Internal Managerial Promotions: Incentives, CEO Influence, and Firm Valuation

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Abstract

This paper studies the effects of internal executive promotion on senior management incentive pay, CEO influence and firm value. We identify and compare firms that designate a single executive below the CEO in a successor-incentive promotion versus firms that promote multiple insiders and conduct tournaments among internal managers for CEO promotion. Our results show that successor-incentive firms give more pay-for-performance compensation to the manager than firms with tournament-incentive promotion to compensate for the lack of competition and these firms have higher total CEO compensation. We find lower valuation for firms conducting successor-incentive promotion. Firms conducting successor-incentive promotion are also associated with lower sensitivity of CEO turnover to accounting measures of firm performance and more negative returns around acquisition announcements. These results are more significant when the CEO is not close to retirement. Together, our results suggest that tournament-incentive promotion is more efficient than successor-incentive promotion.

1.0 Introduction

A fundamental decision for corporations is the organization of their management team and the selection of the Chief Executive Officer (CEO), that is, the person who will run the firm in the future.[1] In practice, internal managerial promotion and CEO succession planning have been important for companies. Financial economists and practitioners have identified two main types of promotion methods used by firms: multiple candidates competing for a CEO succession, or a single manager groomed for succession. Further, even though all firms start with some form of tournament for CEO succession (at least implicitly), some choose to end the tournaments early by appointing one leading candidate several years prior to a planned CEO retirement while others continue the tournament among insiders until closer to CEO retirement. For example, in September 2007, the *Wall Street Journal* reported on Glaxo conducting a race among its top 3 non-CEO internal executives to replace the CEO, who planned to retire within a year. In the same month, Eastman Kodak Co. named a CEO successor to work directly with the CEO even though the CEO had no plans of retiring. These two cases illustrate two different approaches to succession planning, and they have different incentive effects for executives because tournaments promote competition among internal candidates, while a single successor promotes cooperation between the CEO and the single candidate.

In this paper, we study succession planning in firms and their effect on managerial incentives, firm valuation, and CEO entrenchment. There are several reasons why studying internal promotion is important. First, planned internal candidates are more likely to succeed a CEO, which means that internal promotion methods will directly impact the ability of firms to select effective CEOs. For

[1] Recent work such as Bertrand and Schoar (2003) find that manager fixed effects matter for a wide range of corporate decisions, such as firm investment choices and firm performance. Malmendier and Tate (2005 and 2007) show that overconfident managers can decrease firm value.

example, Cremers and Grinstein (2009) report that firm-specific experience is one of the fundamental skills of new CEOs and Parrino (1997) reports that 90% of CEOs who depart voluntarily are replaced by insiders. Second, promotion of internal managers impacts the incentive for managers to invest in firm-specific skills, to remain in the firm, and to exert effort to maximize firm value (see for example, arguments in Prendergast (1993), Fama and Jensen (1983), Murphy (1985), and Acharya, Myers, and Rajan (2009)). Third, the promotion and ranking of internal managers relative to the CEO and to one another can affect CEO incentive and power. As argued in Rajan and Wulf (2006) and Adams, Almeida and Ferreira (2005) among others, the importance of different managers within a firm impacts the relative power of the current CEO and the potential for CEO entrenchment. Thus, in addition to affecting firms' ability to hire an effective CEO and the incentives of internal managers, internal promotion impacts CEO entrenchment.

Prior work on executive promotion has focused on one promotion method without explicitly considering the other, making it difficult to compare the different promotion methods. We complement earlier work by investigating the individual managers below the CEO and simultaneously identifying firms that designate a single insider directly below the CEO and firms that promote multiple insiders in a tournament. Comparing both types of promotions allows us to study the tradeoff between promotion and pay incentives and it allows us to study the effectiveness of different promotion methods in motivating managers and minimizing CEO entrenchment. We identify the promotion method in our sample firms by estimating the likelihood of each senior executive in succeeding the CEO. We estimate this likelihood by examining each senior executive's titles, relative compensation, ownership in the firm, and whether or not the executive holds a seat on the firm's board. We then compare the relative probability of succession of each senior executive in each firm to rank internal managers and determine the promotion method in the firm.

We classify the promotion incentives used by firms based on the two types of promotion models of internal managers defined by financial economists. Lazear and Rosen (1981) describe a model where no single manager is elevated and instead multiple senior managers report directly to the CEO and compete to be promoted to CEO, thus creating competitive tournament incentives. We call this model - which is empirically studied in Kale, Reis and Venkateswaran (2008), Agrawal, Knoeber, and Tsoulouhas (2006), Cichello, Fee, Hadlock and Sonti (2008), and Bognanno (2001) - a *tournament-incentive* model. Alternatively, Vancil (1987), Cannella and Shen (2001), Fee and Hadlock (2003) and Naveen (2006) study internal promotions where a single candidate is promoted as the potential successor to the CEO. This candidate receives higher pay, may hold a distinguishing title in the firm such as Chief Operating Officer (COO), or may have a seat on the board. The chosen successor has the position and incentive to work closely with the CEO and to prepare for succession. We call this promotion method a *successor-incentive* model.

First, we study the tradeoff between implicit incentives from promotion and career and explicit incentives from compensation contracts. Consistent with the Gibbons and Murphy (1992) model that pay should be most sensitive to performance for managers facing less competition for promotion, we find that the single candidates in successor-incentive promotion firms receive a higher proportion of their pay in equity than the competing candidates in firms with tournament-incentive promotion.

Next, we study the effectiveness of the different promotion and pay incentive combinations in motivating managers by studying firm valuation and CEO entrenchment. First, successor-incentive model firms, which nominate a single insider, may decrease overall CEO power and entrenchment because of the presence of another insider who has authority over other firm insiders and who may be able to replace the CEO if necessary. Alternatively, a top executive near the CEO may not be independent enough from the CEO to effectively acquire authority in the firm and decrease CEO power,

and the higher equity compensation to the single insider in successor incentive firms may not be sufficient to induce effort. Fama and Jensen (1983) and Raheja (2005) present models where multiple insiders competing for CEO promotion increases incentives for managers to exert effort and monitor each other. These papers suggest that competition among managers, which is the result of a tournament-incentive model, will improve monitoring and decrease managerial entrenchment.

We find a negative relation between firm value and successor-incentives promotions. These results persist even after controlling for possible endogeneity in the management promotion method. Our results are consistent with arguments such as in Lazear and Rosen (1981) that a single nominated insider below the CEO creates a greater possibility of senior management entrenchment because of the lack of competition and the lack of a comparison group to evaluate the managers. To understand the results on firm value, and why firms with successor-incentive promotion are associated with lower valuation, we study firm decisions that may be associated with senior management entrenchment. First, we find that CEO turnover is less sensitive to firm performance in firms with a successor-incentive model relative to firms with a tournament-incentive model. Next, we also find that firms with successor-incentive model are associated with lower returns around acquisition announcements than firms with tournament incentives. Together, these results provide support to the hypothesis that successor-incentive promotion is associated with greater managerial entrenchment.

Our results add to the literature in several ways. First, we show that promotion considerations are an important aspect of managerial incentives and companies consider the trade-off of promotion and compensation incentives. Second, we show that higher pay incentives are not sufficient to make up for the lack of competition in successor-incentive firms. Third, our results cast doubt on the suggestion that higher CEO pay gap necessarily increases CEO entrenchment and lowers firm valuation. To the

contrary, for the moment suspending endogeneity concerns, our evidence suggests that some companies may benefit from conducting tournaments among managers that result in a higher CEO pay gap.

A potential consideration when studying internal governance choice and firm valuation is the extent to which companies chose their structure to maximize firm value and efficiency. First, if there are no transaction costs in altering managerial promotions and companies can easily find and retain talented managers then there should be no observable relation between internal managerial promotion and firm valuation (Alchian (1950), Demsetz and Lehn (1985), Coles, Lemmon, and Meschke, 2006). We argue that transaction costs in finding and retaining talented managers may cause firms to deviate from optimal promotions design. For example, unlike capital decisions such as the level of R&D expenses in the firm, companies cannot easily contract on the number of talented executives that they will hire and that will chose to remain in the firm. Further, because internal promotion is based on human considerations, companies may need to use suboptimal promotion methods (such as choosing a "winner" too early) to retain at least some of their talented managers.

We recognize that even companies with a preference for multiple executives need to select a single executive when the CEO becomes ready for retirement. Thus, as an additional test, we examine differences in firm valuation based on whether or not the CEO is under the age of 60. This allows us to consider the impact of promotion incentives in companies that most likely do not require an immediate successor for their CEO and thus have flexibility in their executive promotion. We find that the negative relation between firm value and firms with successor-incentive promotion is only significant in the cases where the CEO is under the age of 60. Thus, our results suggest that premature appointment of an heir contributes to the lower valuation in firms that implement a successor-incentive promotion. Overall, our results support the hypothesis that tournament-incentives are more efficient for the promotion of executives than successor-incentives, especially in the cases where CEO succession is not imminent.

The remainder of the paper is organized as follows. The next section describes our approach of identifying firms' promotion of internal executives. Section 3 details our data and discusses the sample summary statistics. Section 4 examines CEO and senior management compensation and its relation to the different methods of promoting managers. Section 5 studies the effects of firms employing successor incentives on firm value, CEO turnover sensitivity to firm performance, and acquisition announcements. Section 6 discusses further interpretations of the results. Section 7 concludes.

2.0 Promotion Method Identification

Papers focusing on tournaments rely on broad measures of the degree of tournament incentives across all firms. For example, Kale, Reis and Venkateswaran (2008) and Bognanno (2001) measure tournament incentive based on the pay gap between the CEO and the top executives and do not consider cases where one internal executive receives a higher pay and is closer to the CEO than the executive's peers. Naveen (2006) considers individual managers and identifies firms that have at least one executive with a title of Chief Operating Officer or President. Her concentration, however, is on successor-incentive promotion and does not compare different promotion plans.

We begin with merging the ExecuComp database with the Investor Responsibility Research Center (IRRC) data for the years of 1997 to 2002. Merging these two data sets at the firm level leaves us with 7,557 firm-year observations. From this sample we consider the top 5 executives in each firm and exclude executives who are chairpersons, CEOs, and executives over the age of 65 as they are not likely to be planned candidates to succeed the CEO and therefore are less likely influenced by promotion incentives.[2] Finally we require that executive tenure, ownership, and compensation data be available for

[2] Although, some companies list more than the top five compensated executives, many only list the required top five, so for consistency we only consider the top five highest compensated executives across all firms and exclude the others. In a few cases, only one of the top 5 executives qualified for the sample. We classified those companies as a successor-incentive

each of these executives. This leaves us with 26,907 qualifying executive-year observations for the 7,557 firm-year observations. We add accounting information to our sample by merging the firms with the Compustat database, and we add market information by merging the firms to the CRSP database. We also obtain acquisition announcements by our firms from the SDC database. When variables are missing we lose some observations. The total observations are noted in each of the subsequent tables. We employ two methods to identify the rankings and the likelihood of CEO promotion of the top executives within a firm. We consider our method's accuracy in indentifying the CEO candidates successfully by studying actual CEO successions in Table 3 discussed below.

In the first method, we conduct a logit model test where the dependent variable is whether or not the executive succeeded the CEO in the two years forward and the independent variables are executive characteristics that may affect the likelihood of the executive succeeding the CEO. We then generate a propensity score for the likelihood of each executive becoming the firm's next CEO based on the coefficients from the regression. We use the relative propensity scores to rank the executives in each firm. All executives within 10% of the highest propensity score are considered contenders. Firms with a single executive contender are classified as successor-incentive firms, and all other firms are classified as tournament-incentive firms. The tournament contenders are all the executives within 10% of the highest propensity score. We also re-test our results reported below using an 8% and 12% cutoff for executive propensity score differences and the results are qualitatively the same as the ones reported.

Our second method abstracts from executive titles and identifies the insider promotion method by focusing only on insiders' presence on the board and their relative total pay.[3] We first consider all the eligible executives who hold a board seat (55% of our firms have at least one executive on the board

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promotion. We re-ran the results excluding those cases and the results were similar to the ones presented. The alternative tables are available upon request.

[3] Our second method of classifying insiders does not require the presence of specific executive titles, which helps address the presence of multiple executives with the title of COO in some firms.

other than the CEO). If only one executive holds a board seat, then the firm is assumed to have a successor-incentive promotion model. If there are multiple executives on the board, then we identify the executive on the board with the highest total compensation and compare the percent deviation from this maximum for each compensation level of the other executives on the board (Total compensation includes salary, bonus, the Black-Scholes value of option grants, restricted stock grants, LTIP, and other annual compensation, Execucomp data item tdc1). [5] All executives on the board within 10% of the highest compensated executive on the board are considered tournament competitors. Second, if no eligible executive sits on the board then we consider the total compensation of the top 4 executives in the firm. All eligible executives within 10% of the highest compensated executive are considered tournament competitors. Therefore, a successor-incentives firm is one where 1) only one executive other than the CEO holds a seat on the board or, 2) there are multiple executives on the board, but one is much higher paid than the rest or 3) there are no executives on the board and one executive receives significantly higher compensation than all other executives. Alternatively, firms with tournament-incentives either have multiple insiders on the board that receive similar compensation, or have no qualifying insider on the board but multiple insiders are paid within 10% of the highest.

3.0 Data and Summary Statistics

3.1 Measure of Team Structure based on CEO promotion likelihood

In the first (logit) method for classifying the promotions, we indentify executive variables that may indicate the likelihood of the executive being promoted to CEO. Several studies indicate that executive compensation within a firm rises with executive rank in the hierarchy (e.g. Murphy (1985), Leonard (1990), Baker, Gibbs and Holmstrom (1994), and Gibbs (1995)). Bognanno (2001) also finds

[5] This amount includes severance payments, debt forgiveness, imputed interest, payouts for cancellation of stock options, payment for unused vacation, tax reimbursements, signing bonuses, 401K contributions and/or life insurance premiums.

that succeeding executives are the highest paid non-CEO executives in the firm for 80% of the cases in the year prior to succession. Therefore, relative compensation can be an important predictor of the future CEO. We capture this predictor by creating a compensation qualified dummy variable that equals 1 if the executive's total pay is within 10% of the highest paid executive. Next, Hermalin and Weisbach (1988) find that firms nominate executives to the board prior to CEO succession to evaluate managers and prepare them for the leadership role. We create a dummy variable equal to 1 if the executive holds a seat on the board. We also follow Naveen (2006) and Vancil (1987) and create a COO indicator that equals one if the executive holds the title of Chief Operating Officer. Cremers and Grinstein (2009) also find that most insiders promoted to CEO have a position of COO in the prior year. Finally, we include a control for the level of stock ownership held by the executive (as suggested by Boyer and Molina (2006)) and an indicator for whether or not the executive was hired within the last two years. This last indicator controls for the possibility of executives being hired with the intent of becoming the next CEO where the executive enters the firm a few months before becoming the CEO to ensure a smooth transition with the current CEO. We do not control for individual firm characteristics since we only use the results from the logit tests to compare among insiders within firms.

The results of the logit model on the likelihood of the executive succeeding the CEO and the marginal effects from the models are presented in Table 1. Model 1 includes all the executives from all sample firms, whereas model 2 only includes all the executives from the subsample of firms that experienced an internal CEO replacement within two years following the data year. The mean probability of a given firm executive succeeding the CEO is .8% in model 1 and 16.6% in model 2. The COO indicator appears to have the greatest impact, followed by the compensation and board indicators, on determining if the executive is to become the next CEO. The executive's ownership and the recent hire indicator are not significant. A COO title increases an executive's chance of becoming the next

CEO by about four times. If the executive is within 10% of the highest paid, her chance of becoming the next CEO is close to double. Executives holding a seat on the board are also twice as likely to become the next CEO relative to the average executive. We find similar likelihoods in model 2, except that greater relative compensation has a greater effect on becoming the next CEO.

We use the coefficients from the model 1 test to generate a probability score in succeeding the CEO for each executive in each of our firms, and then classify each firm as a successor-incentive model firm or a tournament-incentive firm based on the methodology outlined in the previous section. Table 2 panel A shows the distribution of tournament-incentive and successor-incentive firms for each year of our sample period. Eighteen percent of the firm-year observations have multiple executives facing tournament incentives. Panel A also shows a decreasing trend of firms with successor incentives. The frequency of firms with multiple CEO candidates in 2002 is significantly greater than that of 1997 (p-value=.02). Table 2 panel B shows the number of contenders in tournament promotion firms. The table shows that, when firms have multiple competitors, 87% of the cases involve a competition among two or three competitors.

Table 2 panel C shows the distribution of the main contender identifying factors from the logit tests presented in Table 1. For the entire sample, 55% of the firms have an executive on the board. Thus, board seat is an important determinant in our classification algorithm. However, panel C also shows a trend toward less reliance upon directorships as a distinguishing mechanism among executives. Only 46% of the firms had a candidate for CEO on the board in 2002, compared to 63% in 1997. Given the recent pressure on firms to increase outside director representation it is not surprising to find fewer inside executives on the board (see for example, evidence presented in Masulis and Mobbs (2010)). Table 2 also shows that about 1/3 of the contenders to CEO have the title of COO.

To better understand the relation between our measures of insider promotion method and the actual CEO succession outcome, we examine the cases where CEOs are replaced by internal candidates and how the executives were classified in their likelihood of promotion in the two years prior to the CEO turnover. To determine the executive's likelihood of promotion, the company needs to be included in the ExecuComp database in the 2 years prior to CEO turnover. To keep consistency with our measure, we exclude transitions where the replacing insider is either the board chair or over the age of 65.

Table 3 summarizes the internal CEO transitions within our sample of firm-year observations. This table shows that our method 1 of classifying the potential CEO successor is able to identify the correct successor in 74% of the cases (that is 319 out of 432 cases). Out of these cases, about 87% of the candidates were identified as the top executive in a successor-incentive model, and 13% were identified as one of the tournament competitors. As a comparison, we also identified executives with variations of COO in their title. There were cases where multiple executives in the firm had the title of COO. To be conservative and to consider all the possible candidates, we counted *all the executives* with COO anywhere in their title as Chief Operating Officers. In 54% of the cases the replacing executive held the COO title. If we compare our promotion classification method with the COO title method, our method was able to identify the potential successor in 20% more cases than the method of considering only executive titles.[6]

We also considered the possibility that different promotion methods have a higher likelihood of the CEO being replaced by outsiders because of the available pool of candidates in the firm. To check for this possibility, we manually examined information for each of the CEO replacement cases in our data. Overall, we found that 66.7% of the new CEO observations were insiders. We found no significant difference in the frequency of an insider replacing the CEO between tournament-incentive and successor-incentive firms.

[6] In unreported tests, of the 379 executives identified as a successor, only 26% (100) did not become the eventual CEO.

3.2 Descriptive Statistics

Table 4 presents the summary statistics for our entire firm-year sample. The full sample statistics are in the first column. The next two columns present the sample statistics for the smaller sub-samples of firms identified as tournament-incentive firms and successor-incentive firms, respectively using method one described in the previous section (The results are similar using method 2 for determining the promotion method implemented in each firm). We report the differences between the means and medians of each variable in the last column. Panel A shows firm and industry characteristics. The average firm has $11.2 billion of total assets, $4.7 billion in total sales, over 20,000 employees, and it has been trading for 23 years. Tournament firms are larger have more business segments, greater leverage and are slightly older.

The average firm has 2.7 geographic segments. The average research and development is about 3% of assets and the firms' market value is a little over 2 times the book value (as measured by Tobin's Q). Overall, there is no significant difference in these variables across firms with a single executive or with multiple executives near the top. The industry homogeneity index calculated using the methodology outlined Parrino (1997) has a mean and median of .304 and .298, respectively, for our sample period.[8] These are similar to those found in Parrino (1997) and Naveen (2006). The median industry homogeneity is not significantly different across the two types of firms; however the mean is slightly higher in tournament firms.

CEO and board characteristics are reported in panel B. The average CEO in our sample is 55 years old, has been in the position for 7 years, and 67% of the CEOs are also chairman of the board. The

[8] We use the Fama-French 49 industry definitions in our tests. For each of the industries in our sample year of 2002, we calculate an equally weighted return index using monthly returns from 1982-2002. Following Parrino (1997) if there are more than 50 firms in an industry, we take a random sample of 50 firms to generate an industry index. Next, the monthly return for each firm in the industry index is regressed on the monthly return of the index and the equally weighted market return index. We use the CRSP equally weighted return index to proxy for the market return index. Finally, we take the average across all firms in each industry of the partial correlation coefficient on the industry return index as a measure of industry homogeneity.

average CEO ownership is greater than earlier samples, 3.9% versus 1.02% in the Huson et. al. (2004) sample. Our sample includes options in the ownership figures, which may explain some of the differences. The median CEO ownership is statistically greater in successor-incentive firms. Both mean and median CEO tenure is greater in successor-incentive firms.

Board independence differs significantly across firm classifications. Tournament-incentive firms have about 67% board independence whereas single executive firms have 63% average board independence. The significant difference in board independence may be due to companies with successor-incentives nominating the top executive to the board more often than firms with multiple insiders competing to become the CEO. The average board size in our sample is 9.6 directors and does not differ significantly across classifications.

There is also a significant difference in the level of total CEO compensation across tournament-incentive and successor-incentive firms. The median CEO compensation is lower in tournament firms by about $90,000. Consistent with the prediction in Lazear and Rosen (1981), there is a significant difference in total pay gap between CEO and the highest paid CEO candidate between tournament-incentive and successor-incentive firms. We measure this pay gap as the CEO total pay minus the total pay of the highest paid CEO contender divided by the compensation of the highest paid CEO contender. In tournament firms the mean (median) CEO compensation is 141% (98%) higher than that of the highest paid eligible executive. The mean (median) CEO compensation is 87% (57%) higher than the highest paid executive in successor-incentive firms. Kale et al. (2008) measure the gap between the CEO's compensation and the median of the entire management team's compensation as proxy for tournament incentives among the executive team. As an additional check, we also measure the gap using their approach and find no significant difference between firms with successor-incentives and

those with tournament-incentives. Thus, our measure is capturing a different dimension of the executive team's tournament incentives.

Panel C describes executive level information. We report the difference in the compensation of the tournament contenders and the single executive contender across the sample firms. The mean (median) total compensation for the contenders in all firms is $3.2 million ($1.4 million). The total compensation of the contender executive in successor-incentive firms is significantly larger than the mean and median average compensation of the tournament competitors (about $1,484,000 higher mean and $407,000 higher median value) in tournament-incentive firms. Contenders in the entire sample have about 45% of their compensation as equity based, with contenders in successor-incentive firms receiving about 5% higher proportion equity compensation than the contenders in tournament-incentive firms.

Finally, we also study the gap in the total compensation between the top 4 executives in the firm excluding the CEO. The gap in total compensation between the contender and the lowest paid executive is higher in successor-incentive firms by a mean and median of 13% and 17%, respectively. The most dramatic difference between the two types of firms is in the compensation gap between the top two non-CEO executives. In successor-incentive firms the pay gap between the highest paid non-CEO executive and the second-highest paid non-CEO executive is about 21% higher than the same gap in tournament-incentive firms. This result should be interpreted with caution since our sampling method requires a difference in compensation for classification of the promotion. We further investigate compensation differences between tournament-incentive and successor-incentive firms in the next section.

4.0 CEO and Executive Compensation Differences

Lazear and Rosen (1981) predict that the higher the effort desired from employees and the greater the uncertainty associated with becoming the CEO, the greater the required prize for the

contestants. This implies that firms implementing a tournament-incentive model should experience a higher pay gap between the CEO and the contestants relative to firms with successor incentives. This higher pay gap can either come from higher CEO pay in companies that implement tournament promotions or lower pay for the contestants to the CEO. We also examine how the promotion incentive impacts the pay gap between the contestant managers and other top managers in the firm. This relative pay gap among managers is similar to the measure presented in Bebchuk et al. (2008) and Kale et al. (2008) and it is a proxy for the power of the manager relative to other managers in the firm.

Second, we examine the relation between incentive compensation and promotion incentives in the firm. As discussed in Lazear and Rosen (1981), Baker, Jensen and Murphy (1988), and Kale et al (2008) managers below the CEO can be motivated by both promotion incentives as well as equity based incentives. Promotion to the next level carries a higher pay, and thus provides an incentive for managers to exert higher effort if it increases the likelihood of promotion. Firms should adjust incentive compensation to managers based on the promotion method implemented because of differences in the incentive effects of the different promotion methods.

We use robust standard errors to account for cross-sectional heteroscedasticity in our regressions below. Furthermore, since our data are panel data, we also use clustered standard errors by firm to account for possible serial correlation within our panel. We separately capture the time-effect with year dummies in each regression.[10]

4.1 Compensation and Tournament Incentives

To study the relation between CEO pay gap and the promotion method implemented, we consider the total compensation of the CEO and of the mangers below the CEO. Total CEO compensation is measured as defined in table 4. The key dependent variables are the gap in

[10] Petersen (2008) shows that this approach is unbiased and yields correct standard errors when there is a sufficient number of clusters (we use firm clusters).

compensation between the CEO and the next highest paid eligible manager below the CEO and the natural logarithm of total CEO compensation. The primary independent variable is a binary variable that equals one if the firm is classified as a tournament-incentive firm and zero if the firm is classified as a successor-incentive firm. We control for CEO and firm characteristics that may influence CEO compensation as suggested in managerial compensation studies (for example Hallock (1997), Smith and Watts (1992), Core, Holthasen and Larker (1999), and Rose and Shepard (1994)).

Models 1 and 2 of Table 5 show the results for the pay gap tests. The pay gap in tournament-incentive firms is positive and significantly higher than the pay gap for successor-incentive firms. On average, the percentage difference in compensation between the CEO and the highest paid executive is 55 percentage points greater in tournament-incentive firms. This is consistent with previous studies that find greater pay gap between layers of management in companies that implement performance tournaments among managers (see for example, Leonard (1990), O'Reilly, Main and Wade (1993)).

Models 3 and 4 show the results for CEO compensation. The coefficient for the tournament firm indicator is negative but not significant in model 3 and negative, and marginally significant, in model 4. Thus, we find no evidence that tournament-incentive firms pay their CEOs more. Instead, we find weak evidence of greater total CEO compensation in successor-incentive firms.

Next, we examine the pay gap between the CEO contenders and top executives in the firms. The contender pay gap is estimated as the difference in the compensation between the highest paid contender and the lowest paid manager in the top management team divided by the compensation of the highest paid contender. Bebchuk et al. (2008) uses a similar measure to estimate executive power and the likelihood of managerial entrenchment. We interpret this measure as contender power in the firm.

Models 5 and 6 show a higher compensation gap in firms with successor incentive promotion.[11] Thus, the compensation results suggest that the single CEO contender in successor-incentive firms has more power relative to the rest of the management team than contenders in tournament-incentive firms. This result could be due to companies being more active in promoting the single executive once they designate a candidate, but it also suggests a higher isolation and potential for entrenchment of the single candidate in successor-incentive firms.

4.2 Promotions and Equity based incentives

Prendergast (1999) discusses the possibility that incentives from promotion methods give rise to dysfunctional behavioral responses and that companies adjust management compensation to address some of the negative responses from promotion incentives. First, a concern with tournament promotion incentives is that competition among executives decreases their incentive to work together and prevents managers from taking projects that require coordination of activities. One possibility is that companies address this concern by using compensation to give managers a common goal and increase cooperation. Companies may, therefore, use equity incentives to provide a common goal and align managerial interests on the team. This means that the contestants in tournament-promotion companies would be associated with a higher proportion of equity in their compensation structure in comparison to the contestants in successor-promotion firms.

The second possibility is that equity acts as a substitute for the lack of competition in firms with successor-incentive promotion. Lazear and Rosen (1981) show that the competition created in tournament firms increases the incentive for executives to exert effort and maximize firm value. Gibbons and Murphy (1992) argue that pay should be most sensitive to performance for workers facing

[11] To ensure this result is not driven by firms with fewer qualifying candidates, we also checked the gap in the compensation between the highest paid insider below the CEO and the fourth lowest paid insider in both tournament and single designated insider firms and excluded all firms with less then 4 qualifying executives. We have fewer observations since not all firms have 4 qualified executives. Similarly to the result reported, the gap in total pay is greater in successor-incentive firms

less competition for promotion. Under this possibility, successor-incentive firms will require more equity compensation than tournament-incentive firms to motivate their top executives and compensate for their lack of competition.

Table 6 tests these competing hypotheses. The dependent variable in Models 1 and 2 is the percentage equity compensation of the contenders. (For the tournament-incentive firms, we calculate the average percentage of equity compensation of the contenders by adding their total equity and dividing it by the total compensation of these contenders.) The coefficient for tournament-incentive firms is negative and significant at the 1% level in both models. These results support the hypothesis that successor-incentive firms compensate for the lack of competition among managers by giving a higher proportion of equity compensation to their top executive. [13]

It is possible that companies with tournament incentives provide similar pay-for-performance incentives as successor-incentive firms, but use alternative measures that would better capture the contributions of each manager to the firm. We test this possibility in Models 3 and 4 of Table 6 where the dependent variable is the average bonus and long-term incentive compensation as a percentage of the total income of the CEO contenders. We find no relation between the promotion method implemented and the bonus and long-term incentive payments. Thus, firms choosing to have tournament promotions use a lower proportion of equity compensation but do not differ in their use of bonuses or long-term-incentive payments.

In summary, the evidence in Tables 5 and 6 shows that firms with tournament incentives do not pay their CEOs more. Instead, the contenders in tournament-incentive firms receive on average less total compensation than the contenders in successor-incentive firms, which creates a larger pay gap between

[13] We note that the higher proportion of equity compensation may be also a signal that the manager is being groomed for the CEO position. While this is an additional reason for higher equity to the single-designated insider, the higher equity is still consistent with the executive receiving more pay-for-performance incentive when there is less promotion competition.

the CEO and the CEO-contenders in tournament-incentive firms. Second, when compared to the rest of the management team, the contenders in successor-incentive firms receive relatively more compensation than the contenders in tournament-incentive firms. Lastly, promotion incentives are associated with differences in pay-for-performance incentives. Contenders in a firm with successor-incentive promotion have a higher proportion of equity compensation. This result is consistent with equity being used as a substitute for the lack of competition for CEO promotion in successor-incentive firms.

5.0 Executive promotions and firm performance

The work of Bebchuk, Cremers and Peyer (2008), Rajan and Wulf (2006) and Adams, Almeida and Ferreira (2005) suggest that dual leadership created by successor-incentive firms may enhance firm performance if the CEO and the CEO-contender are able to work as a team and complement each other in running the firm. Further, an executive close to the CEO may prevent the CEO from becoming too influential because of the presence of another insider with power and authority in the firm that could replace the CEO if needed. For example, Mobbs (2010) shows that skilled insiders can serve as important potential replacements for the CEO.

Alternatively, the isolation of the CEO contender from the rest of the management team, the lack of independence of the contender from the CEO, and the lack of internal competition among managers may leave room for the dual leadership structure in successor-incentive firms to be less efficient. Further, the higher pay for performance incentive in successor incentive firms may not be sufficient to make up for less competition for promotion in these firms (Lazear and Rosen (1981)). It may also be difficult for the CEO to capture the internal managers if the firm responsibilities are divided among multiple managers as would be the case in tournament-incentive firms. For example, arguments in Fama and Jensen (1983) and models in Raheja (2005), and Harris and Raviv (2008) show that more insiders in

the board can increase information to the board and improve firm decision making (see also empirical work presented in Masulis and Mobbs (2010)). Finally, skilled managers aspiring to become the CEO may depart the firm after companies promote the single insider thus causing the companies to lose managerial talent early and losing the option of promoting a different internal manager if the single insider becomes ineffective. Together, these possibilities suggest that successor-incentive promotion will be associated with higher CEO entrenchment and lower firm valuation.[14]

To test these theories, we first examine the effects of executive promotion incentives on firm valuation. Next, we also consider firm decisions - CEO turnover and acquisition announcements - that could be associated with managerial entrenchment to understand the results on firm valuation. We test two hypotheses. First, the *dual-leadership hypothesis* predicts successor-incentive firms will be associated with higher valuation after controlling for other factors influencing performance and the choice of promotion. These firms will also have a higher sensitivity of CEO turnover to firm performance and will experience more positive market reaction around acquisition announcements because the presence of the top executive will prevent the CEO from having excessive control and entrenchment in the firm. Alternatively, the *lack of independence hypothesis* predicts that promoting a single executive early increases agency costs because of the lack of independence of the manager from the CEO, lack of competition with other managers, and less available benchmark to evaluate the top executive. Thus, the lack of independence hypothesis predicts a lower firm value, and correspondingly less CEO turnover sensitivity to firm performance and worse investment decisions in firms that implement successor-incentive promotion.

5.1 Performance tests

[14] For example, when describing management promotions at Kodak on September 25th 2007, the *Wall Street Journal* reported the departure of a senior executive (James Langley) after the company announced that Philip Faraci was being promoted to the number two position in the firm.

We study the effect of managerial promotion on Tobins'Q, approximated by the market-to-book ratio, for the firms in the sample (Tobin's Q is the market value of equity plus the book value of assets minus the book value of equity, all divided by total assets.). The key independent variable in our tests is a binary variable that equals one if the firm has a successor-incentive promotion and zero if the firm has tournament-incentive promotion. We use control variables based on the vast literature on the "determinants" of Q (e.g., Morck, Shleifer, and Vishny (1988),McConnell and Servaes (1990); Yermack, (1996); Himmelberg, Hubbard, and Palia (1999), Demsetz and Villalonga (2001), and Coles, Lemmon, and Meschke (2003)) to isolate the effect of the promotion incentive. We use the natural logarithm of firm assets, the natural logarithm of firm age, the number of business segments in the firm, leverage in the firm, an accounting measure of firm performance (return on assets), the level of research and development, capital expenditures, intangible assets and the percentage of outside directors as control variables.

In addition to the variables from previous studies, we also control for the percent equity compensation of the contenders to account for the different compensation incentives in the alternative promotion methods as presented in Tables 5 and 6. We also use an indicator variable for young CEOs that equals one if the CEO is less than 60 years of age to control for companies where CEO succession is not imminent. We exclude finance and utility firms in each of the regressions because of the likelihood of regulations influencing governance and performance. The results are qualitatively the same when including these firms.

5.1.1 Results

Table 7 shows the results of this analysis. The successor-incentive coefficient is negative and significant in Model 1 indicating that the Tobins'Q ratio for firms with a single top executive is lower by about .24 points. The predicted Tobin's Q is 2.25 if all independent variables are at their mean, which

implies that firms with successor incentives experience an average of about 10% lower valuations than those with tournament incentives. We find a similar relation using the alternative measure for promotion method in Model 2. This result is consistent with the lack of independence hypothesis which predicts a negative relation between firms with a successor incentive promotion and firm value.

5.1.2 Endogeneity and additional robustness checks

We perform a number of tests to check the robustness of our results (all the results discussed below are available upon request). First, our tests focus on the importance of the managers within a management team. While the tests above allow us to understand how internal competition and promotion incentives affect managerial incentives, they do not consider the impact of potential outside candidates on the incentives of managers. Even though successor-incentives firms have one insider that has higher influence in the firm and less competition with other potential internal candidates, the top executive may face competition from potential outside CEO candidates. Parrino (1997) finds that firms in more homogeneous industries are more likely to hire outside CEOs because it is easier to find managers with similar skills to become the CEO. Further, companies in more homogeneous industries can also be able to use the performance of managers of other firms in the industry as a benchmark to evaluate internal management performance. We test the Table 7 results adding a variable for the level of homogeneity of the industry described in Table 3 to control for the level of competition with external managers. The homogeneity variable is positive and significant on Tobin's Q, but the coefficient on the successor-incentive firms is qualitatively similar to the one reported.

Second, while the two methods of promotion of insiders studied in our paper may suggest two alternative organizational structures or promotion processes, it is important to note they may also represent two different points in the succession timeline. Companies implementing tournament incentives may for example, appoint a single successor as the CEO nears retirement. Our method studies

the relative importance of managers in each year and thus allows us to adjust for changes in the promotion method used by firms. At the same time, the method may introduce noise to the measure because we re-estimate the promotion method used each year. To control for the possible noise in the measure, we re-ran the tests excluding the years in which companies switch from a tournament-incentive to a successor-incentive and vice-versa. The results are qualitatively the same when excluding these years.

Third, a company's management organizational structure may be affected by CEO, firm, and industry characteristics. One possibility may be that the observed negative relation between Tobins'Q and successor-incentive firms is due to firm characteristics not controlled for in our tests. To address the possible endogeneity, we specify a structural model using a two stage least squares (2 SLS) instrumental variable approach where we estimate the likelihood of a successor-incentive firm in the first stage. We control for CEO, firm, and industry characteristics that could be associated with the promotion of senior executives in the firm and that may impact the Tobins'Q results.

The results of the first stage regression are presented in Table 8 panel A. Our primary measure in model 1 shows that longer CEO tenure and the presence of a founder increases the likelihood of a successor promotion, though the relationship is non-linear for the CEO tenure measure.[16] Firm and industry characteristics such as the geographic diversity, degree of industry competition, and whether or not the firm is in a service industry are also associated with the promotion method. Since the 2 SLS approach uses the predicted likelihood of a successor-incentive firm from the first-stage model as the key independent variable in the second-stage regression of firm performance, we require at least one variable related to the promotion method but not to the firm valuation to identify the structural model. In unreported tests, we find that the number of geographic segments and the indicator that the company is

[16] As an additional check, we also included CEO age in the first stage. However, CEO age was not significantly related to the CEO succession method.

in the service industry are not correlated to the residual in the Tobin's Q regression and thus serve as valid instruments.

The results of the second stage regression are reported in Table 8 panel B. Similar to the results presented in 5.1.1, the results indicate a negative relationship between successor-incentive firms and Tobin's Q. Thus, our previous findings are robust to controlling for potential endogeneity in firm promotions of senior executives.

An additional means of controlling for unobserved factors that may influence a firm's executive team structure and measure of firm value is the use of firm fixed effects. The cost of using this method is that the explanatory power is reduced as the variability is limited to within-firm variations. We employ this technique in Table 9 models 1 and 2 for robustness of the Tobin's Q analysis. After controlling for unobserved non-varying factors we still find a negative relation between successor-incentive promotion and Tobin's Q for both measures of promotion in models 1 and 2 of Table 9, although only model 2 is significant at traditional levels.

Finally, one criticism of using Tobin's Q as a measure of firm value is that it may also proxy for other factors such as the firm's growth opportunities. Although we control for growth opportunities in the previous regressions, as further robustness, we also examine return on assets by dividing operating income by total assets in the firm and regressing it against the other independent variables presented in the Tobins'Q tests. The results are presented in Table 9, models 3 to 4. We find a negative relationship between successor-incentive firms and the measure of operating performance.

Together, the robustness tests and the results on operating performance help further support the lack of independence hypothesis in the successor-incentive promotion model. The lack of independence hypothesis also suggests high CEO power in the firm and a higher likelihood of CEO and management

entrenchment in firms that implement successor-incentive promotion. We explore two possible indicators of greater CEO influence and power next.

5.2 CEO Turnover

We investigate CEO turnover sensitivity to firm performance. Lower CEO turnover sensitivity to firm performance may be suggestive of higher CEO entrenchment. The first possibility is that the promotion of a single CEO contender decreases the influence of the CEO and provides the board with a viable replacement to the current CEO as predicted in the dual leadership hypothesis. Under this hypothesis, the presence of a single CEO contender increases CEO turnover sensitivity to firm performance. Alternatively, the lack of independence hypothesis predicts that the single executive is not sufficiently independent of the CEO and the lack of competition among the insiders can lead to higher CEO power and entrenchment.

We test our hypotheses by using logit regression where the dependent variable equals 1 if the CEO was replaced in the given year and the independent variables are the promotion method, firm performance measure, CEO ownership, outside director ownership and CEO age. We use accounting performance as our key measure of performance because stock prices reflect the market expectation of future firm performance based on expected firm actions. For example, Hermalin and Weisbach (1998), present results showing that accounting results are more directly linked to the performance of the current CEO and thus better reflect the CEO's ability. In addition to the performance and promotion method, we also include an interaction variable of the promotion method and firm performance to measure the promotion method affect on turnover sensitivity to performance. We report the unconditional probability of CEO turnover based on each model evaluating all continuous variables at their means and dichotomous variables at their mode. The results are presented in Table 10.

First, the results show that the presence of a single top executive in the firm is associated with a greater overall likelihood of CEO departure. This result can mean that the single executive increases the threat of forced turnover which would be consistent with the dual leadership hypothesis. However, it is also consistent with firms choosing to have a top executive (even tournament-incentive firms select a tournament winner) prior to a planned succession. We find a negative association between CEO turnover and *changes* in ROA, as expected. The coefficient on the interaction between changes in ROA and the presence of a single-executive is positive and significant in both models. The interaction variable shows that a successor-incentive model reduces CEO turnover sensitivity to changes in operating performance. We also present F-test results at the end of the table showing the magnitude of CEO turnover sensitivity to firm performance in successor-incentive firms.

We examine the economic impact of the lower CEO turnover sensitivity to firm in successor-incentive firms. We measure the difference in the probability of CEO turnover between the mean *change* in operating performance and the 10th percentile *change* (decrease) in operating performance.[18] An average change in operating performance in tournament-incentive firms is associated with a probability of CEO turnover of 0.057. The likelihood of CEO turnover increases to 0.082 (that is, by 44%) if the company experiences a large drop in performance (10th percentile change in performance). On the other hand, the average change in performance in successor-incentive firms is associated with a .125 likelihood of CEO replacement. But when a large drop in performance occurs (10th percentile change in ROA), the likelihood of turnover only increases slightly to .143, or a 14% increase in the likelihood of CEO turnover. Thus, while overall CEO replacement is more likely in firms with a successor-incentive

[18] Because the logit models are non-linear and the key interaction terms involve dichotomous variables, the magnitudes and standard errors of the marginal effects of the interactive variables are estimated by taking discrete differences [Powers (2005), Ai and Norton (2003)] as:

$$\frac{\partial E[y|ROA,S.E.]}{\partial_{ROA}}\Big|_{S.E.=1} - \frac{\partial E[y|ROA,S.E.]}{\partial_{ROA}}\Big|_{S.E.=0} \quad \text{where} \quad \frac{\partial E[y|ROA,S.E.]}{\partial_{ROA}} = \frac{e^{X\beta}}{(1+e^{X\beta})^2}[\beta_{ROA} + \beta_{S.E.}\text{Single Exec}]$$

promotion, the sensitivity of CEO turnover to a large drop in performance is smaller in successor-incentive firms. This result is consistent with the successor-incentive model not being able to increase CEO turnover sensitivity to performance and decrease CEO power, and may help explain the result in the previous section about the negative relation between a successor-incentive model and firm performance.

5.3 Acquisition Announcement Performance

An alternative method for analyzing the quality of a firm's management team is to examine the investment decisions of the firm. As presented in Roll (1986), Morck, Shleifer, and Vishny (1990), Rose and Shepard (1997), Moeller, Schlingemann and Stulz (2005) among others, acquisitions represent important firm investments but they often reduce value to shareholders. Further, the literature has suggested that more powerful or influential CEOs are associated with acquisitions that reflect greater entrenchment on part of the management team rather than valuable investments for shareholders. For example, Masulis, Wang and Xie (2007) find that managers more insulated from the market for corporate control, and thus more powerful, are associated with lower bidder returns. Further, Grinstein and Hribar (2004) report that CEOs who are more influential in the selection of the directors are associated with more negative market responses following an acquisition, and Malmendier and Tate (2007) report that overconfident CEO's are associated with value reducing acquisitions.

We study the relation between executive promotion method and market reactions around acquisition announcements. The dual-leadership hypothesis predicts that having a single executive to offset an influential CEO will lead to better decision making for the executive team and thus more positive market reaction to acquisition announcements. Alternatively, the lack of independence hypothesis, in the spirit of Grinstein and Hribar (2004), predicts worse performance around acquisition announcements in companies with a single designated insider below the CEO.

The acquisition announcement dates are obtained from the SDC database, and announcement returns from the CRSP database.[19] We examine the 3-day cumulative abnormal return (CAR) of the acquiring company surrounding the announcement date (date t-1 to date t+1). We compute the abnormal return by subtracting the firm's continuously compounded return from the continuously compounded return of CRSPs value weighted index.[20] We then examine the worse performing firms by creating a dummy variable equal to 1 for firms in the bottom decile of the 3-day CARs. We follow previous acquisitions announcement studies for additional controls for the determinants of acquirer returns.

Table 11 examines the relation between successor-incentive firms and the acquisition announcement bidder returns. Panel A shows that the full sample of acquisition announcements is associated with a mean negative reaction to the acquirer, though it is not significantly different from zero. We find a significant difference in mean announcement returns based on the executive promotion method. The 3-day CAR for successor-incentive firms that announce an acquisition is significantly lower than that for tournament-incentive firms. Panel B considers other determinants of the CAR in a multivariate analysis. Models 1 and 2 examine the determinants of the 3-day cumulative abnormal return for the bidder firm. We find evidence that successor-incentive firms are associated with significantly lower bidder returns (p-value=.02) using our primary measure of executive promotion method. Models 3 and 4 are logit regressions that examine whether successor-incentive firms are associated with the dummy indicating that the acquiring company is in the bottom ten percent of the sample CARs. The evidence in model 3 shows that successor-incentive firms are significantly more likely to be in the bottom ten percent of all the acquirers' CARs. Together, this evidence further supports

[19] In order for an acquisition to be in the sample, we require that (1) the deal is complete, (2) the acquirer controls less than 50% of the target shares prior the announcement and owns 100% after the transaction, and (3) the deal value in SDC is greater than or equal to $1million and is at least 1% of the acquirer's market cap (measured the 11th day prior to the announcement).

[20] We also computed the abnormal return using a single factor market model and the results are qualitatively similar to the ones reported. We also compute a 5-day CARs using 2 days prior to announcement, the day of announcement, and 2 days following the announcements and the results are qualitatively similar.

the lack of independence hypothesis and is consistent with the earlier evidence on CEO turnover and firm performance.[21]

6. Why Do Companies Nominate a Single Insider?

The results presented so far are consistent with the lack of independence hypothesis and show a negative valuation and higher agency problems associated with companies that have a successor-incentive model with a single insider below the CEO. A potential question then is why companies select successor incentive promotions if tournament incentives are associated with higher valuation. We offer two explanations for the results presented. First, transaction costs and the difficulty in finding and retaining multiple talented managers may explain the promotion of a single insider below the CEO. Second, a successor-incentive model may be more efficient for some companies such as those nearing retirement of the CEO. Naveen (2006) for example, finds that four years before turnover, 41% of the firms have an heir-apparent and that the number jumps to 60% immediately before turnover. We elaborate on these two explanations below.

First, Alchian (1950) and Demsetz and Lehn (1985), Coles, Lemmon, and Meschke (2003) among others, argue that if companies are free to adjust their organization form, they will adjust their characteristics to facilitate firm success and decrease the net agency costs in their management structure. To the extent that companies have the ability to optimally select a management promotion plan and the number of high-talented managers to promote, there would be no reason to expect a relationship between the method of promotion of internal managers and firm valuation.

[21] One possibility may be that successor incentive firms are less effective only when the pay gap between the CEO and the successor is high. As a check, we re-ran the results in tables 7 to 11 controlling for the difference in pay gap between the CEO and the successor managers. The pay gap was not significant in explaining the results and the results were similar to the ones reported.

Firms may, however, be constrained by the ability of the current executive team and the need to promote talented executives in order to retain them. Further, unlike capital decisions such as the level of R&D expenses where companies can make a choice on the level of investment, companies cannot easily choose and contract on the number of talented management that they will have and that will choose to remain in the firm. Talented senior managers competing in a tournament may depart the company if those managers are able to become CEO at another company. Alternatively, Acharya, Myers and Rajan (2009) show that the lack of multiple highly talented executives may be an indication of deeper problems in a company's management structure and the inability of the firm to promote and develop high performing executives. Thus, although our results show a higher valuation for companies with multiple executives below the CEO, it may not be possible for all companies to have more than one high valued insider below the CEO.

Second, successor-incentives may be important in some cases, such as when a CEO nears retirement. To study this possibility, we interact the young CEO measure introduced in Table 7 with companies that have successor-incentive promotion. This interaction allows us to separate the effects of firms with successor-incentive promotion and a CEO over the age of 60 from the firms with successor-incentive promotion and a CEO under the age of 60 and not near retirement.

The results of the interaction between young CEOs and successor-incentive firms are presented in Table 12. Models 1 and 2 show the relation using our first and second measures respectively, of successor-incentive firms. In both models the relation between successor-incentive firms and performance loses significance for the cases when the CEO is near retirement. These results indicate that when a CEO is near retirement, successor-incentives are not adversely associated with firm value. The effect of having successor-incentives when the firm has a young CEO is the sum of the coefficient of successor-incentive and the successor-incentive indicator interacted with the young CEO dummy. The

result is presented in the F-test in the bottom of the table and reveals the net effect is negative and significant Therefore, all else equal, companies with a young CEO and successor incentives have about a 13% lower valuation than other firms in our sample.[22] We also repeated the 2 SLS analysis of Table 8 and after conditioning on having a CEO under the age of 60, we again find that the negative results between successor-incentive firms and firm performance are significant only among firms where CEO retirement is not imminent.[23]

7. Conclusion

We develop a method for evaluating the internal promotion of senior managers to the CEO position and study the effects of the promotion method on senior management incentive pay, firm performance, CEO turnover, and acquisition announcement returns. We classify promotion incentives used by companies as a successor-incentive model (promotion of a single designated senior manager) versus a tournament-incentive model (multiple managers compete for the CEO position).

Our results show that firms adjust management compensation based on their promotion method. As predicted in tournament theory, the gap in compensation between the CEO and the CEO contenders is higher in tournament-incentive firms. The higher gap in compensation comes from a lower average compensation to the contestants relative to the compensation of the single designated manager in successor-incentive firms. We find some evidence that total CEO compensation is higher in successor-

[22] We also conducted several checks for alternative measures of CEO influence that may have an impact in the relation between single-executive firms and firm performance. Interactions of single-executive with measures of CEO influence (CEO chair, and CEO ownership and G-index) are not associated with firm performance. Furthermore, the gap in compensation between the CEO and the insiders or the contenders and other insiders are also not significantly associated with Tobin's Q.

[23] Kale et al. (2008) study at the effect of the gap between the CEO pay and the median internal executive pay on firm performance. They find that the relationship between pay gap and performance is more positive when the CEO nears retirement, thus suggesting that a higher reward to the executives promoted to CEO are associated with higher valuation when the CEO is close to retirement. Their result is not inconsistent with our result. First, Kale, et al. (2008) focus the managerial reward based on pay difference. As discussed earlier in our paper, we find no significant difference in the pay gap between the single designated and multiple insider firms. Second, the Kale, et al (2008) measure may be capturing the reward to the insider who gets promoted, not the difference between companies that promote a single insider versus companies that promote more than one insider.

incentive firms. We also find that successor-incentive firms compensate for their lack of competition among managers by providing a higher proportion of equity pay to the single designated insider as compared to the equity pay of the contenders in the tournament-incentive firms.

Our results show a significantly higher gap in total pay between the top executive and the rest of the management team in successor-incentive firms. The higher gap in the total pay of the contender suggests the possibility of an isolation of the CEO and the top executives from the rest of the management team, which may give rise to entrenchment in top management. We find a negative relation between successor-incentive firms and measures of firm performance. This result is concentrated among firms where the CEO is under the age of 60 when retirement is not likely to be imminent. We also find that CEO turnover is less sensitive to firm performance in firms with successor incentives and that these firms are also associated with lower cumulative abnormal returns around acquisition announcements. Taken as a whole, our results show that companies that promote tournament incentives are associated with higher valuation and less CEO entrenchment than companies that promote successor-incentive.

In sum, our findings demonstrate differences in performance and financial decisions between firms that promote a single executive below the CEO in successor-incentive promotions and firms that promote multiple executives below the CEO in tournament-incentive promotions. We note, however, that it is possible that in some cases the benefits of having a single executive may outweigh the possibility of inefficient management. For example, large or complex firms require great attention to manage day-to-day operations, while also requiring concerted effort to reduce information asymmetry between managers and shareholders. In these companies, a dual executive model with a CEO and a nominated successor may be more efficient if it helps improve coordination among the executives. Studying dual leadership structures and firm characteristics is the subject of further exploration in our future research.

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Table 1. Logit Regressions on CEO Successors

This table presents the results of a logit analysis on executives between 1997 and 2002 who become CEO within the subsequent two years. The dependent variable is one if the executive is the CEO two years from the observed fiscal year. *Compensation Qualified* is one if the executive is within 10% of the highest paid executive in the firm. *Board Qualified* is one if the executive is a director of their firm. *COO* equals one if the executive has a reference of Chief Operating Officer in their title. *Ownership* is the percentage of shares owned by the executive. *Recent Hire* equals one if the executive was hired within the past two years. The standard errors are robust and clustered by executive. Year dummies are included. Model 1 includes all executives. Model 2 uses the sub-sample of executives from firms experiencing an internal succession.

Dependent Variable =1 if executive becomes CEO	Model 1		Model 2	
	Coefficient *(p-values)*	dy/dx	Coefficient *(p-values)*	dy/dx
Compensation Qualified	0.947***	*0.009*	1.588***	*0.260*
	(0)		*(0)*	
Board Qualified	0.783***	*0.008*	0.934***	*0.149*
	(0)		*(0)*	
COO Title	1.816***	*0.033*	2.249***	*0.442*
	(0)		*(0)*	
Ownership	0.005	*0.000*	0.003	*0.000*
	(0.74)		*(0.89)*	
Recent Hire	0.112	*0.001*	0.039	*0.005*
	(0.46)		*(0.88)*	
Constant	-5.679***		-2.805***	
	(0)		*(0)*	
Number of Observations	26907		1745	
Pr(Executive is Successor)		*0.008*		*0.166*
Prob $>\chi^2$	0.0000		0.0000	
Psuedo-R^2	15.63%		35.72%	

, **, * indicate significance at the 10%, 5%, and 1% levels respectively*

Table 2. Classification of Sample Firms as Tournament-Incentive or Successor-Incentive

The sample consists of 7,557 sample firm-years for fiscal years 1997 through 2002. Firms are classified as either Tournament-Incentive or successor-incentive firms based on the relative compensation and board seats of the top four non-CEO executives. Each executive receives a score (called propensity score based on the coefficients in Table 1 on the likelihood of the executive succeeding the CEO). Executives are considered to be contenders to be the next CEO if their propensity score is within 10% of the highest score in their firm. If a firm only has one contender the firm is classified as a single-executive. If the firm has multiple contenders the firm is classified as a tournament-type firm.

Panel A: Successor-Incentive versus Tournament-Incentive firms

	1997		1998		1999		2000		2001		2002		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Successor-Incentive Firms	957	84%	1040	84%	1023	83%	1034	79%	1036	81%	1071	80%	6161	82%
Tournament-Incentive Firms	189	16%	202	16%	207	17%	280	21%	250	19%	268	20%	1396	18%
	1146		1242		1230		1314		1286		1339		7557	

Panel B: Number of Competitors for Tournament Firms

	1997		1998		1999		2000		2001		2002		Total	
# Competitors	#	%	#	%	#	%	#	%	#	%	#	%	#	%
2	128	68%	130	64%	147	71%	173	62%	165	66%	187	70%	930	67%
3	36	19%	38	19%	35	17%	56	20%	57	23%	59	22%	281	20%
4	25	13%	34	17%	25	12%	51	18%	28	11%	22	8%	185	13%

Panel C: Contender Identifying Factors

	1997		1998		1999		2000		2001		2002		Total	
	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Firms with Executives on the Board	719	63%	747	60%	706	57%	724	55%	645	50%	615	46%	4156	55%
Firms with No Executives on the Board	427	37%	495	40%	524	43%	590	45%	641	50%	724	54%	3401	45%
Firms with at least one COO	423	0.37	465	0.37	460	0.37	429	0.33	429	0.33	472	0.35	2678	0.35

Table 3. CEO Promotions 1999 to 2004

We identify internal successions within our sample firms by first searching for and identifying CEO promotions between 1999 and 2004 within the ExecuComp sample of firms. We then identify internal successions when the new CEO was also listed in the pool of eligible executives in ExecuComp 2 years prior to becoming CEO. We include all eligible executives as those not chairpersons and younger than 65 years old. If the successor came from the subset of eligible executives we identified as either a single top executive or tournament competitor we categorize them as a Successor Identified by Propensity Score method. There are 432 cases of internal successions. These successors are identified two years prior to becoming the CEO and range from fiscal year 1997 to 2002. *Single-Executive* is one if the firm only has one executive identified by our method. *Tournament Competitor* is one if the chosen successor came from the pool of tournament competitors in firms classified as having tournaments by our method. *Chief Operating Officers* is one if the executive has a reference of COO in their title.

	Successors	**% of Total Successions**
Internal CEO Successions	432	
Successor Identified by Propensity Score Method	319	74%
Successor Identified as the top single executive	279	87%
Successor Identified as tournament competitor	40	13%
Successor listed as Chief Operating Officer	233	54%

Table 4. Descriptive Statistics

This table shows the means and medians of the 7,557 sample firm-years from 1997-2002. Firms are classified as either a Tournament or Successor-Incentive firms based on the propensity score of the top four non-CEO executives. Each executive receives a score (called propensity score) based on the coefficients in Table 1 on the likelihood of the executive succeeding the CEO). Executives are considered to be contenders to be the next CEO if their propensity score is within 10% of the highest score in their firm. If a firm only has one contender the firm is classified as a successor-incentive firm. If the firm has multiple contenders the firm is classified as a tournament-incentive firm. *Assets* and *Sales* are from the annual database of Computstat and the number of *Employees* is from ExecuComp. *Business Segments* and *Geographic Segments* are the number of the respective type of segments for the firm. *Volatility* is the standard deviation of 3-year monthly stock returns. *Firm age* is the current year less the first year the firm appears in the CRSP database. *RD/Assets* is the maximum of Compustat data36 or zero scaled by total assets. *Leverage* is long-term debt plus debt in current liabilities all scaled by total assets. *Q* is approximated by summing total assets and market value of equity less the book value of equity all scaled by total assets. *Homogeneity Index* is the mean partial correlation proxy for industry similarity determined following the Parrino (1997) methodology with the Fama-French 49 industry definitions. *Herfindahl Index* is the sum of the squared percentage of industry sales of all industry firms. *CEO age* is from IRRC. *CEO tenure* is the number of years the CEO has served as CEO. *CEO % ownership* is the fraction of shares outstanding held by the CEO, including options. *CEO is Chairperson* is an indicator if the CEO is also listed as the Chairperson in IRRC. *Board size* is the total number of directors on the board. *Percent Independent Directors* is the percentage of independent outside directors on the board. *Outside Board % Ownership* is the percentage of shares, including options, held by all non-CEO board members. *CEO total compensation* consists of salary, bonus, the Black-Scholes value of option grants, restricted stock grants, LTIP, and other annual compensation (Execucomp data item tdc1). *CEO % compensation gap* is the percentage difference from the highest paid non-CEO eligible executive compensation to that of the CEO. In Panel C, *Total Compensation* is the average compensation of the tournament competitors in those firms or the compensation of the SE in SE firms. *% Equity Compensation* is the percentage of total compensation that is equity based for the SE in SE firms and it is the average percentage of equity-based compensation of the tournament competitors in tournament firms. *% Gap Contenders – Mean Executives* is the percentage difference between the average compensation of the contenders and the average compensation of the remaining executive team. *% Gap Contenders – Min Executive* is the difference between the average compensation of the contenders and the minimum compensation of the remaining executive team. *% Gap Highest – Min Executive* is the difference between the highest and the lowest compensation. *% Gap 1-2(2-3)* is the percentage difference between the (second) highest paid and second (third) highest paid non-CEO executives in the firm.

Panel A	All Firm-Years		Tournament		Successor		T-S	
Observations	7,557		1396		6161			
Firm / Industry Characteristics	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Assets ($ millions)	11230	1550	13165	1686	10786	1523	2379*	163*
Sales ($ millions)	4680	1300	4491	1330	4723	1292	-232	37
Employees ('000)	20.3	6.3	18.7	6.3	20.6	6.3	-1.9	0.1
Business Segments	2.8	2	2.93	2	2.75	2	0.18***	0***
Geographic Segments	2.7	2	2.73	2	2.68	2	0.1	0
Volatility	0.13	0.11	0.13	0.11	0.13	0.11	-0.001	-0.001
Firm Age	23	18	23.8	21	22.8	17	1*	4**
RD / Assets	0.03	0	0.03	0.0	0.03	0.0	0	0
Leverage	0.24	0.24	0.25	0.24	0.24	0.24	0.01**	0**
Tobin's Q	2.08	1.46	2.13	1.46	2.07	1.46	0.06	0
Homogeneity Index	0.305	0.298	0.307	0.298	0.304	0.298	0.003*	0
Herfindahl Index	547	421	531	415	551	423	-19	-8

, **, * indicate significance at the 10%, 5%, and 1% levels respectively*

Table 4. Descriptive Statistics (continued)

Panel B	All Firms		Tournament		Successor		T-S	
Manager / Board Characteristics	Mean	Median	Mean	Median	Mean	Median	Mean	Median
CEO Age	55	55	55	55	55	55	0	0
CEO Tenure as CEO	7.1	5.0	6.6	4	7.3	5	-1***	-1***
CEO % Ownership	3.9	1.1	3.8	1.0	3.9	1.2	0	0**
CEO is Chairperson	0.67	1.0	0.67	1	0.67	1	0	0
Board Size	9.60	9	9.59	9	9.60	9	-0.01	0
Percent Board Independence	64.01	66.67	66.73	66.67	63.39	66.67	3.35***	0***
Outside Directors % Ownership	3.9	0.7	3.8	0.6	4.0	0.7	-0.2	0
CEO Total Compensation ($1,000)	5511	2407.8	4974	2330.1	5635	2421	-660.9	-90*
CEO % Compensation Gap	97	63	141	98	87	56	53***	42***

Panel C	All Firms		Tournament		Successor		T-S	
Tournament Contenders / SE	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Total Compensation ($1,000)	3291	1422	2087	1100	3571	1507	-1484***	-407***
% Equity Compensation	0.44	0.45	0.40	0.41	0.45	0.5	-0.05***	-0.051***
% Gap Contenders - Mean Executives	34.0	39.0	24.4	28.2	36.3	41.2	-12***	-13***
% Gap Contenders - Min Executive	48.6	50.0	37.8	35.6	51.2	53.0	-13***	-17***
% Gap Highest - Min Executive	52.5	52.1	40.6	36.8	55.0	55.0	-14***	-18***
% Gap 1-2	28.3	24.2	11.1	5.2	32.4	29.2	-21***	-24***
% Gap 2-3	18.4	13.2	16.2	10.8	18.9	13.7	-2.7***	-3***

, **, * indicate significance at the 10%, 5%, and 1% levels respectively*

Table 5. OLS Regressions of CEO Compensation Gap, and Executive Team Pay Structure

This table presents the regression analysis for measures of CEO and Executive Compensation. *Tournament-Incentive Firm* is an indicator variable that equals one if the firm is classified as having a tournament and zero if it is classified as having successor incentives. Each executive receives a score (called propensity score) based on the coefficients in Table 1 on the likelihood of the executive succeeding the CEO. Executives are considered to be contenders to be the next CEO if their propensity score is within 10% of the highest score in their firm. Tournament measure B classification is determined using only insiders seats on the board and their compensation ranking (The alternative method is described in the text).The dependent variable in models 1 and 2 is the CEO compensation gap between the highest compensated eligible executive and the CEO, scaled by the compensation of the highest paid executive. The dependent variable in Models 3 and 4 is the natural logarithm of CEO total compensation. The dependent variable in models 5 and 6 is the percentage gap within the executive team measured as the highest compensation among the executives minus the minimum compensation of the executives, scaled by the the highest compensation. *Percent Outside Directors* is the percentage of outside directors on the board. *Ln(Board Size)* is the natural logarithm of the number of directors. *Outside Block Holder* Present is an indicator variable that equals one if the firm has at least one owner with more than 5% of the stock. *Size* is the natural logarithm of total sales. *Market-to-Book* is the current year market value of equity plus the book value of assets less the book value of equity all over year end total assets. *ROA* is net income before depreciation and amortization, interest and taxes over beginning year total assets. *Stock Return* is the monthly compounded annual stock return for the fiscal year. *Ln(Firm Age)* is the natural logarithm of the number of years since the firms first appeared in CRSP. *Business Segments* and *Geographic Segments* are the number of the respective type of segments for the firm. *R&D/Assets* is R&D expense scaled by total assets or zero if missing. All other variables are as described earlier. We use robust standard errors to account for cross-sectional heterskedasticity (White 1980) and cluster by firm to account for serial correlation.

Table 5. *continued*

	Model 1 CEO Comp Gap	Model 2 CEO Comp Gap	Model 3 ln(CEO Total Comp)	Model 4 ln(CEO Total Comp)	Model 5 Highest - Min Exec Team	Model 6 Highest - Min Exec Team
Tournament Incentive Firm	54.65***		-0.043		-14.686***	
	(0)		*(0.228)*		*(0)*	
Tournament Incentive Firm B		59.78***		-0.065*		-17.291***
		(0)		*(0.055)*		*(0)*
Controls						
CEO Tenure	0.299	0.174	0.013*	0.014*	0.1	0.1
	(0.815)	*(0.892)*	*(0.056)*	*(0.055)*	*(0.653)*	*(0.486)*
CEO Tenure^2	-0.031	-0.032	-0.0004*	-0.0004*	0	0
	(0.479)	*(0.469)*	*(0.078)*	*(0.08)*	*(0.93)*	*(0.981)*
CEO is Chair	26.721**	25.038**	0.201***	0.203***	-1.963**	-1.461*
	(0.013)	*(0.018)*	*(0)*	*(0)*	*(0.012)*	*(0.057)*
CEO % Ownership	0.02	0.105	-0.023***	-0.023***	-0.018	-0.039
	(0.979)	*(0.887)*	*(0)*	*(0)*	*(0.754)*	*(0.501)*
Founder Present	2.9902	1.4337	-0.1773**	-0.1756**	0.1	0.4
	(0.861)	*(0.934)*	*(0.027)*	*(0.028)*	*(0.956)*	*(0.733)*
Percentage Outside Directors	1.662***	1.629***	0.005***	0.005***	-0.102***	-0.094**
	(0)	*(0)*	*(0.007)*	*(0.005)*	*(0.009)*	*(0.015)*
Ln(Board Size)	-53.056*	-52.278*	0.182*	0.18*	-2.207	-2.467
	(0.083)	*(0.088)*	*(0.066)*	*(0.066)*	*(0.238)*	*(0.184)*
Outside Director % Ownership	-0.118	-0.109	0.001	0.001	0.034	0.032
	(0.602)	*(0.624)*	*(0.436)*	*(0.443)*	*(0.144)*	*(0.158)*
Outside Block Holder Present	-16.811	-16.27	0.046	0.046	0.45	0.318
	(0.196)	*(0.209)*	*(0.351)*	*(0.355)*	*(0.638)*	*(0.733)*
ln(Sales)	4.943	5.23	0.409***	0.409***	1.492***	1.444***
	(0.389)	*(0.36)*	*(0)*	*(0)*	*(0)*	*(0)*
Market-to-Book$_{(t-1)}$	-0.7921	-0.464	0.0278**	0.0275**	0.415**	0.325*
	(0.562)	*(0.739)*	*(0.038)*	*(0.04)*	*(0.011)*	*(0.073)*
ROA	25.953	30.117	0.428*	0.426*	-7.112*	-8.437**
	(0.611)	*(0.556)*	*(0.059)*	*(0.06)*	*(0.059)*	*(0.027)*
ROA$_{(t-1)}$	-15.371	-20.686	0.193	0.196	0.765	2.365
	(0.799)	*(0.73)*	*(0.358)*	*(0.347)*	*(0.832)*	*(0.517)*
Stock Return	21.468	21.15	0.166***	0.166***	-0.137	-0.039
	(0.17)	*(0.176)*	*(0)*	*(0)*	*(0.775)*	*(0.935)*
Stock Return$_{(t-1)}$	5.374	4.326	0.08**	0.081**	-0.09	0.187
	(0.306)	*(0.409)*	*(0.011)*	*(0.01)*	*(0.838)*	*(0.679)*
Volatility	-10.523	-14.849	1.454***	1.458***	27.998***	29.447***
	(0.817)	*(0.74)*	*(0.007)*	*(0.007)*	*(0)*	*(0)*
Recent M&A Flag	-4.456	-5.036	0.061*	0.062*	0.016	0.204
	(0.597)	*(0.546)*	*(0.094)*	*(0.089)*	*(0.983)*	*(0.779)*
Ln(Firm Age)	2.022	2.246	-0.035	-0.035	-1.072**	-1.124**
	(0.741)	*(0.711)*	*(0.147)*	*(0.143)*	*(0.03)*	*(0.022)*
Number of Business Segments	0.584	0.792	-0.001	-0.001	0.228	0.169
	(0.811)	*(0.748)*	*(0.928)*	*(0.908)*	*(0.196)*	*(0.33)*
Number of Geographic Segments	-1.16	-0.927	0.031***	0.031***	0.264	0.182
	(0.432)	*(0.534)*	*(0.001)*	*(0.001)*	*(0.162)*	*(0.323)*
R&D/Assets	-153.907*	-159.602*	1.665***	1.67***	-16.496**	-14.679*
	(0.077)	*(0.065)*	*(0)*	*(0)*	*(0.03)*	*(0.056)*
Constant	37.59	33.641	3.669***	3.674***	46.122***	39.692***
	(0.427)	*(0.477)*	*(0)*	*(0)*	*(0)*	*(0)*
Industry/Year Controls	yes	yes	yes	yes	yes	yes
Number of Observations	5344	5344	5338	5338	5187	5187
Adjusted-R^2	2.93%	3.09%	37.83%	37.86%	13.84%	17.02%

, **, * indicate significance at the 10%, 5%, and 1% levels respectively*

Table 6. OLS Regressions of Executive Team Pay Structure

This table presents the regression analysis for measures of Executive Compensation. *Tournament-Incentive Firm* is an indicator variable that equals one if the firm is classified as having a tournament and zero if it is classified as having a successor incentives. Each executive receives a score (called propensity score) based on the coefficients in Table 1 on the likelihood of the executive succeeding the CEO. Executives are considered to be contenders to be the next CEO if their propensity score is within 10% of the highest score in their firm. *Tournament-Incentive Firm measure B* classification is determined using only insiders seats on the board and their compensation ranking (The alternative method is described in the text).The dependent variable in models 1 and 2 is the is average % Equity Compensation for the executives competing in the tournament or the top executive for each firm. The dependent variable in models 3 and 4 is the average percentage of compensation comprised of long-term incentive payment (LTIP) and Bonus for the contenders. All other variables are as described earlier. We use robust standard errors to account for cross-sectional heterskedasticity (White 1980) and cluster by firm to account for serial correlation.

Table 6. *(continued)*

Contender Compensation	Model 1 % Equity Comp	Model 2 % Equity Comp	Model 3 % Bonus LTIP Comp	Model 4 % Bonus LTIP Comp
Tournament Incentive Firm	-4.11***		0.53	
	(0)		*(0.365)*	
Tournament Incentive Firm B		-2.73***		0.37
		(0.002)		*(0.506)*
Controls				
CEO Tenure	0.5***	0.6***	0	-0.1
	(0.001)	*(0)*	*(0.726)*	*(0.627)*
CEO Tenure^2	-0.017***	-0.019***	0	0
	(0)	*(0)*	*(0.97)*	*(0.904)*
CEO is Chair	1.4	1.7*	1.3**	1.4**
	(0.13)	*(0.08)*	*(0.044)*	*(0.037)*
CEO % Ownership	-0.312***	-0.338***	0.041	0.021
	(0)	*(0)*	*(0.455)*	*(0.679)*
Founder Present	1.535	0.893	-0.802	-0.602
	(0.249)	*(0.515)*	*(0.372)*	*(0.501)*
Percentage Outside Directors	0.21***	0.22***	-0.12***	-0.11***
	(0)	*(0)*	*(0.001)*	*(0.002)*
Ln(Board Size)	-2.293	-2.102	2.205	2.515
	(0.299)	*(0.352)*	*(0.162)*	*(0.114)*
Outside Director % Ownership	0.039	0.05	-0.002	-0.002
	(0.237)	*(0.13)*	*(0.932)*	*(0.902)*
Outside Block Holder Present	0.4	0.5	1	0.9
	(0.741)	*(0.684)*	*(0.211)*	*(0.247)*
ln(Sales)	4.456***	4.431***	0.662**	0.782**
	(0)	*(0)*	*(0.03)*	*(0.011)*
Market-to-Book$_{(t-1)}$	1.219***	1.196***	-0.401***	-0.377***
	(0)	*(0)*	*(0)*	*(0.001)*
ROA	-20.88***	-20.62***	26.72***	26.38***
	(0)	*(0)*	*(0)*	*(0)*
ROA$_{(t-1)}$	23.026***	23.658***	-16.857***	-16.824***
	(0)	*(0)*	*(0)*	*(0)*
Stock Return	1.063*	0.916	1.921***	2.128***
	(0.061)	*(0.137)*	*(0)*	*(0)*
Stock Return$_{(t-1)}$	0.566	0.569	1.529***	1.647***
	(0.36)	*(0.372)*	*(0)*	*(0)*
Volatility	55.769**	55.772**	-16.497**	-17.546***
	(0.015)	*(0.016)*	*(0.019)*	*(0.007)*
Recent M&A Flag	1.237	1.131	1.115*	1.133*
	(0.167)	*(0.22)*	*(0.077)*	*(0.075)*
Ln(Firm Age)	-2.602***	-2.136***	1.098**	0.889**
	(0)	*(0.001)*	*(0.011)*	*(0.036)*
Number of Business Segments	-0.683***	-0.758***	0.18	0.194
	(0.001)	*(0.001)*	*(0.206)*	*(0.181)*
Number of Geographic Segments	0.845***	0.853***	-0.223	-0.216
	(0)	*(0)*	*(0.198)*	*(0.221)*
R&D/Assets	38.53***	40.256***	2.379	3.187
	(0.001)	*(0.001)*	*(0.626)*	*(0.504)*
Constant	-5.037	-10.609	17.129***	17.059***
	(0.518)	*(0.191)*	*(0)*	*(0)*
Industry/Year Controls	yes	yes	yes	yes
Number of Observations	5302	5297	5344	5344
Adjusted-R^2	25.83%	24.43%	17.68%	17.24%

, **, * indicate significance at the 10%, 5%, and 1% levels respectively*

Table 7. OLS Regressions of Tobin's Q

This table presents the results from performance regressions. The dependent variable, Tobin's Q is measured by the total assets at the end of the year plus the difference in the market value of equity and the book value of equity all normalized by the total assets at the end of the year. *Successor-Incentive Firm* equals one if there is a single executive near the CEO and zero if there are multiple top executives. Each executive receives a score (called propensity score) based on the coefficients in Table 1 on the likelihood of the executive succeeding the CEO. Executives are considered to be contenders to be the next CEO if their propensity score is within 10% of the highest score in their firm. *Successor-Incentive Firm Measure B* classification is determined using only insiders seats on the board and their compensation ranking (The alternative method is described in the text). *Young CEO* is an indicator variable that equals one if the current CEO is less than 60 years of age. *% Equity Compensation of Contenders* is the average percentage equity compensation for the executives competing in a tournament or the % equity compensation of the top executive in the single-executive firms. *Ln(Assets)* is the natural logarithm of the total assets. *Capital Expenditure/Sales* is capital expenditure scaled by total sales ($ millions). *R&D/Assets* is the ratio of R&D expense to total assets. It is zero if R&D is missing. *R&D Missing Dummy* equals 1 if R&D is missing. *Intangibles* equals one minus PPE scaled by total assets. All other variables are as described earlier. Finance and utility firms are excluded. We use robust standard errors to account for cross-sectional heteroscedasticity (White 1980) and cluster by firm to account for serial correlation. All models include year and industry

Table 7. (continued)

	Model 1 Tobin's Q Coefficient *(p-values)*	Model 2 Tobin's Q Coefficient *(p-values)*
Successor-Incentive Firm	-0.239** *(0.016)*	
Successor-Incentive Firm B		-0.228*** *(0.006)*
Young CEO	0.118** *(0.041)*	0.123** *(0.034)*
% Equity Compensation of Contenders	0.006*** *(0)*	0.006*** *(0)*
Percent Outside Directors	-0.01** *(0.029)*	-0.01** *(0.03)*
Ln(Assets)	0.13*** *(0)*	0.131*** *(0)*
Ln(Firm Age)	-0.149*** *(0.004)*	-0.1479*** *(0.004)*
Number of Business Segments	-0.063*** *(0)*	-0.062*** *(0)*
Leverage	-0.621** *(0.033)*	-0.606** *(0.037)*
ROA	7.007*** *(0)*	7.025*** *(0)*
$ROA_{(t-1)}$	-0.226 *(0.475)*	-0.228 *(0.473)*
Capital Expenditure / Sales	0.477* *(0.075)*	0.479* *(0.075)*
R&D / Assets	9.024*** *(0)*	9.005*** *(0)*
R&D Missing Dummy	-0.063 *(0.4)*	-0.067 *(0.372)*
Intangibles	1.313*** *(0)*	1.329*** *(0)*
Industry/year controls	yes	yes
Number of Observations	4608	4608
Adjusted-R^2	29.52%	29.52%

, **, * indicate significance at the 10%, 5%, and 1% levels respectively*

Table 8. 2SLS Instrumental Variable Regressions of Tobin's Q

This table presents the results from performance regressions. The dependent variable in the first stage regression equals 1 if the firm is classified as a single-executive firm. *Successor-Incentive Firm* equals one if there is a single executive near the CEO and zero if there are multiple top executives. Each executive receives a score (called propensity score) based on the coefficients in Table 1 on the likelihood of the executive succeeding the CEO. Executives are considered to be contenders to be the next CEO if their propensity score is within 10% of the highest score in their firm. *Successor-Incentive Firm Measure B* classification is determined using only insiders seats on the board and their compensation ranking (The alternative method is described in the text). *Founder* equals 1 if the founder is present on the board. *Ln(Sales)* is the natural logarithm of the firm's total sales ($ millions). *Ln(Business Segments)* and *Ln(Geographic Segments)* are the natural logarithms of the number of the respective type of segments for the firm. *Recent M&A* equals one if M&A activity occurred within the past two years. *Service* indicator variable equals 1 if the firm is in the Fama-French industry 7 (entertainment), 33 (personal services), 34 (business services), or 44 (restaurants, hotels, motels) and zero otherwise. *Utility* indicator equals 1 if the firm is in Fama-French industry 31 and zero otherwise. *Finance* indicator equals one if the firm is in Fama-French industry definition 45 (banking), 46 (insurance), 47 (real estate) or 48 (trading) and zero otherwise. The dependent variable in the second stage, Tobin's Q, is measured as the market-to-book ratio (the total assets at the end of the year plus the difference in the market value of equity and the book value of equity all normalized by the total assets at the end of the year). All other variables are as described earlier. Finance and utility firms are excluded. We use robust standard errors to account for cross-sectional heteroscedasticity (White 1980) and cluster by firm to account for serial correlation. All models include year and industry fixed-effects.

Table 8. Panel A Two-Stage Least Squares First Stage Regression

	Model 1		Model 2	
	Successor-Incentive		Successor-Incentive B	
	Coefficient *(p-values)*	dy/dx	Coefficient *(p-values)*	dy/dx
CEO Tenure	0.03** *(0.022)*	*0.004*	0.012 *(0.325)*	*0.002*
CEO Tenure^2	-0.001* *(0.056)*	*-0.0001*	-0.001 *(0.152)*	*-0.0001*
Ln(Sales)	0.029 *(0.296)*	*0.004*	0.044 *(0.105)*	*0.0072*
Ln(Number of Business Segments)	-0.03 *(0.588)*	*0.004*	0.024 *(0.654)*	*0.004*
Ln(Number of Geographic Segments)	-0.119* *(0.066)*	*-0.018*	-0.003 *(0.958)*	*-0.001*
Homogeneity Index	0.1499 *(0.274)*	*0.022*	0.1687 *(0.12)*	*0.027*
Herfindahl Index	0.0002** *(0.026)*	*0.00004*	0.0002* *(0.064)*	*0.00004*
Service Indicator	0.3329** *(0.049)*	*0.0452*	0.4267*** *(0.008)*	*0.06165*
Utility Indicator	-0.3364** *(0.048)*	*-0.055*	-0.2088 *(0.246)*	*-0.036*
Finance Indicator	-0.0959 *(0.526)*	*-0.015*	0.1064 *(0.51)*	*0.01676*
Founder Present	0.196* *(0.086)*	*0.028*	0.068 *(0.526)*	*0.011*
Recent M&A	-0.099 *(0.208)*	*-0.015*	-0.108 *(0.158)*	*-0.017*
Year Fixed Effects	Yes		Yes	
Industry Fixed Effects	No		No	
Number of Observations	6812		6812	
Prob > χ^2	0.0013		0.0451	
Pseudo R^2	1.07%		0.81%	
Probability(Successor-Incentive Firm)		0.8179		0.7975

, **, * indicate significance at the 10%, 5%, and 1% levels respectively*

Table 8. Panel B Two Stage Least Squares Second Stage Regression

	Model 1 Tobin's Q Coefficient *(p-values)*	Model 2 Tobin's Q Coefficient *(p-values)*
Successor-Incentive Firm	-2.706* *(0.08)*	
Successor-Incentive Firm B		-2.325* *(0.071)*
Young CEO	0.136* *(0.076)*	0.179** *(0.028)*
% Equity Compensation of Contenders	0.009*** *(0.001)*	0.007*** *(0)*
Percent Outside Directors	-0.021** *(0.021)*	-0.02** *(0.016)*
Ln(Assets)	0.14*** *(0)*	0.149*** *(0)*
Ln(Firm Age)	-0.1334** *(0.026)*	-0.1237** *(0.048)*
Number of Business Segments	-0.061*** *(0)*	-0.059*** *(0.001)*
Leverage	-0.829** *(0.011)*	-0.681** *(0.027)*
ROA	6.676*** *(0)*	6.9*** *(0)*
$ROA_{(t-1)}$	-0.192 *(0.493)*	-0.213 *(0.467)*
Capital Expenditure / Sales	0.483* *(0.09)*	0.49* *(0.086)*
R&D / Assets	8.584*** *(0)*	8.468*** *(0)*
R&D Missing Dummy	-0.041 *(0.664)*	-0.088 *(0.344)*
Intangibles	1.099*** *(0)*	1.288*** *(0)*
Industry/year controls	yes	yes
Number of Observations	4344	4344
F-Statistic	17.15	15.34
Prob>F	0.00	0.00

, **, * indicate significance at the 10%, 5%, and 1% levels respectively*

Table 9. Tobin's Q and ROA with Firm Fixed Effects Regressions

This table presents the results from performance regressions with firm fixed effects. Tobin's Q is measured as the market-to-book ratio and ROA is measured as operating income (data13) scaled by total assets. Successor-Incentive firm is the one where no other executive is within 10% of the highest propensity score executive (based on the coefficients in Table 1) on the likelihood of the executive succeeding the CEO. A company is not a single executive firm if there are multiple executives with a propensity score within 10% of the highest score in their firm. The alternative measure is based only on the executives' board seat and compensation. *Successor-Incentive Firm* is equal to 1 if the firm has a single executive below the CEO and it equals to zero otherwise. *Successor-Incentive Firm B* uses the alternative measure. All other variables are as defined in previous tables. We use robust standard errors to account for cross-sectional heteroscedasticity (White 1980). All models include firm fixed-effects.

	Model 1 Tobin's Q	Model 2 Tobin's Q	Model 3 ROA	Model 4 ROA
	Coefficient *(p-values)*	Coefficient *(p-values)*	Coefficient *(p-values)*	Coefficient *(p-values)*
Successor-Incentive Firm	-0.045 *(0.538)*		-0.007** *(0.018)*	
Successor-Incentive Firm B		-0.112* *(0.056)*		-0.0065** *(0.037)*
Young CEO	0.05 *(0.463)*	0.051 *(0.453)*	-0.0003 *(0.925)*	-0.0003 *(0.925)*
% Equity Compensation of Contenders	0.0004 *(0.664)*	0.0003 *(0.677)*	0 *(0.328)*	-0.0001 *(0.288)*
Percent Outside Directors	-0.007 *(0.366)*	-0.007 *(0.351)*	0** *(0.019)*	0** *(0.02)*
Ln(Sales)	-0.77*** *(0)*	-0.77*** *(0)*	0.09*** *(0)*	0.09*** *(0)*
Ln(Firm Age)	-1.0702*** *(0.002)*	-1.07*** *(0.002)*	-0.072*** *(0)*	-0.072*** *(0)*
Number of Business Segments	0.013 *(0.223)*	0.013 *(0.212)*	-0.003*** *(0)*	-0.003*** *(0)*
Volatility	-1.156 *(0.381)*	-1.178 *(0.371)*	-0.235*** *(0.003)*	-0.235*** *(0.003)*
Leverage	-1.285*** *(0.002)*	-1.281*** *(0.002)*	-0.156*** *(0)*	-0.155*** *(0)*
ROA	5.986*** *(0)*	5.975*** *(0)*		
Capital Expenditure / Sales	-0.11 *(0.337)*	-0.108 *(0.343)*	-0.001 *(0.913)*	-0.001 *(0.911)*
R&D / Assets	2.05 *(0.364)*	2.055 *(0.361)*	-0.514*** *(0)*	-0.5142*** *(0)*
R&D Missing Dummy	0.024 *(0.919)*	0.025 *(0.916)*	-0.034** *(0.021)*	-0.034** *(0.02)*
Intangibles	0.848 *(0.215)*	0.874 *(0.207)*	0.051* *(0.076)*	0.0534* *(0.064)*
Year controls	yes	yes	yes	yes
Number of Observations	6357	6357	6358	6358
Adjusted-R^2	55.64%	55.66%	71.02%	71.02%

, **, * indicate significance at the 10%, 5%, and 1% levels respectively*

Table 10. Logit Regressions on CEO Turnover

This table presents the results from Logit regressions on CEO turnover for the sample firm-year observations. There are 764 observations of new CEOs with our sample. The dependent variable equals one if the CEO identified for the firm-year observation differs from the previous year. A successor-incnentive firm is one where no other executive is within 10% of the highest propensity score executive (based on the coefficients in Table 1) on the likelihood of the executive succeeding the CEO. A company is not a single executive firm if there are multiple executives with a propensity score within 10% of the highest score in their firm. *Successor-Incnentive Firm* is equal to 1 if the firm has a single executive below the CEO and it equals to zero otherwise. *Successor-Incentive Firm B* uses the alternative measure based only on the executives' board seat and compensation. *CEO Age 63-65* is an indicator variable equal to one if the CEO is 63 to 65 years old in year (t-1). All other variables are as described earlier. Standard errors are robust to heteroscedasticity (White (1980)).

	Model 1 CEO Turnover		Model 2 CEO Turnover	
	Coefficient *(p-values)*	dy/dx	Coefficient *(p-values)*	dy/dx
Successor-Incentive Firm $_{(t-1)}$	0.894*** *(0)*	*0.069*		
Successor-Incentive Firm B $_{(t-1)}$			0.888*** *(0)*	*0.070*
Change in ROA $_{(t-2 \text{ to } t-1)}$	-4.547*** *(0)*	*-0.102*	-5.104*** *(0)*	*-0.105*
Successor-Incentive Firm$_{(t-1)}$ X Change in ROA$_{(t-2 \text{ to } t-1)}$	2.696** *(0.042)*	*0.043*	3.347** *(0.012)*	*0.088*
Ln(Sales)	0.011 *(0.734)*	*0.001*	0.007 *(0.826)*	*0.001*
CEO Ownership $_{(t-1)}$	-0.085*** *(0.002)*	*-0.008*	-0.083*** *(0.002)*	*-0.008*
Outside Director Ownership	0.0587* *(0.052)*	*0.006*	0.0599** *(0.049)*	*0.006*
CEO Age 63-65 $_{(t-1)}$	-0.078 *(0.673)*	*-0.007*	-0.069 *(0.711)*	*-0.006*
F-Test: Change ROA+Successor-IncentivexChange ROA=0	-1.851*** *(0.001)*		-1.757*** *(0.002)*	
Prob(CEO Turnover)		*0.107*		*0.108*
Number of Observations	4292		4292	
Pseudo R^2	3.9%		3.9%	

, **, * indicate significance at the 10%, 5%, and 1% levels respectively*

Table 11. Determinants and Likelihood of Poor Acquisition Announcement Bidder Returns

This sample consists of 1,473 completed U.S. merger and acquisitions (listed in SDC) between 1997 and 2002. Panel A shows the mean and median of the announcement returns. In Panel B models 1 and 2, the dependent variable is the 3-day Cummulative Abnormal Return (CAR). In models 3 and 4 the dependent variable is equals 1 if the cumulative abnormal return (3-day CAR) is in the bottom 10% of all bidder returns. *100% Cash Finance* is an indicator variable that equals one if the bidder financed the acquisitions with 100% cash. *Relative Deal Size* is the deal value from SDC to market capitalization of the acquirer 10 days prior to the announcement. *Tobin's Q* is approximated as the year end market value of equity plus book value of assets minus the book value of equity all scaled by total assets. *Stock runup* is the buy and hold return of the firm's stock from day -211 to -10 from the announcement date t=0. Year fixed effects are included in all models. Standard errors are adjusted for heteroskedasticity (White (1980)) and are clustered by firm.

Panel A

	N	Mean	Median
M&A Announcements	1473	-0.00024	0.00051
Tournament-Incentive Firm	318	0.0036	0.0035
Successor-Incentive Firm	1155	-0.00404	-0.0001
Difference		0.0076*	0.0036

Panel B

	Model 1 CAR Coefficient *(p-values)*	Model 2 CAR Coefficient *(p-values)*	Model 3 Poor M&A Coefficient *(p-values)*	Model 4 Poor M&A Coefficient *(p-values)*
Successor-Incentive Firm	-0.009**		0.537**	
	(0.021)		(0.041)	
Successor-Incentive Firm B		0.002		-0.198
		(0.577)		(0.393)
100% Cash Financed	0.009**	0.009**	-0.642**	-0.649***
	(0.016)	(0.013)	(0.01)	(0.008)
Relative Deal Size	-0.024***	-0.023***	1.305***	1.25***
	(0.004)	(0.005)	(0)	(0)
Leverage	0.031***	0.033***	-1.731***	-1.777***
	(0.009)	(0.006)	(0.008)	(0.005)
Ln(Assets)	-0.005***	-0.005***	-0.075	-0.086
	(0)	(0)	(0.217)	(0.16)
Tobin's Q	-0.001	-0.001	0.0175	0.015
	(0.623)	(0.633)	(0.667)	(0.708)
Stock Runup	-0.005	-0.005	0.168	0.157
	(0.232)	(0.255)	(0.235)	(0.275)
Year Controls	Yes	Yes	Yes	Yes
Number of Observations	1465	1465	1465	1465
R^2/Pseudo R^2	4.0%	3.7%	8.1%	7.7%

, **, * indicate significance at the 10%, 5%, and 1% levels respectively*

Table 12. OLS Regressions of Tobin's Q conditioning successor-incentive firms on young CEOs

This table presents the results from performance regressions. The dependent variable, Tobin's Q is measured by the total assets at the end of the year plus the difference in the market value of equity and the book value of equity all normalized by the total assets at the end of the year. *Successor-Incentive Firm* equals one if there is a single executive near the CEO and zero if there are multiple top executives. Each executive receives a score (called propensity score) based on the coefficients in Table 1 on the likelihood of the executive succeeding the CEO. Executives are considered to be contenders to be the next CEO if their propensity score is within 10% of the highest score in their firm. *Successor-Incentive Measure B* classification is determined using only insiders seats on the board and their compensation ranking (The alternative method is described in the text). *Young CEO* is an indicator variable that equals one if the current CEO is less than 60 years of age. All other variables are as described earlier. Finance and utility firms are excluded. We use robust standard errors to account for cross-sectional heteroscedasticity (White 1980) and cluster by firm to account for serial correlation.

	Model 1 Tobin's Q Coefficient *(p-values)*	Model 2 Tobin's Q Coefficient *(p-values)*
Successor-Incentive Firm	-0.114 *(0.227)*	
Successor-Incentive Firm B		-0.1274 *(0.14)*
Successor-Incentive Firm X Young CEO	-0.171 *(0.281)*	
Successor-Incentive Firm B X Young CEO		-0.14 *(0.328)*
Young CEO	0.257* *(0.064)*	0.232* *(0.062)*
Controls		
% Equity Compensation of Contenders	0.006*** *(0)*	0.006*** *(0)*
Percent Outside Directors	-0.01** *(0.031)*	-0.01** *(0.03)*
Ln(Assets)	0.1296*** *(0)*	0.1307*** *(0)*
Ln(Firm Age)	-0.149*** *(0.004)*	-0.148*** *(0.004)*
Number of Business Segments	-0.063*** *(0)*	-0.062*** *(0)*
Leverage	-0.622** *(0.032)*	-0.609** *(0.036)*
ROA	7.001*** *(0)*	7.02*** *(0)*
$ROA_{(t-1)}$	-0.226 *(0.474)*	-0.227 *(0.473)*
Capital Expenditure / Sales	0.477* *(0.075)*	0.4784* *(0.075)*
R&D / Assets	9.025*** *(0)*	9.007*** *(0)*
R&D Missing Dummy	-0.062 *(0.409)*	-0.0666 *(0.377)*
Intangibles	1.316*** *(0)*	1.331*** *(0)*
F-Test: Successor-Incentive + Successor-Incentive x Young CEO = 0	-0.285** *(0.03)*	-0.267** *(0.017)*
Industry/year controls	yes	yes
Number of Observations	4608	4608
Adjusted-R^2	29.52%	29.52%

, **, * indicate significance at the 10%, 5%, and 1% levels respectively*