.055***			0.070***
	(3.64)			(2.71)	(3.46)			(2.96)
Consultant provided other services$_{(t)}$		0.120***		0.050		0.013		-0.011
		(2.90)		(1.06)		(1.57)		(-0.77)
Consultant retained by the board$_{(t)}$			0.152***	-0.031			0.044***	-0.011
			(3.27)	(-0.53)			(3.01)	(-0.57)
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5,115	5,115	5,115	5,115	5,106	5,106	5,106	5,106
R-squared / Pseudo	0.4683	0.4660	0.4672	0.4686	0.3645	0.3551	0.3613	0.3649

Table A.3. Alternative Citation Measure: Number of Peer Citations Excluding Interlocking Citations

This table presents results from regression analysis of various dependent variables on an alternative measure of compensation peer citations. *Peer Citations – Interlocking Citations* is the natural logarithm of one plus the number of compensation peer citations minus the number of interlocking citations between the cited firm and citing firms. The data are for fiscal years 2006 to 2011 and excludes financial and utility firms. The dependent variable in the first model is one if a CEO departure occurred during the fiscal year and zero otherwise. The dependent variable in the second model is the natural logarithm of CEO total compensation, which consists of salary, bonus, the Black-Scholes value of option grants, restricted stock grants, long-term incentive payments and other annual compensation (*tdc1* in ExecuComp). The dependent variable in the third model is the percentage of total CEO compensation that is equity compensation, stock options and restricted stock grants, received by the CEO in the fiscal year. The first model reports results from Logit regression analysis of CEO departure. The second model reports results from OLS regression analysis of CEO total compensation. The third model reports results from Tobit regression analysis of CEO equity compensation. All control variables used in Table II are included in the logit regression analysis. All control variables used in Table IV are included in the OLS and Tobit analyses. In Logit and Tobit models, year and two-digit SIC industry fixed effects are included. In OLS models, year and firm fixed effects are included. Standard errors are robust and clustered by firm and t-statistics are in parentheses beneath the coefficients. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	Dependent Variable		
Explanatory variables	*CEO Departure (1/0)* (1)	*CEO Total Comp* (2)	*% Equity Comp* (3)
Peer Citations − Interlocking Citation $_{(t-1)}$	0.204**	0.071**	0.017**
	(2.56)	(2.13)	(2.06)
Other Controls	Yes	Yes	Yes
Industry fixed effect	Yes	No	Yes
Year fixed effect	Yes	Yes	Yes
Firm fixed effect	No	Yes	No
Observations	4,973	5,115	5,106
R-squared / Pseudo	0.035	0.403	0.365

Table A.4. Alternative Citation Measure: Number of Peer Citations & Number of Peers Chosen

This table presents results from regression analysis of various dependent variables on an alternative measure of compensation peer citations. *Peer Citations – Peer Chosen* is the natural logarithm of one plus the number of compensation peer citations minus the natural logarithm of one plus the number of compensation peers chosen by the firm. The data are for fiscal years 2006 to 2011 and excludes financial and utility firms. The dependent variable in the first model is one if a CEO departure occurred during the fiscal year and zero otherwise. The dependent variable in the second model is the natural logarithm of CEO total compensation, which consists of salary, bonus, the Black-Scholes value of option grants, restricted stock grants, long-term incentive payments and other annual compensation (*tdc1* in ExecuComp). The dependent variable in the third model is the percentage of total CEO compensation that is equity compensation, stock options and restricted stock grants, received by the CEO in the fiscal year. The first model reports results from Logit regression analysis of CEO departure. The second model reports results from OLS regression analysis of CEO total compensation. The third model reports results from Tobit regression analysis of CEO equity compensation. All control variables used in Table II are included in the logit regression analysis. All control variables used in Table IV are included in the OLS and Tobit analysis. In Logit and Tobit models, year and two-digit SIC industry fixed effects are included. In OLS models, year and firm fixed effects are included. Standard errors are robust and clustered by firm and t-statistics are in parentheses beneath the coefficients. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	Dependent Variable		
Explanatory variables	*CEO Departure (1/0)* (1)	*CEO Total Comp* (2)	*% Equity Comp* (3)
Peer Citations − Peer Chosen $_{(t-1)}$	0.111*	0.090**	0.027***
	(1.68)	(2.00)	(3.87)
Other Controls	Yes	Yes	Yes
Industry fixed effect	Yes	No	Yes
Year fixed effect	Yes	Yes	Yes
Firm fixed effect	No	Yes	No
Observations	4,921	5,096	5,081
R-squared / Pseudo	0.053	0.415	0.242

Table A.5. Peer Citations: Founder CEO Firm VS Non-Founder CEO Firm

This table presents estimated coefficients of regression analysis from various dependent variables on compensation peer citations. We match each non-founder CEO firm to a founder CEO firm in fiscal year 2006 that is in the same industry (3-digit SIC code), closest in total assets (+/- 20%), and total CEO compensation (+/- 15%). The data are for fiscal years 2006 to 2011 and exclude financial and utility firms. The dependent variable in Models 1, 3 and 5 is the natural logarithm of CEO total compensation, which consists of salary, bonus, the Black-Scholes value of option grants, restricted stock grants, long-term incentive payments and other annual compensation (*tdc1* in ExecuComp). The dependent variable in Models 2, 4, and 6 is the percentage of total CEO compensation that is equity compensation, stock options and restricted stock grants, received by the CEO in the fiscal year. *Peer Citations* is the natural logarithm of one plus the number of times a firm is cited as a compensation peer by another S&P 1500 firm. *Peer Citations by Larger (Smaller) Market Cap. Firms* is the natural logarithm of one plus the number of times a firm is cited as a compensation peer of another firm that has relatively large (small) market capitalization: # of [(Market cap. of citing firm – Market cap. of cited firm)] > (<) 0. *Peer Citations – Industry Median Peer Citations* is the natural logarithm of one plus the number of compensation peer citations minus the natural logarithm of one plus median peer citations within the same two-digit SIC industry. The first, third, and fifth models report results from OLS regression analysis of CEO total compensation. The second, fourth, and sixth models report results from Tobit regression analysis of CEO equity compensation. All control variables used in Table IV are included in OLS and Tobit analysis. Definitions of control variables are reported in Appendix. In Tobit models, year and two-digit SIC industry fixed effects are included. In OLS model, year and firm fixed effects are included. Standard errors are robust and clustered by firm and t-statistics are in parentheses beneath the coefficients. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

| | | | Dependent Variable | | | |
Explanatory variables	CEO total comp (1)	% Equity Comp (2)	CEO total comp (3)	% Equity Comp (4)	CEO total comp (5)	% Equity Comp (6)
Peer Citations$_{(t-1)}$	-0.079	0.008				
	(-0.88)	(0.33)				
Peer Citations$_{(t-1)}$ X Non-Founder CEO Firm	0.198**	0.012				
	(2.01)	(0.52)				
Peer Citations by Larger Market Cap. Firms$_{(t-1)}$			-0.102	-0.018		
			(-1.11)	(-0.64)		
Peer Citations by Smaller Market Cap. Firms$_{(t-1)}$			0.004	0.042		
			(0.19)	(0.73)		
Peer Citations by Larger Market Cap. Firms$_{(t-1)}$ X Non-Founder CEO Firm			0.198**	0.021*		
			(1.96)	(1.78)		
Peer Citations by Smaller Market Cap. Firms$_{(t-1)}$ X Non-Founder CEO Firm			-0.132	-0.019		
			(-0.97)	(-0.21)		
Peer Citations – Industry Median Peer Citations $_{(t-1)}$					-0.077	0.004
					(-0.79)	(0.01)
Peer Citations – Industry Median Peer Citations $_{(t-1)}$ X Non-Founder CEO Firm					0.209**	-0.000
					(2.01)	(-0.12)
Non-Founder CEO Firm	0.554	0.090	1.055**	0.065	0.982*	0.061
	(1.00)	(1.64)	(2.14)	(0.91)	(1.93)	(0.70)
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	No	Yes	No	Yes	No	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effect	Yes	No	Yes	No	Yes	No
Observations	1,289	1,289	1,151	1,151	1,289	1,289
R-squared / Pseudo	0.133	0.410	0.163	0.390	0.142	0.394

Table A.6. Sub sample: Negative Abnormal Performance

Panel A of this table presents results from regression analysis of various dependent variables on compensation peer citations in the sub sample of firms with negative industry-adjusted stock returns. Industry-adjusted stock returns is computed as the firm's stock return adjusted by the median return of the firms in the same two-digit SIC industry, tercile of market capitalization, and year. Panel B of this table presents results from regression analysis of various dependent variables on compensation peer citations in the sub sample of firms with negative industry-adjusted return on assets (ROA). Industry-adjusted ROA is computed as the firm's ROA adjusted by the median ROA of the firms in the same two-digit SIC industry, tercile of market capitalization, and year. The data are for fiscal years 2006 to 2011 and exclude financial and utility firms. The dependent variable in the first model is one if a CEO departure occurred during the fiscal year and zero otherwise. The dependent variable in the second model is the natural logarithm of CEO total compensation, which consists of salary, bonus, the Black-Scholes value of option grants, restricted stock grants, long-term incentive payments and other annual compensation (*tdc1* in ExecuComp). The dependent variable in the third model is the percentage of total CEO compensation that is equity compensation, stock options and restricted stock grants, received by the CEO in the fiscal year. *Peer Citations* is the natural logarithm of one plus the number of times a firm is cited as compensation peers of other S&P 1500 firms. The first model reports results from Logit regression analysis. The second model reports results from OLS regression analysis. The third model reports results from Tobit regression analysis. In the first and third models, year and two-digit SIC industry fixed effects are included. In the second model, year and firm fixed effects are included. All control variables used in Table II are included in logit regression analysis. All control variables used in Table IV are included in the OLS and Tobit analysis. Definitions of control variables are reported in the Appendix. Standard errors are robust and clustered by firm and t-statistics are in parentheses beneath the coefficients. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

Panel A: Firms with Negative Ind.-Adj. Stock Returns

	Dependent Variable		
Explanatory variables	CEO Departure (1/0) (1)	CEO Total Comp (2)	% Equity Comp (3)
Peer Citations$_{(t-1)}$	0.275**	0.142**	0.017**
	(2.42)	(2.44)	(2.12)
Other Controls	Yes	Yes	Yes
Industry fixed effect	Yes	No	Yes
Year fixed effect	Yes	Yes	Yes
Firm fixed effect	No	Yes	No
Observations	2,549	2,614	2,610
R-squared / Pseudo	0.0432	0.3272	0.345

Panel B: Firms with Negative Ind.-Adj. ROA

	Dependent Variable		
Explanatory variables	CEO Departure (1/0) (1)	CEO Total Comp (2)	% Equity Comp (3)
Peer Citations$_{(t-1)}$	0.306***	0.135*	0.027**
	(2.60)	(1.75)	(2.14)
Other Controls	Yes	Yes	Yes
Industry fixed effect	Yes	No	Yes
Year fixed effect	Yes	Yes	Yes
Firm fixed effect	No	Yes	No
Observations	2,444	2,519	2,509
R-squared / Pseudo	0.0532	0.4679	0.443

50

Table A.7 CEO Entrenchment

This table presents results from regression analysis of various dependent variables on compensation peer citations. The data are for fiscal years 2006 to 2011 and exclude financial and utility firms. The dependent variable in the first model is one if a CEO departure occurred during the fiscal year and zero otherwise. The dependent variable in the second model is the natural logarithm of CEO total compensation, which consists of salary, bonus, the Black-Scholes value of option grants, restricted stock grants, long-term incentive payments and other annual compensation (*tdc1* in ExecuComp). The dependent variable in the third model is the percentage of total CEO compensation that is equity compensation, stock options and restricted stock grants, received by the CEO in the fiscal year. *Peer Citations* is the natural logarithm of one plus the number of times a firm is cited as compensation peers of other S&P 1500 firms. *High E-Index* is the indicator variable that equals one if the index is greater than the sample median. We use the most recent E-index for missing years. The first model reports results from Logit regression analysis. The second model reports results from OLS regression analysis. The third model reports results from Tobit regression analysis. In the first and third models, year and two-digit SIC industry fixed effects are included. In the second model, year and firm fixed effects are included. All control variables used in Table II are included in logit regression analysis. All control variables used in Table II are included in the logit regression analysis. All control variables used in Table IV are included in the OLS and Tobit analysis. Standard errors are robust and clustered by firm and t-statistics are in parentheses beneath the coefficients. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	Dependent Variable		
Explanatory variables	*CEO Departure (1/0)* (1)	*CEO Total Comp* (2)	*% Equity Comp* (3)
Peer Citations $_{(t-1)}$	0.283**	0.121**	0.040***
	(2.43)	(2.35)	(2.78)
High E-Index	-0.010		0.072**
	(-0.04)		(2.07)
Peer Citations $_{(t-1)}$ *X High E-Index*	-0.036	-0.042	-0.024*
	(-0.27)	(-0.76)	(-1.74)
Other Controls	Yes	Yes	Yes
Industry fixed effect	Yes	No	Yes
Year fixed effect	Yes	Yes	Yes
Firm fixed effect	No	Yes	No
Observations	4,125	4,278	4,271
R-squared / Pseudo	0.0505	0.3790	0.463

Table A.8 Abnormal Compensation Peer Citations
This table presents results from regression analysis of various dependent variables on abnormal compensation peer citations. *Abnormal Peer Citations* is computed as the residual from the regression model of the natural logarithm of the number of compensation peer citations on the natural logarithm of the natural logarithm of firm size (Total market value) and abnormal CEO compensation. All right-hand side variables are lagged, and year and firm fixed effects are included in the model to construct the abnormal compensation peer citations. The dependent variable in the first model is one if a CEO departure occurred during the fiscal year and zero otherwise. The dependent variable in the second model is the natural logarithm of CEO total compensation, which consists of salary, bonus, the Black-Scholes value of option grants, restricted stock grants, long-term incentive payments and other annual compensation (tdc1 in ExecuComp). The dependent variable in the third model is the percentage of total CEO compensation that is equity compensation, stock options and restricted stock grants, received by the CEO in the fiscal year. The first model reports results from Logit regression analysis. The second model reports results from OLS regression analysis. The third model reports results from Tobit regression analysis. In the first and third models, year and two-digit SIC industry fixed effects are included. In the second model, year and firm fixed effects are included. All control variables used in Table II are included in logit regression analysis. All control variables used in Table IV are included in the OLS and Tobit analysis. Standard errors are robust and clustered by firm and t-statistics are in parentheses beneath the coefficients. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	Dependent Variable		
Explanatory variables	*CEO Departure (1/0)* (1)	*CEO Total Comp* (2)	*% Equity Comp* (3)
Abnormal Peer Citations$_{(t-1)}$	0.276***	0.115***	0.018**
	(3.00)	(2.98)	(1.97)
Other Controls	Yes	Yes	Yes
Industry fixed effect	Yes	No	Yes
Year fixed effect	Yes	Yes	Yes
Firm fixed effect	No	Yes	No
Observations	4,426	4,443	4,434
R-squared / Pseudo	0.0381	0.3938	0.4475

Table A.9. Local Citations

This table presents results from regression analysis of various dependent variables on an alternative measure of compensation peer citations. *Peer Citations by Local Firms* is the natural logarithm of one plus the number of times a firm is cited as a compensation peer by another S&P 1500 firm that is located within 150 miles of the cited firms' headquarters. *Peer Citations by Non Local Firms* is the natural logarithm of one plus the number of times a firm is cited as a compensation peer by another S&P 1500 firm that is located outside 150 miles of the cited firms' headquarters. The data are for fiscal years 2006 to 2011 and excludes financial and utility firms. The dependent variable in the first model is one if a CEO departure occurred during the fiscal year and zero otherwise. The dependent variable in the second model is the natural logarithm of the CEO total compensation, which consists of salary, bonus, the Black-Scholes value of option grants, restricted stock grants, long-term incentive payments and other annual compensation (*tdc1* in ExecuComp). The dependent variable in the third model is the percentage of total CEO compensation that is equity compensation, stock options and restricted stock grants, received by the CEO in the fiscal year. The first model reports results from Logit regression analysis. The second model reports results from OLS regression analysis. The third model reports results from Tobit regression analysis. In the first and third models, year and two-digit SIC industry fixed effects are included. In the second model, year and firm fixed effects are included. All control variables used in Table II are included in logit regression analysis. All control variables used in Table IV are included in the OLS and Tobit analysis. Standard errors are robust and clustered by firm and t-statistics are in parentheses beneath the coefficients. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	Dependent Variable		
Explanatory variables	*CEO Departure (1/0)* *(1)*	*CEO Total Comp* *(2)*	*% Equity Comp* *(3)*
Peer Citations by Local Firms $_{(t-1)}$	0.274***	0.084**	0.019***
	(3.12)	(2.45)	(2.73)
Peer Citations by Non Local Firms $_{(t-1)}$	0.016	0.001	0.014**
	(0.07)	(0.19)	(2.06)
Other Controls	Yes	Yes	Yes
Industry fixed effect	Yes	No	Yes
Year fixed effect	Yes	Yes	Yes
Firm fixed effect	No	Yes	No
Observations	4,528	4,631	4,667
R-squared / Pseudo	0.038	0.504	0.405

Tests of coefficients on the peer citations by local and non-local firms

Chi-Square / F test	4.59	3.01	0.28
p-value	0.0321	0.0833	0.6000

Table A.10 Talented CEOs

This table presents results from regression analysis of various dependent variables on compensation peer citations. The data are for fiscal years 2006 to 2011 and exclude financial and utility firms. The dependent variable in the first model is one if a CEO departure occurred during the fiscal year and zero otherwise. The dependent variable in the second model is the natural logarithm of CEO total compensation, which consists of salary, bonus, the Black-Scholes value of option grants, restricted stock grants, long-term incentive payments and other annual compensation (*tdc1* in ExecuComp). The dependent variable in the third model is the percentage of total CEO compensation that is equity compensation, stock options and restricted stock grants, received by the CEO in the fiscal year. *Peer Citations* is the natural logarithm of one plus the number of times a firm is cited as compensation peers of other S&P 1500 firms. *Positive Abnormal Performance* is the indicator variable that equals one if the firm's abnormal return is greater than zero. Abnormal return is calculated as the firm's stock return minus median stock return of the closest sized (Market Cap) firms in the same two-digit SIC industry. The first model reports results from Logit regression analysis. The second model reports results from OLS regression analysis. The third model reports results from Tobit regression analysis. In the first and third models, year and two-digit SIC industry fixed effects are included. All control variables used in Table II, except for the firm performance measures are included in the logit regression analysis. All control variables used in Table IV, except for the firm performance measures are included in the OLS and Tobit analysis. Standard errors are robust and clustered by firm and t-statistics are in parentheses beneath the coefficients. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

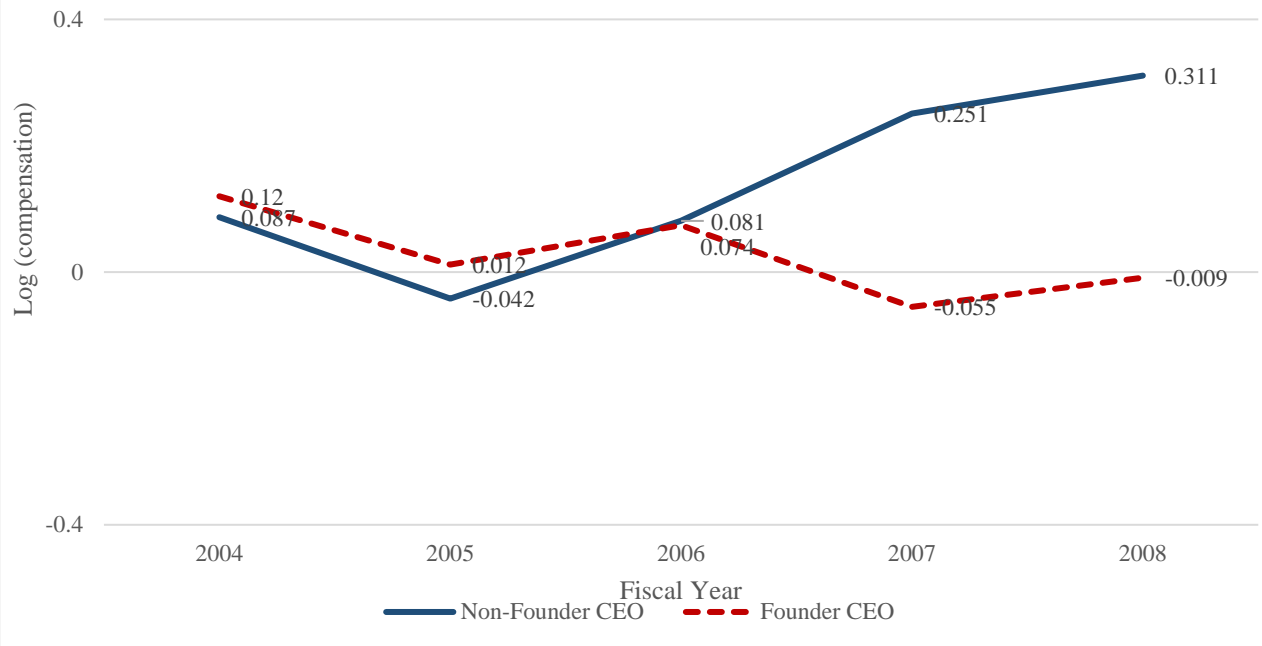|	Dependent Variable		
Explanatory variables	CEO Departure (1/0) (1)	CEO Total Comp (2)	% Equity Comp (3)
Peer Citations	0.263**	0.100**	0.008*
	(2.43)	(2.14)	(1.66)
Positive Abnormal Performance	-0.469*	0.046	-0.036*
	(-1.93)	(1.29)	(-1.80)
Peer Citations X	0.052	0.041**	0.022***
Positive Abnormal Performance	(0.45)	(2.25)	(2.63)
Other Controls	Yes	Yes	Yes
Industry fixed effect	Yes	No	Yes
Year fixed effect	Yes	Yes	Yes
Firm fixed effect	No	Yes	No
Observations	4,973	5,115	5,106
R-squared / Pseudo	0.0358	0.3918	0.3811

Figure.1 Matched Sample: Compensation-regression year fixed-effects across firms with non-founder (founder) CEOs, 2003-2008. This figure presents the value of year effects from the regression,

$$Log\ (CEO\ comp.)_{i,t} = \beta_0 + \beta_1\ NonFounder\ CEO_{i,t} + \beta_2\ Year\ Dummies_t + \beta_3\ NonFounder\ CEO_{i,t}\ X\ Year\ Dummies_t + Controls_{i,t-1;t} + \varepsilon_{i,t}$$

Table I. Firm Level Descriptive Statistics

This table reports summary statistics for various firm-year-level variables from fiscal years 2006 to 2011. Panel A reports the results for the full sample excluding finance and utility firms. Panel B reports the univariate comparison results for the sub-samples of firms that have the number of peer citations greater than the yearly median with those not. *Peer Citations* is the number of times a firm is cited as a compensation peer by another S&P 1500 firm. *Peer Citations by Larger Market Cap. Firms* is the number of times a firm is cited as a compensation peer by another firm that has relatively large market capitalization: # of [(Market cap. of citing firm – Market cap. of cited firm)] > 0. *Peer Citations by Smaller Market Cap. Firms* is the number of times a firm is cited as a compensation peer by another firm that has relatively small market capitalization: # of [(Market cap. of citing firm – Market cap. of cited firm)] < 0. *Peer Citations by Same SIC2 firms* is the number of times a firm is cited as a compensation peer by another firm in the same two-digit SIC industry. *Peer Citations by Different SIC2 firms* is the number of times a firm is cited as a compensation peer by another firm in the different two-digit SIC industry. *Peer Citations by Local Firms* is the number of times a firm is cited as a compensation peer by another S&P 1500 firm that is located within 150 miles of the cited firms headquarter. *Peer Citations by Non-Local Firms* is the number of times a firm is cited as a compensation peer by another S&P 1500 firm that is not located within 150 miles of the cited firms headquarter. *Peer Citations – Number of Peers Chosen* is the number of Compensation peer citations minus the number of compensation peers that the cited firm reported. *Peer Citations – Industry Median Peer Citations* is the number of Compensation peer citations minus median peer citations within the same two-digit SIC industry. *Peer Citations – Interlocking Citations* is the number of Compensation peer citations minus the number of interlocking citations between cited firms and citing firms. *Consultant used* is the number of times a firm is cited as a compensation peer by another S&P 1500 firm that uses the one or more same compensation consultants that the cited firm uses. *Peer Citations by Firm with Same Consultant* is the number of times a firm is cited as a compensation peer by another S&P 1500 firm that uses the one or more same compensation consultants that the cited firm uses. *Peer Citations by Firm with Different Consultant* is the number of times a firm is cited as a compensation peer by another S&P 1500 firm that does not use compensation consultants that the cited firm uses. Definitions of all other variables are in the Appendix. A T-test (Wilcoxon Test) is used to test the difference in each of the means for the two sub groups. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

Panel A: Summary of Main Variables

Variables	N	Mean	Std. Dev	1%	25%	Median	75%	99%
Total Market Value ($ millions)	5,364	12,693	35278	190	1,149	2,885	8,951	207,127
ROA	5,364	0.142	0.088	-0.119	0.094	0.136	0.188	0.399
Annual Stock Return	5,364	0.077	1.434	-3.127	-0.238	0.038	0.338	3.489
Leverage	5,364	0.196	0.163	0	0.041	0.183	0.300	0.638
Market-to-Book	5,364	3.473	9.978	0.448	1.455	2.200	3.439	19.24
Volatility	5,364	0.103	0.132	0.010	0.037	0.065	0.121	0.585
CEO Tenure	5,364	7.162	7.073	1	2	5	10	32
CEO Ownership	5,364	0.030	0.051	0.000	0.006	0.012	0.026	0.258
CEO age (> 60)	5,364	0.599	0.490	0	0	1	1	1
CEO Total Compensation ($1000)	5,364	5,459	5,185	325	1,919	3,789	7,048	25,183
CEO % Equity Compensation (%)	5,364	0.461	0.257	0	0.303	0.512	0.655	0.909
Consultant Used	5,364	0.600	0.501	0	0	1	1	1
Compensation Peers	5,364	7.634	9.387	0	0	1	14	34
Peer Citations	5,364	6.682	6.747	0	1	5	10	30
Peer Citations by Larger Market Cap. Firms	5,364	3.166	3.060	0	1	2	5	14
Peer Citations by Smaller Market Cap. Firms	5,364	4.431	5.249	0	1	3	6	23
Peer Citations by Same SIC2 Firms	5,364	3.538	3.492	0	1	2	5	15
Peer Citations by Different SIC2 Firms	5,364	4.097	5.255	0	1	2	5	24
Peer Citations by Local Firms	5,364	1.261	2.022	0	0	1	2	9
Peer Citations by Non-Local Firms	5,364	6.274	5.797	0	2	5	9	26
Peer Citations – Number of Peers Chosen	5,364	-0.663	9.970	-28	-7	1	5	23
Peer Citations – Industry Median Peer Citations	5,364	3.351	6.551	-6	-1	2	6	25
Peer Citations – Interlocking Citations	5,364	5.735	5.147	0	1	4	9	24
Peer Citations by Firm with Same Consultant	5,364	0.840	1.829	0	0	0	1	9
Peer Citations by Firm with different Consultant	5,364	7.210	6.103	0	2	5	10	27

Table I. Firm Level Descriptive Statistics (continued)

Panel B: Univariate Test

Variables	Peer Citations > Median			Peer Citations < Median			Mean Difference	t-stat
	Mean	Std. Dev	Median	Mean	Std. Dev	Median		
Total Market Value ($ millions)	10,686	9,895	6,123	3,200	5,413	1,259	7,486***	(33.01)
ROA	0.151	0.087	0.148	0.130	0.104	0.125	0.022***	(8.44)
Annual Stock Return	0.143	0.801	0.096	0.149	0.866	0.060	-0.006	(-0.06)
Leverage	0.214	0.162	0.202	0.197	0.198	0.165	0.017	(1.82)
Market-to-Book	1.548	0.963	1.274	1.482	1.086	1.138	0.066*	(2.18)
CEO Tenure	7.446	6.752	6	8.823	8.395	6	-1.377***	(-4.98)
CEO Total Compensation ($1000)	7,647	6,532	5,810	3,563	4,241	2,291	4,084***	(26.74)
CEO % Equity Compensation (%)	0.521	0.234	0.567	0.396	0.265	0.435	0.125***	(18.64)
Consultant Used	0.782	0.448	1	0.413	0.567	0	0.369***	(29.88)

Table II. Difference-in-Differences Analysis around Exogenous Compensation Peer Disclosure Rule

This table presents the difference-in-differences regression estimates. Treatment firms are those with a non-founder CEO. Control firms are those with a founder CEO. We match each non-founder CEO firm to a founder CEO firm in fiscal year 2006 that is in the same industry (three-digit SIC code), closest in total assets (+/- 20%), and total CEO compensation (+/- 15%). We restrict our sample to include only firms with at least one compensation peer citation in fiscal year 2006 through 2008. Panel A presents results from OLS regression analysis of CEO total compensation. The dependent variable is the natural logarithm of CEO total compensation (*tdc1* in ExecuComp). Following the 2006 executive compensation reporting requirements (FAS 123R), the definition of total compensation (*tdc1* in ExecuComp) is slightly revised. To increase comparability of data across the pre-2006 and post-2006 periods, we adjust the measure of total compensation for the pre-2006 period following prior studies (Walker, 2011; Focke, Maug, Niessen-Ruenzi, 2017). CEO total compensation for the pre-2006 period is recomputed as (*tdc1 – litp*) + (*the firm's end-year stock price (t-1)* x *shrtarg (t-1)*). For the post-2006 period, *tdc1* is used as CEO total compensation. Panel B presents results from OLS regression analysis of CEO equity compensation. In Panel B the dependent variable is the percentage of total CEO compensation that is equity-based, stock options and restricted stock grants, received by the CEO. A comparable equity-based compensation for the pre-2006 period is calculated by *rstkgrnt* + (*the firm's end-year stock price (t-1)* x *shrtarg (t-1)*) + *option_awards_blk_value*. For the post-2006 period, (*stock_awards_fv* + *option_awards_fv*) is used as CEO total equity compensation. In the OLS analysis, controls variables used in Table IV are included while the variable of the compensation consultant is omitted since the consultant data is not available in the pre-disclosure period. Panel C presents results from the linear probability model (LPM) of CEO departure. We exclude firms with a CEO who is 65 years-old or older. The dependent variable is one if a CEO departure occurred during the fiscal year and zero otherwise. All control variables used in Table II are included in the LPM regression analysis. In all models of panels, A, B and C, year and firm effects are included. *Post-Disclosure (1-Year)* is the indicator variable that equals one if the observation occurs in fiscal year 2007 and is 0 if the observation occurs in fiscal year 2005. *Post-Disclosure (2-Years)* is the indicator variable that equals one in the two years following the 2006 SEC new-disclosure rule and zero in the two years prior to the disclosure rule. *Post-Disclosure (3-Years)* is the indicator variable that equals one in the three years following the 2006 SEC new-disclosure rule and zero in the three years prior to the disclosure rule. In all specifications, fiscal year 2006 is excluded. Standard errors are robust and clustered by firm and t-statistics are in parentheses beneath the coefficients. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

Panel A: CEO Total Pay	Dependent Variable: CEO Total Compensation		
Explanatory variables	*(1)*	*(2)*	*(3)*
Post-Disclosure (1-Year)	-0.081		
	(-0.69)		
Non-Founder CEO Firm X Post-Disclosure (1-Year)	0.363***		
	(2.76)		
Post-Disclosure (2-Years)		-0.099	
		(-0.93)	
Non-Founder CEO Firm X Post-Disclosure (2-Years)		0.253***	
		(2.59)	
Post-Disclosure (3-Years)			0.018
			(0.17)
Non-Founder CEO Firm X Post-Disclosure (3-Years)			0.234***
			(2.62)
Other Controls	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
Firm fixed effect	Yes	Yes	Yes
Observations	379	840	1,217
R-squared	0.226	0.298	0.318

Table II. Difference-in-Differences Analysis around Exogenous Compensation Peer Disclosure Rule (continued)

Panel B: CEO Total % Equity	Dependent Variable: CEO Total % Equity Compensation		
Explanatory variables	*(1)*	*(2)*	*(3)*
Post-Disclosure (1-Year)	-0.065		
	(-1.55)		
Non-Founder CEO Firm X Post-Disclosure (1-Year)	0.100*		
	(1.68)		
Post-Disclosure (2-Years)		-0.080*	
		(-1.94)	
Non-Founder CEO Firm X Post-Disclosure (2-Years)		0.120***	
		(2.64)	
Post-Disclosure (3-Years)			-0.100**
			(-2.11)
Non-Founder CEO Firm X Post-Disclosure (3-Years)			0.098**
			(2.46)
Other Controls	*Yes*	*Yes*	*Yes*
Year fixed effect	*Yes*	*Yes*	*Yes*
Firm fixed effect	*Yes*	*Yes*	*Yes*
Observations	*381*	*738*	*1,167*
R-squared	0.155	0.097	0.078

Panel C: CEO Departure	Dependent Variable: CEO Departure (1/0)		
Explanatory variables	*(1)*	*(2)*	*(3)*
Post-Disclosure (1-Year)	-0.029		
	(-0.80)		
Non-Founder CEO Firm X Post-Disclosure (1-Year)	0.036*		
	(1.85)		
Post-Disclosure (2-Years)		-0.014	
		(-1.03)	
Non-Founder CEO Firm X Post-Disclosure (2-Years)		0.052**	
		(2.18)	
Post-Disclosure (3-Years)			-0.017
			(-1.38)
Non-Founder CEO Firm X Post-Disclosure (3-Years)			0.051**
			(2.37)
Other Controls	*Yes*	*Yes*	*Yes*
Year fixed effect	*Yes*	*Yes*	*Yes*
Firm fixed effect	*Yes*	*Yes*	*Yes*
Observations	320	627	805
R-squared	0.039	0.065	0.065

Table III. Difference-in-Differences Analysis of Small Firms, Insider CEOs and Surprise Citations

This table presents difference-in-difference regression estimates using three different types of firms with greater sensitivity to increases in labor market transparency. Panel A reports results examining small firms. *Small firm* is the indicator variable that equals one if the firm has total market value in the bottom tercile and zero if the firm has total market value in the top tercile. We match each small firm to a large firm in the same industry (3-digit SIC code) and in the same fiscal year. Panel B reports results examining firms with insider CEOS. *Inside Hire CEO* is an indicator variable that equals one if the CEO was hired within her current firm and zero if a CEO was hired outside. We match each insider CEO firm to an outsider CEO firm in fiscal year 2006 that is in the same industry (3-digit SIC code), closest in total assets (+/- 20%), and total CEO compensation (+/- 15%). Panel C reports results examining firms most likely to have been surprised by the number of peer citations. We define unexpected peer citations as the difference between the number of citations a firm received in 2006 less the number of firms it cited in 2006. *Firm with Over Citation* is the indicator variable that equals one if a firm is in the top tercile of unexpected citations and is equals zero if it is in the bottom tercile. We also consider firms that have fiscal year-end in December to match the period of DEF 14A filing with the SEC. *CEO total compensation* is the natural logarithm of the total compensation (*tdc1* in ExecuComp). Following the 2006 executive compensation reporting requirements (FAS 123R), the definition of total compensation (*tdc1* in ExecuComp) is slightly revised. To increase comparability of data across the pre-2006 and post-2006 periods, we adjust the measure of total compensation for the pre-2006 period following prior studies (Walker, 2011; Cole, Daniel, Naveen, 2010; Focke, Maug, Niessen-Ruenzi, 2017). CEO total compensation for the pre-2006 period is recomputed as (*tdc1 – litp*) + (*the firm's end-year stock price (t-1)* x *shrtarg (t-1)*). For the post-2006 period, *tdc1* is used as CEO total compensation. A comparable equity-based compensation for the pre-2006 period is calculated by *rstkgrnt* + (*the firm's end-year stock price (t-1)* x *shrtarg (t-1)*) + *option_awards_blk_value*. For the post-2006 period, (*stock_awards_fv* + *option_awards_fv*) is used as CEO total equity compensation. *CEO total % equity compensation* is the percentage of total CEO compensation that is equity-based, stock options and restricted stock grants, received by the CEO. *CEO departure (1/0)* is one if a CEO departure occurred during the fiscal year and zero otherwise. All models of panels, A, B and C are linear regression models, and year and firm effects are included. We restrict our sample to include only non-founder CEO firms with at least one compensation peer citation in fiscal year 2006 through 2008. We exclude firms with a CEO who is 65 years-old or older. The data is for fiscal years 2003 to 2009 and exclude financial and utility firms. *Post-Disclosure* (3-Years) is the indicator variable that equals one in the three years after the disclosure year and zero in the three years prior to the disclosure rule. We omit 2006 from the "post" period. Control variables are the same as in Table XII but are not reported for brevity. Standard errors are robust and clustered by firm and t-statistics are in parentheses beneath the coefficients. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

Panel A: Small Firms	CEO Departure (1/0)	CEO Total Compensation	CEO Total % Equity Compensation
		Non-Founder CEO firms	
Explanatory Variables	*(1)*	*(2)*	*(3)*
Post-Disclosure (3-Years)	0.023	0.098***	0.042
	(0.89)	(2.69)	(0.96)
Small firm X Post-Disclosure (3-Years)	0.079**	0.157**	0.074**
	(2.30)	(2.22)	(1.99)
Other Controls	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
Firm fixed effect	Yes	Yes	Yes
Observations	1,502	1,782	1,721
R-squared / Pseudo	0.070	0.082	0.051

Panel B: Insider CEOs	CEO Departure (1/0)	CEO Total Compensation	CEO Total % Equity Compensation
		Non-Founder CEO firms	
Explanatory Variables	*(1)*	*(2)*	*(3)*
Post-Disclosure (3-Years)	-0.055*	-0.092	-0.041
	(-1.92)	(-0.75)	(-1.10)
Inside Hire CEO X Post-Disclosure (3-Years)	0.090***	0.162**	0.026
	(2.74)	(2.44)	(1.55)
Other Controls	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
Firm fixed effect	Yes	Yes	Yes
Observations	1,964	2,312	2,233
R-squared / Pseudo	0.361	0.095	0.072

Table III. Difference-in-Differences Analysis of Small Firms, Insider CEOs and Surprise Citations (continued)

Panel C: Surprise Citations (Tercile)	CEO Departure (1/0)	CEO Total Compensation	CEO Total % Equity Compensation
	Non-Founder CEO firms		
Explanatory Variables	(1)	(2)	(3)
Post-Disclosure (3-Years)	-0.038	0.026	0.025
	(-0.83)	(0.35)	(0.99)
Firm with Over Citation X Post-Disclosure (3-Years)	0.085*	0.194**	0.062*
	(1.87)	(1.96)	(1.70)
Other Controls	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
Firm fixed effect	Yes	Yes	Yes
Observations	723	801	802
R-squared / Pseudo	0.119	0.143	0.080

Table IV. Compensation Peer Citations and Chief Executive Officer (CEO) Turnover
Panel A of this table presents results from logit regression analysis of CEO turnover based on the various measures of compensation peer citations. The data are for fiscal years 2006 to 2011 and excludes financial and utility firms. The dependent variable is one if a CEO departure occurred during the fiscal year and zero otherwise. *Peer Citations* is the natural logarithm of one plus the number of times a firm is cited as a compensation peer by another S&P 1500 firm. *Peer Citations by Larger (Smaller) Market Cap. Firms* is the natural logarithm of one plus the number of times a firm is cited as a compensation peer of another firm that has relatively large (small) market capitalization: # of [(Market cap. of citing firm – Market cap. of cited firm)] > (<) 0. *Peer Citations – Industry Median Peer Citations* is the natural logarithm of one plus the number of compensation peer citations minus the natural logarithm of one plus the median of peer citations in the same two-digit SIC industry firms. All independent variables are lagged by one year and variable definitions are reported in Appendix. Panel B shows the implied probability of turnover when peer citations are at the 25th percentile or 75th percentile. All models include year and two-digit SIC industry fixed effects. Standard errors are robust and clustered by firm and t-statistics are in parentheses beneath the coefficients. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

Panel A: Logit Regression

	Dependent variable: CEO Departure (1/0)		
Explanatory variables	(1)	(2)	(3)
Peer Citations$_{(t-1)}$	0.250***		
	(2.81)		
Peer Citations by Larger Market Cap. Firms$_{(t-1)}$		0.214***	
		(2.72)	
Peer Citations by Smaller Market Cap. Firms$_{(t-1)}$		0.066	
		(0.72)	
Peer Citations − Industry Median Citations $_{(t-1)}$			0.303***
			(3.24)
Total Market Value$_{(t-1)}$	-0.997***	-0.951***	-1.010***
	(-3.59)	(-3.42)	(-3.63)
Total Market Value$^2_{(t-1)}$	0.054***	0.053***	0.053***
	(3.50)	(3.44)	(3.46)
ROA$_{(t-1)}$	-1.238*	-1.164*	-1.182*
	(-1.77)	(-1.68)	(-1.70)
Annual Stock Return$_{(t-1)}$	-0.514***	-0.547***	-0.499***
	(-3.81)	(-3.90)	(-3.69)
Leverage$_{(t-1)}$	0.595*	0.533	0.622*
	(1.74)	(1.57)	(1.81)
Market to Book$_{(t-1)}$	0.056	0.067	0.048
	(0.87)	(1.03)	(0.75)
Volatility$_{(t-1)}$	0.060	0.032	0.077
	(0.21)	(0.10)	(0.26)
CEO Tenure$_{(t-1)}$	0.229***	0.229***	0.232***
	(3.02)	(3.03)	(3.06)
CEO Age > 60$_{(t-1)}$	0.062	0.063	0.065
	(0.57)	(0.58)	(0.60)
Number of peers$_{(t-1)}$	0.007	0.007	0.008
	(0.17)	(0.17)	(0.19)
Constant	-11.119***	-11.324***	-10.522***
	(-8.15)	(-8.20)	(-7.39)
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	4,973	4,529	4,973
Pseudo R-squared	0.0375	0.0374	0.0389

Panel B: Implied Probability

	Peer Citations	Peer Citations by Larger Market Cap. Firms	Peer Citations - Industry Median Citations
25% percentile	7.19%	7.69%	7.09%
75% percentile	9.68%	9.20%	9.26%
Difference	2.49%	1.51%	2.17%

Table V. Compensation Peer Citations and CEO Turnover: New jobs

Panel A of this table presents results from logit regression analysis of CEO turnover on the compensation peer citations in the full sample used in Table 1. The data excludes financial and utility firms. The dependent variable in this first model is a dummy variable that equals one if a departing CEO is hired by another S&P 1500 firm between fiscal year 2007 and 2014, and zero otherwise. The dependent variable in the second model is a dummy variable that equals one if a departing CEO is hired by another S&P 1500 firm as a CEO, and zero if the CEO is hired by a non-S&P 1500 firm or hired as a non-CEO executive. In the third and fourth models, the dependent variable is a dummy variable that equals one if the CEO departs for larger market capitalization firm in any role or for a larger market capitalization firm as CEO, respectively. The dependent variable in the fifth model is a dummy variable that equals one if a departing CEO is hired by a citing firm. *Peer Citations* is the natural logarithm of one plus the number of times a firm is cited as a compensation peer by another S&P 1500 firm. The control variables are the same as those used in Table II. Definitions of control variables are reported in the Appendix. In all models, year and two-digit SIC industry fixed effects are included. Number of departures is the number of CEOs who left their firms between fiscal year 2006 and 2011. Number of transitions is the instances of each transition for each model. Panel B of this table presents results from a multinomial logit regression analysis of the transitions of the departing CEOs on the compensation peer citations. Departures that are likely non-voluntary are excluded from the analysis in Panel B by excluding CEO departures from firms in the bottom quartile of industry-adjusted ROA (using the two-digit SIC industry definitions) in the prior year. The dependent variable is 0 if the CEO retired or transitioned to a non-S&P 1500 firm, 1 if the CEO transitioned to a non-citing S&P 1500 firm and 2 if the CEO transitioned to a citing S&P 1500 firm. Standard errors are robust and clustered by firm and t-statistics are in parentheses beneath the coefficients. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

Panel A: CEO departure

Dependent Variable:	Departure for another S&P 1500 firm	Departure for CEO position	Departure for larger market capitalization firm	Departure for CEO position at larger market capitalization firm	Departure for citing firm
Explanatory variables	*(1)*	*(2)*	*(3)*	*(4)*	*(5)*
Peer Citations$_{(t-1)}$	1.074***	0.774**	1.997***	2.016***	1.316***
	(3.12)	(2.21)	(2.86)	(4.73)	(2.85)
Other Controls	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes
Observations	4,968	4,968	4,968	4,968	4,968
Number of departures	527	527	527	527	527
Number of transitions	84	43	30	19	40
Pseudo R-squared	0.043	0.135	0.291	0.285	0.164

Panel B: Transitions of Departing CEOs

Dependent Variable:	Multinomial Logit (Base: Retire or Transition to non-S&P 1500 firm)	
	(1)	
Explanatory variables	*Transition to Non-Citing S&P 1500 firm*	*Transition to Citing S&P 1500 firm*
Peer Citations$_{(t-1)}$	1.143**	4.428***
	(2.12)	(4.37)
Other Controls	Yes	
Industry fixed effects	Yes	
Year fixed effects	Yes	
Observations	395	
Pseudo R-squared	0.428	

Table VI. Compensation Peer Citations and CEO Compensation

This table presents results from OLS regression analysis of CEO total compensation on the various measures of compensation peer citations. The data are for fiscal years 2006 to 2011 and excludes financial and utility firms. The dependent variable is the natural logarithm of the total compensation, which consists of salary, bonus, the Black-Scholes value of option grants, restricted stock grants, long-term incentive payments and other annual compensation (*tdc1* in ExecuComp). *Peer Citations* is the natural logarithm of one plus the number of times a firm is cited as a compensation peer by another S&P 1500 firm. *Peer Citations by Larger (Smaller) Market Cap. Firms* is the natural logarithm of one plus the number of times a firm is cited as a compensation peer of another firm that has relatively larger (smaller) market capitalization: # of [(Market cap. of citing firm – Market cap. of cited firm)] > (<) 0. *Peer Citations – Industry Median Peer Citations* is the natural logarithm of one plus the number of Compensation peer citations minus the natural logarithm of one plus median peer citations within the same SIC 2 industry. *Median Peer Pay* is the natural logarithm of the median of total compensation of the firm's selected compensation peers. All other variable definitions are reported in Appendix. In all models, year and firm fixed effects are included. Standard errors are robust and clustered by firm and t-statistics are in parentheses beneath the coefficients. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

Explanatory variables	Dependent Variable: CEO Total Compensation			
	(1)	(2)	(3)	(4)
$Peer\ Citations_{(t-1)}$	0.139***			0.087**
	(2.96)			(2.04)
$Peer\ Citations\ by\ Larger\ Market\ Cap.\ Firms_{(t-1)}$		0.067**		
		(2.33)		
$Peer\ Citations\ by\ Smaller\ Market\ Cap.\ Firms_{(t-1)}$		0.054*		
		(1.71)		
$Peer\ Citations\ -\ Industry\ Median\ Citations\ _{(t-1)}$			0.135***	
			(2.88)	
$Median\ Peer\ Pay_{(t)}$				0.093*
				(1.95)
$Total\ Market\ Value_{(t)}$	0.568***	0.580***	0.568***	0.155
	(3.17)	(3.23)	(3.17)	(0.55)
$Total\ Market\ Value^2_{(t)}$	-0.016	-0.016	-0.016	0.010
	(-1.37)	(-1.39)	(-1.36)	(0.55)
$ROA_{(t)}$	0.541**	0.531**	0.542**	0.832***
	(2.39)	(2.35)	(2.39)	(2.78)
$ROA_{(t-1)}$	0.077	0.099	0.077	-0.349
	(0.37)	(0.48)	(0.37)	(-1.38)
$Annual\ Stock\ Return_{(t)}$	0.030	0.026	0.030	0.014
	(1.04)	(0.92)	(1.03)	(0.41)
$Annual\ Stock\ Return_{(t-1)}$	0.161***	0.158***	0.160***	0.107***
	(4.95)	(4.35)	(4.94)	(3.82)
$Leverage_{(t-1)}$	-0.382**	-0.379**	-0.381**	-0.127
	(-2.52)	(-2.46)	(-2.51)	(-0.76)
$Market\ to\ Book_{(t-1)}$	-0.081	-0.083*	-0.081	0.025
	(-1.63)	(-1.65)	(-1.64)	(0.81)
$Volatility_{(t)}$	0.234***	0.218**	0.234***	0.195*
	(2.69)	(2.43)	(2.68)	(1.75)
$S\&P\ 500_{(t)}$	0.053	0.058	0.053	0.042
	(0.36)	(0.39)	(0.37)	(0.43)
$CEO\ Tenure_{(t)}$	0.048*	0.048*	0.048*	-0.009
	(1.69)	(1.68)	(1.68)	(-0.33)
$CEO\ Age > 60_{(t)}$	-0.018	-0.018	-0.018	-0.011
	(-0.84)	(-0.82)	(-0.84)	(-0.44)
$CEO\ Ownership_{(t)}$	-2.289*	-2.325*	-2.288*	-0.841
	(-1.76)	(-1.78)	(-1.76)	(-1.25)
$Consultant\ Used_{(t)}$	0.074	0.070	0.074	0.068
	(0.89)	(0.84)	(0.89)	(0.73)
$Number\ of\ peers_{(t-1)}$	0.015	0.016	0.015	0.004
	(0.55)	(0.57)	(0.55)	(0.17)
Constant	4.546***	4.577***	4.785***	5.302***
	(6.31)	(6.33)	(6.60)	(4.95)
Year fixed effect	Yes	Yes	Yes	Yes
Firm fixed effect	Yes	Yes	Yes	Yes
Observations	5,115	4,629	5,115	3,195
R-squared	0.3804	0.3840	0.3820	0.3747

Table VII. CEO Compensation Structure

This table presents results from regression analysis of CEO compensation composition based on the various measures of compensation peer citations. The data are for fiscal years 2006 to 2011 and excludes financial and utility firms. *Total Cash Comp* is the natural logarithm of the total CEO compensation that includes salary, and bonus, received by the CEO in the fiscal year. *Total Equity Comp* is the natural logarithm of the total CEO compensation that is equity compensation, stock options and restricted stock grants, received by the CEO in the fiscal year. *% Equity Comp* is the percentage of total CEO compensation that is equity compensation, stock options and restricted stock grants, received by the CEO in the fiscal year. *Peer Citations* is the natural logarithm of one plus the number of times a firm is cited as a compensation peer by another S&P 1500 firm. *Peer Citations by Larger (Smaller) Market Cap. Firms* is the natural logarithm of one plus the number of times a firm is cited as a compensation peer of another firm that has relatively large (small) market capitalization: # of [(Market cap. of citing firm – Market cap. of cited firm)] > (<) 0. *Peer Citations – Industry Median Peer Citations* is the natural logarithm of one plus the number of compensation peer citations minus the natural logarithm of one plus the median peer citations within the same two-digit SIC industry. *Median Peer Pay* is the natural logarithm of the median of total compensation of the firm's selected compensation peers. All other variable definitions are reported in Appendix. The first and second models report results from OLS regression analysis controlling for year and firm fixed effects. The models 3 through 6 report result from Tobit regression analysis controlling for year and two-digit SIC industry fixed effects. Standard errors are robust and clustered by firm and t-statistics are in parentheses beneath the coefficients. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

Explanatory variables	Dependent Variable					
	Total Cash Comp (1)	Total Equity Comp (2)	% Equity Comp (3)	% Equity Comp (4)	% Equity Comp (5)	% Equity Comp (6)
$Peer\ Citations_{(t-1)}$	0.063	0.266**	0.021**			0.025**
	(1.56)	(2.17)	(2.21)			(2.17)
$Peer\ Citations\ by\ Larger\ Market\ Cap.\ Firm_{(t-1)}$				0.020**		
				(2.20)		
$Peer\ Citations\ by\ Smaller\ Market\ Cap.\ Firm_{(t-1)}$				0.007		
				(0.88)		
$Peer\ Citations - Industry\ Median\ Citations_{(t-1)}$					0.023**	
					(2.36)	
$Median\ Peer\ Pay_{(t)}$						0.009
						(0.59)
$Total\ Market\ Value_{(t)}$	0.137	1.181*	0.136***	0.142***	0.137***	0.109**
	(0.68)	(1.74)	(3.56)	(3.96)	(3.59)	(2.37)
$Total\ Market\ Value^2_{(t)}$	-0.001	-0.043	-0.007***	-0.007***	-0.007***	-0.006**
	(-0.07)	(-1.07)	(-3.01)	(-3.31)	(-3.05)	(-2.19)
$ROA_{(t)}$	0.429***	-0.878	-0.548***	-0.515***	-0.546***	-0.410***
	(2.63)	(-1.05)	(-6.58)	(-6.61)	(-6.58)	(-3.78)
$ROA_{(t-1)}$	0.467***	1.369*	0.144*	0.143*	0.148*	0.190*
	(2.59)	(1.67)	(1.80)	(1.91)	(1.86)	(1.80)
$Annual\ Stock\ Return_{(t)}$	0.011	-0.118	-0.032***	-0.036***	-0.032***	-0.044***
	(0.41)	(-1.04)	(-2.77)	(-3.22)	(-2.75)	(-3.04)
$Annual\ Stock\ Return_{(t-1)}$	0.044*	0.141	0.004	0.009	0.004	0.008
	(1.71)	(1.34)	(0.31)	(0.81)	(0.39)	(0.64)
$Leverage_{(t-1)}$	-0.165	-0.806	-0.023	-0.017	-0.023	-0.014
	(-1.23)	(-1.56)	(-0.60)	(-0.45)	(-0.59)	(-0.27)
$Market\ to\ Book_{(t-1)}$	-0.073*	-0.053	0.020**	0.018**	0.019**	0.019
	(-1.83)	(-0.65)	(2.05)	(2.00)	(1.98)	(1.58)
$Volatility_{(t)}$	0.083	0.509	-0.033	-0.030	-0.031	-0.036
	(1.37)	(1.20)	(-0.68)	(-0.64)	(-0.63)	(-0.54)
$S\&P\ 500_{(t)}$	0.056	-0.160	0.041**	0.038**	0.040**	0.048**
	(0.83)	(-0.48)	(2.02)	(1.97)	(2.01)	(2.14)
$CEO\ Tenure_{(t)}$	0.070**	-0.263***	-0.022**	-0.022***	-0.022**	-0.019*
	(2.46)	(-2.93)	(-2.54)	(-2.71)	(-2.52)	(-1.94)
$CEO\ Age > 60_{(t)}$	-0.027*	-0.091	-0.020**	-0.021**	-0.020**	-0.028**
	(-1.69)	(-1.20)	(-2.16)	(-2.29)	(-2.12)	(-2.52)
$CEO\ Ownership_{(t)}$	-2.101*	-1.615	-0.796***	-0.818***	-0.798***	-0.538*
	(-1.88)	(-0.73)	(-4.30)	(-4.47)	(-4.32)	(-1.80)
$Consultant\ Used_{(t)}$	0.009	0.194	0.054***	0.050***	0.054***	0.029
	(0.17)	(0.82)	(3.24)	(3.19)	(3.27)	(1.49)
	0.001	0.035	0.021***	0.021***	0.021***	0.013**
$Number\ of\ peers_{(t-1)}$						
	(0.12)	(0.68)	(4.97)	(5.10)	(5.01)	(2.33)
$Constant$	5.447***	0.561	0.067	0.026	0.102	0.062
	(8.23)	(0.19)	(0.39)	(0.16)	(0.58)	(0.32)
Industry fixed effect	No	No	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effect	Yes	Yes	No	No	No	No
Observations	5,119	5,119	5,106	4,678	5,106	3,190
R-squared / Pseudo	0.1377	0.1711	0.383	0.367	0.384	0.531

Table VIII. Peer Citations by Firms with the Same or Different Compensation Consultant

This table presents results from regression analysis of various dependent variables on compensation peer citations. The data are for fiscal years 2006 to 2011 and exclude financial and utility firms. *Peer Citation by Firm with Same Consultant* is the natural logarithm of one plus the number of times a firm is cited as a compensation peer by another S&P 1500 firm that uses the one or more same compensation consultants that the cited firm uses. *Peer Citation by Firm with Different Consultant* is the natural logarithm of one plus the number of times a firm is cited as a compensation peer by another S&P 1500 firm that does not use compensation consultants that the cited firm uses. The dependent variable in the first model is one if a CEO departure occurred during the fiscal year and zero otherwise. The dependent variable in the second model is the natural logarithm of CEO total compensation, which consists of salary, bonus, the Black-Scholes value of option grants, restricted stock grants, long-term incentive payments and other annual compensation (*tdc1* in ExecuComp). The dependent variable in the third model is the percentage of total CEO compensation that is equity compensation, stock options and restricted stock grants, received by the CEO in the fiscal year. The first model reports results from Logit regression analysis. The second model reports results from OLS regression analysis. The third model reports results from Tobit regression analysis. In the first and third models, year and two-digit SIC industry fixed effects are included. All control variables used in Table II, except for the firm performance measures are included in the logit regression analysis. All control variables used in Table IV, except for the firm performance measures are included in the OLS and Tobit analysis. Standard errors are robust and clustered by firm and t-statistics are in parentheses beneath the coefficients. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	Dependent Variable		
Explanatory variables	*CEO Departure (1/0)* *(1)*	*CEO Total Comp* *(2)*	*% Equity Comp* *(3)*
Peer Citations by Firm with Same Consultant	-0.125	0.052	0.016
	(-1.06)	(1.38)	(1.51)
Peer Citations by Firm with Different	0.356***	0.076**	0.025**
	(3.32)	(2.23)	(2.49)
Other Controls	Yes	Yes	Yes
Industry fixed effect	Yes	No	Yes
Year fixed effect	Yes	Yes	Yes
Firm fixed effect	No	Yes	No
Observations	4,529	4,629	4,629
R-squared / Pseudo	0.0479	0.4574	0.368

Table IX. Non-CEO Executives (Top 4 Executives)

This table presents results of regression analysis of various dependent variables on the various measures of compensation peer citations. Top four non-CEO executives are identified by pay ranking. The data are for fiscal years 2006 to 2011 and excludes financial and utility firms. The dependent variable in the first, fourth, and seventh models is one if at least one of the non-CEO executives left the firm during the fiscal year and zero otherwise. The dependent variable in the second, fifth, and eighth models is the natural logarithm of the mean of the total compensations received by the top four non-CEO executives. The dependent variable in the third, sixth, and ninth models is the mean of the percentage of total equity compensations received by the non-CEO executives in the fiscal year. *Peer Citations* is the natural logarithm of one plus the number of times a firm is cited as a compensation peer by another S&P 1500 firm. *Peer Citations by Larger (Smaller) Market Cap. Firms* is the natural logarithm of one plus the number of times a firm is cited as a compensation peer of another firm that has relatively large (small) market capitalization: # of [(Market cap. of citing firm – Market cap. of cited firm)] > (<) 0. *Peer Citations – Industry Median Peer Citations* is the natural logarithm of one plus the number of compensation peer citations minus the natural logarithm of one plus the median peer citations within the same two-digit SIC industry. The dependent variable in the first, fourth, and seventh models report results from Logit regression analysis. The second, fifth, and eighth models report results from OLS regression analysis. The third, sixth, and ninth models report results from Tobit regression analysis. In Logit and Tobit models, year and two-digit SIC industry fixed effects are included. In OLS models, year and firm fixed effects are included. All control variables used in Table II are included in the logit regression analysis. All control variables used in Table IV are included in the OLS and Tobit analysis. Definitions of control variables are reported in the Appendix. Standard errors are robust and clustered by firm and t-statistics are in parentheses beneath the coefficients. Statistical significance at the 1%, 5%, and 10% level is indicated by ***, **, and *, respectively.

	Dependent Variable								
	Non-CEO Exec Departure (1/0)	Avg. Non-CEO Exec Total Comp	Avg. % Equity Comp of Non-CEO Exec	Non-CEO Exec Departure (1/0)	Avg. Non-CEO Exec Total Comp	Avg. % Equity Comp of Non-CEO Exec	Non-CEO Exec Departure (1/0)	Avg. Non-CEO Exec Total Comp	Avg. % Equity Comp of Non-CEO Exec
Explanatory variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Peer Citations$_{(t-1)}$	0.131*	0.016	0.003						
	(1.88)	(0.88)	(1.00)						
Peer Citations by Larger Market Cap. Firms$_{(t-1)}$				0.154**	0.028**	0.006*			
				(2.08)	(2.00)	(1.66)			
Peer Citations by Smaller Market Cap. Firms$_{(t-1)}$				0.034	0.007	-0.003			
				(0.41)	(0.51)	(-0.67)			
Peer Citations − Industry Median Citations$_{(t-1)}$							0.172**	0.013	0.002
							(2.28)	(0.92)	(0.64)
Other Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Firm fixed effect	No	Yes	No	No	Yes	No	No	Yes	No
Observations	4,971	5,101	5,112	4,387	4,572	4,576	4,971	5,101	5,112
R-squared / Pseudo	0.119	0.633	0.291	0.120	0.631	0.369	0.126	0.639	0.277