Empire-Building or Bridge-Building?
Evidence from New CEOs' Internal Capital Allocation Decisions*

Yuhai Xuan
Harvard Business School
Soldiers Field
Boston, MA 02163
yxuan@hbs.edu

Abstract

This paper investigates how the job histories of CEOs influence their capital allocation decisions when they preside over multi-divisional firms. I find that, after CEO turnover, divisions not previously affiliated with the new CEO receive significantly more capital expenditures than divisions through which the new CEO has advanced. The pattern of reverse-favoritism in capital allocation is more pronounced if the new CEO has less authority or if the unaffiliated divisions have more bargaining power. I find evidence that having a specialist CEO negatively affects segment investment efficiency. The results suggest that new specialist CEOs use the capital budget as a bridge-building tool to elicit cooperation from powerful divisional managers in previously unaffiliated divisions.

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More than 70 years ago, Coase (1937) characterized firms as "systems of relationships" and "islands of conscious power" where the allocation of resources is dependent on an "entrepreneur-co-ordinator" rather than the price mechanism. Today, the capital allocation decisions of CEOs, the modern-day equivalent of Coase's entrepreneur, remain among the most important corporate decisions. A large literature in corporate finance is devoted to understanding the internal capital allocation process within conglomerates, yet few empirical studies directly examine the impact of CEO characteristics on investment outcomes inside such firms.[1] In this paper, I examine CEOs' decision-making processes for capital allocation in the context of power and relationships within corporations by investigating whether the job histories of CEOs influence their capital allocation decisions when they preside over multi-divisional firms.

To illustrate the research topic in this study, consider a firm with two lines of business: industrial chemical and consumer electronics. Suppose the firm has just named the head of the chemical division as its CEO. The new CEO has advanced through the ranks from the firm's chemical division and has not worked in its electronics business. Would there be a change in the capital allocation pattern across the two divisions after the new CEO takes office, and how would her prior affiliation to the chemical division affect her capital allocation decision?

On one hand, the new CEO could favor the chemical division when allocating internal funds. Standard agency theories suggest that managers pursuing their own private objectives and benefits will overinvest to build excessively large corporate empires (Jensen and Meckling, 1976; Jensen, 1986, 1993). In particular, managers are especially interested in investments that require their specific human capital, thereby entrenching themselves against possible future replacement (Shleifer and Vishny, 1989). These theories predict that, everything else equal, our new CEO would tilt the capital budget toward the division formerly under her control, effectively building her own little empire, her personal "island of power" that will strengthen her chances of keeping her job. Additionally, people tend to be overconfident about projects to which they are highly committed (Weinstein, 1980), and in the case of CEOs, overconfidence could result in

overestimation of investment returns and cause investment distortions (Malmendier and Tate, 2005). If the new CEO from the chemical division is overoptimistic about investments in the chemical industry as well as her own abilities in managing such projects, she would also display favoritism toward the chemical division in the capital allocation process.[2]

However, there are also other, non-economic factors the new CEO must take into consideration when allocating capital within the firm. A large literature in management and organizational behavior that studies the decision-making processes within organizations focuses on an important concept, organizational power, which relates directly to the CEO's capital allocation problem at hand (e.g., Pfeffer, 1992; and Baum, 2002).

Defined as the ability to influence organizational actions and outcomes (Baum, 2002), organizational power is a crucial factor in determining the outcome of resource allocation. Recently, financial economists have also focused on the concept of power within firms, particularly as related to internal capital allocation. For instance, Rajan, Servaes, and Zingales (2000) argue that internal power struggles create distortions in capital allocation within conglomerates and find that such distortions are related to the diversification discount. More generally, the dark-side theories of internal capital markets suggest that powerful divisional managers with valuable specific human capital, such as expertise or "internal political clout," can cause disruption in the capital allocation process (Stein, 2003). McNeil and Smythe (2004) find evidence that division-manager characteristics indicating lobbying power, such as tenure, seniority, and board membership, are positively correlated with segment capital expenditures.

In my example, the head of the electronics division is likely to have more power over the CEO in the bargaining process than the head of the chemical division, as her knowledge and political clout in the electronics division make her more valuable to the new CEO for running an overall successful firm. For instance, the new CEO can decline funding to investment proposals

[1] See Maksimovic and Phillips (2006) for a survey on internal capital markets in conglomerate firms.

[2] Admittedly, since CEO turnovers are not random events, more capital allocated to a particular division by the CEO does not automatically suggest bias or favoritism on the CEO's part. For example, a CEO can be chosen to grow a division based on her past experience. Thus, the selection of the CEO, her division association, and the change in

in the chemical division without worrying about the potential negative reactions from the division manager because of her own knowledge of the division and the industry. Without as much experience in the electronics business, she must rely more on the expertise and cooperation of the division manager for decisions and strategies in that line of business, thereby giving more bargaining power to the electronics division in its lobbying for capital. These political considerations predict that the new CEO would display reverse-favoritism in her allocation decisions and tilt the capital budget toward the electronics division.

In this paper, I document that the job histories of CEOs are an important determinant of internal capital allocation when they preside over multi-divisional firms. I investigate the capital allocation decisions made by 265 new CEOs at 230 diversified firms after turnovers between 1993 and 2002. CEO turnovers provide a good opportunity for this study because CEOs are likely to be most vulnerable to political complications at work when they are new to the post. In particular, I focus on the 98 new CEOs in my sample who advanced through the ranks from certain, but not all, divisions in their firms.[3] I call these CEOs *specialists* and separate the segments in their firms into two groups based on their affiliation with the CEOs: divisions that the CEOs advanced through the ranks from (labeled the *in-group*), and the rest of the divisions (labeled the *out-group*).[4]

The empirical analysis in the paper focuses on changes in segment capital expenditures around CEO turnovers to determine whether specialist CEOs treat the in-group and the out-group segments differently when allocating capital after succession, and if so, whether they favor the in-group ("empire-building") or the out-group ("bridge-building") in their allocation decisions.

My results are broadly consistent with the bridge-building hypothesis. I find that, on average, the out-group segments experience a significant increase in capital expenditures after CEO turnover relative to the in-group segments. The average change in segment investment ratio

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capital allocation across divisions might be endogenously determined. I address the issue of endogeneity in Section 2.4.1.

[3] "Division" and "segment" are used interchangeably throughout the paper.

(capital expenditures over assets) after a specialist CEO takes office is 0.013 higher for the out-group than the in-group, statistically significant at the 5% level or better. This difference of 0.013 is economically meaningful as it represents more than 20% of the average pre-turnover investment ratio of 0.06. Moreover, these findings also hold for specialist CEOs hired from outside the firm and are robust to the inclusion of segment-level, firm-level, and turnover-related controls as well as changes in the test specifications including the definition of specialists, the measure for capital expenditures, the time frame around turnover, and the sample period.[5]

I further test for the bridge-building hypothesis by examining whether the in-group and out-group difference in capital allocation change around turnover is related to the specialist CEO's relative bargaining power within the firm. I find that the difference is more pronounced if the specialist CEO does not hold a corporate-level executive title such as chief operating officer or president before succession or if the in-group segments and the out-group segments are not in related industries. The results from the finer tests are consistent with the prediction of the bridge-building hypothesis that a specialist CEO with less power should engage in more bridge-building efforts, which imply a larger in-group and out-group difference in capital expenditure changes.

While my results are consistent with the bridge-building hypothesis, a key concern is the issue of endogeneity. CEOs are chosen by the board of directors, and the job histories of CEOs are observable by the board and may be an important selection criterion in the board's choice for nomination. Therefore, the endogenous selection of CEOs and the divisions they are from could potentially explain the results or bias the findings. It is worth noting, however, that the most obvious and natural endogeneity story is one that would lead to a bias that works in precisely the *opposite* direction to the empirical findings in this paper. In particular, the board chooses a CEO who has experience and expertise in a specific industry in order to grow that industry, implying

[4] In contrast, 96 of the new CEOs have rotated through all divisions before their CEO appointments, referred to as *generalists*, and the remaining 71 CEOs are hired from outside the firm. Generalist CEOs and outside CEOs serve as useful benchmarks for comparing capital allocation decisions.

[5] Specialist CEOs hired from outside the firm are CEOs who are not internally promoted and who have industry experience in certain, but not all, segments of the firm.

that the CEO thus chosen would most likely invest more in the division she comes from than in the unaffiliated divisions. Without the endogeneity bias, my results would only be stronger.

Nonetheless, I consider alternative versions of the endogeneity story in which the CEO might be chosen to grow the segments in the out-group or to reduce investments in the in-group, leading to the relative increase in the capital expenditures of the out-group segments observed in the data. I try to discriminate against this type of endogeneity story by identifying weak divisions in the firm based on segment cash flow and segment *Q* and examine if there is any difference in the pattern of capital allocation changes for these divisions compared with strong divisions in the same firm. I find that the in-group and the out-group segments experience differential capital allocation change regardless of segment operating performance and segment investment opportunity. The difference in capital expenditure change is significant and of the same magnitude even when one compares the *strong* segments in the *in-group* with the *weak* segments in the *out-group*, inconsistent with what the endogeneity story might suggest.

I further address the endogeneity problem more generally by employing propensity score matching methods (Dehejia and Wahba, 1999, 2002; Villalonga, 2004). Based on pre-turnover segment characteristics, I estimate a segment's propensity to be a member of the out-group and use the propensity scores as a summary measure to match the out-group segments and the in-group segments. Using the matched sample to correct for any endogenous selection on observables, I then estimate the effect of being in the out-group on the change in capital allocation around CEO turnover. This propensity score matching difference-in-difference estimator also indicates a relative increase in the average change in capital expenditures for the out-group compared with those of the in-group after a specialist CEO takes office. The magnitude and significance level of the estimate are similar to those of the main results, further alleviating the concern that endogeneity might account for the findings.

Finally, I investigate whether having a specialist CEO affects segment investment efficiency by studying the changes in the sensitivity of segment investment to *Q* before and after the CEO turnover. As the dark-side theories of internal capital markets suggest (e.g., Rajan,

Servaes, and Zingales, 2000; Scharfstein and Stein, 2000), agency conflicts and power struggles between the CEO and the divisional managers may result in investment inefficiency within conglomerates. Having a specialist CEO, as opposed to a generalist CEO who has knowledge and experience in all business lines, might impact segment investment efficiency because a generalist CEO's ability to evaluate investment projects in all segments of the firm on an equal footing, without being biased by the bridge-building tendencies, might allow her to allocate funds more efficiently across divisions than a specialist CEO.

My results show that the sensitivity of segment investment to *Q* increases significantly after CEO turnover in a generalist's firm, indicating an improvement in investment efficiency. Segments under a specialist CEO, however, do not experience such improvements: the investment sensitivity to *Q* for these segments is virtually unchanged after the turnover. In addition, I examine the market's reaction to the announcement of the appointment of specialist versus generalist CEOs and find that the cumulative abnormal returns around announcements are significantly higher for incoming CEOs who are generalists. The market's response corroborates the finding that generalist CEOs are associated with improved segment investment efficiency after turnover and suggests that appointments of generalist CEOs are perceived by the market as positive news for the conglomerates.

Overall, my results suggest that the job histories of CEOs are an important determinant of their capital allocation decisions and that new specialist CEOs are affected by political concerns in the capital allocation process. Compared with the models of Rajan, Servaes, and Zingales (2000), Scharfstein and Stein (2000), and Wulf (2008), in which the capital budget is viewed as a tool to counter division managers' self-interested, rent-seeking forms of behavior, here the capital budget is used as a bridge-building tool by new specialist CEOs to elicit cooperation from powerful division managers in the divisions they are not affiliated with.

This paper is also closely related to the literature that studies how the identity and characteristics of the top management influence corporate decisions and performance (e.g., Bertrand and Schoar, 2003; Malmendier and Tate, 2005). In particular, Weisbach (1995)

examines divestiture decisions after CEO turnover and argues that firm investment policy changes around CEO turnover because different managers have different skill sets. However, he focuses on the relationship between the probability of divesting and the investment performance and does not directly examine any CEO characteristics. Li (2005) briefly studies post-succession divisional investment changes in thirty-five firms where certain divisions are under the new CEO's direct management before turnover to look for empire-building behaviors but finds no conclusive results. To the best of my knowledge, my paper is the first attempt to systematically examine how CEO characteristics, in particular, CEO job histories, influence their capital allocation decisions when they preside over multi-segment firms.

The remainder of the paper is organized as follows. Section 1 describes the data and defines the key variables used in the analysis. Section 2 presents the empirical results and discusses alternative interpretations including endogeneity. Section 3 concludes.

1. Data and Variables

In this section, I first describe the sample construction process and the sources for the data used in the empirical analysis. I then discuss the distinction between a specialist CEO and a generalist CEO and the categorization of segments based on their association with the CEO, and define the variables used in the analysis. Descriptive statistics are presented last.

1.1 Sample Selection and Data Sources

I start building the sample by obtaining a list of CEO names for all companies included in Standard and Poor's Executive Compensation (ExecuComp) database. From the list, I identify all CEO turnover events occurring between 1993 and 2002, and obtain segment-level and firm-level information for the event firms from Compustat Segment Files and Compustat Industry Files, respectively. To be retained in the sample, a firm must then meet the following two requirements. First, the firm must have at least two business segments at the time of the CEO turnover, and have no segment in the financial industry (SIC codes 6000-6999) or the regulated utility industry (SIC codes 4900-4999). Second, at least one of its segments must exist both in

the year before and the year after succession for which segment-level financial data are available (as identified by the same segment ID, variable SID, in the Segments data).[6]

Next, I manually collect data on CEO and turnover characteristics for the turnover events in the sample from various sources including Factiva news search, company annual reports, proxy statements, SEC filings, press releases, and company Web sites. The information collected includes age and education of CEO, the origin of CEO (internal candidate or outside hire), the nature of turnover (planned succession or forced turnover), the announcement date of CEO appointment, and most important, CEO job histories for determining division affiliation. In addition, I collect data on board size and the number of insider directors on the board around the turnover. CEO ownership data are obtained from ExecuComp. Finally, I exclude from the sample turnovers as a consequence of mergers or acquisitions, turnovers resulting in co-CEOs, and turnovers in which the new CEO stays in office for less than two years. I ultimately arrive at a final sample of 265 CEO turnovers in 230 multi-segment firms between 1993 and 2002, with a total of 715 segments existing both in the year before and the year after the turnover.[7]

1.2 Variable Definitions and Constructions

1.2.1 CEOs: Specialists versus Generalists

I separate the new CEOs who are internally promoted into two groups according to their job histories prior to the CEO appointments.[8] *Specialists* are defined as new CEOs who have advanced through the ranks from certain, but not all, divisions in their firms prior to CEO appointments. For example, Terry Growcock became CEO of Manitowoc in 1998. He joined the company in 1994 as general manager of Manitowoc Ice, a subdivision of the company's Foodservice Group, and was named President of the Foodservice Group in 1995. Since

[6] Firms have discretion in reporting segment data and sometimes change how they break down company activities, resulting in completely different segments reported. Distinct segments before and after succession are not suitable for the study in this paper.

[7] Requiring the same segment to exist in the year before and the year after the turnover introduces potential bias in the analysis, particularly if segments unaffiliated with the CEO get completely divested after turnover. I address this issue and examine divested segments in Section 2.2.

[8] In Section 2.2, I expand the definitions of specialists and generalists to examine new CEOs hired from outside the firms in the same fashion.

Manitowoc has three business segments (Marine Group, Foodservice Group, and Crane Group), Mr. Growcock is considered a specialist CEO in the sample.

While specialists are the main focus of my study, *generalists* serve as a useful benchmark or control group for comparing CEO capital allocation decisions. Generalists are defined as new CEOs who either have rotated through all divisions in their firms before their CEO appointments or have always worked in a general role (e.g., chief financial officer or general counsel). Norman Schwartz, who became CEO of Bio-Rad Laboratories, Inc., at the end of 2002, is an example of a generalist CEO. Mr. Schwartz joined the company in 1974, was promoted to Group Manager of Clinical Diagnostics in 1993, and was appointed as Group Manager of Life Science in 1997. Clinical Diagnostics and Life Science are Bio-Rad's two major business segments.

1.2.2 Segments: In-Group, Out-Group, and General Group

Segments under a specialist CEO are partitioned into two groups based on their prior association with the CEO. The divisions that the CEO has advanced through the ranks from are called the *in-group*. The rest of the divisions in the firm are called the *out-group*. Using the previous example, under Terry Growcock, the in-group includes the Foodservice segment of Manitowoc, while the out-group consists of the Marine Group and the Crane Group. All segments under a generalist CEO are called the *general group*. The majority of the analysis in the paper is focused on the distinction between the in-group and the out-group.

1.2.3 CEO Turnover

The origin of the CEO and the nature of the turnover are defined following standard practice in the CEO turnover literature.[9] An outside CEO, as opposed to an inside CEO, is defined as a new CEO who has been with the firm for less than one year at the date of the succession announcement. Segments in outside CEOs' firms are referred to as the *external group*. A turnover is considered forced if an announcement of forced resignation or firing of the departing CEO is reported in the news media, if the reason for departing is performance-related,

[9] See, e.g., Denis and Denis (1995), Parrino (1997), and Huson, Malatesta, and Parrino (2004).

or if the departing CEO is under the age of 60 without health problems or a position with another firm. Otherwise, it is categorized as a planned, or non-forced, succession.

1.2.4 Internal Capital Market

Since multi-segment firms frequently do not fully allocate accounting items to the segment level in their reporting, I follow Berger and Ofek (1995) and Billett and Mauer (2003) to adjust the segment-level data in conformity to the firm-level data. Specifically, I measure the deviation of the sum of segment-level data items (assets, sales, capital expenditures, operating income, and depreciation) from the corresponding firm-level data, and prorate the unallocated amount to the segments.[10] Industry median values, when required, are computed using only single-segment firms and are matched to the segments based on the narrowest SIC grouping that yields at least five single-segment firms. To avoid potential problems with outliers, all computed variables are winsorized at the 1st and 99th percentiles.

Capital allocation measure: The key variable in the analysis is segment capital expenditures. I consider two measures using segment capital expenditures to proxy for capital allocation to a segment. The first measure is the segment investment ratio, defined as segment capital expenditures (as reported by Compustat Segment Files) divided by total segment assets.[11] The second measure controls for industry differences in capital spending. The industry-adjusted segment investment ratio is computed by subtracting from segment investment ratio the corresponding industry median ratio.

Control variables: The main control variables included in the regressions are segment imputed *Q* and segment cash flow ratio. A segment's imputed *Q* is the median Tobin's *Q* of single-segment firms that operate in the same industry of the segment. For single-segment firms, *Q* is calculated as the book value of assets (Compustat Industrial Annual Item 6) plus the market

[10] For example, if the sum of segment capital expenditures is 5% lower than the total capital expenditures reported by the firm, then capital expenditures for each segment are grossed up by 5%. Specifically, the adjusted capital expenditures for a segment are computed as the unadjusted capital expenditures for that segment times the firm-level capital expenditures divided by the sum of all segment capital expenditures.

[11] Similar to Scharfstein (1998), I normalize by assets in the same year rather than lagged assets to avoid loss of observations due to segment-reporting changes. I verify in Section 2.2 that using alternative scaling does not affect the results.

value of equity (price times shares outstanding from CRSP) less the sum of the book value of common equity (Item 60) and balance sheet deferred taxes (Item 74) all over assets. Segment cash flow ratio is segment operating income before depreciation divided by segment assets. The industry-adjusted segment cash flow ratio is the segment cash flow ratio minus the median cash flow ratio of its industry benchmark.

1.3 Descriptive Statistics

The final sample consists of 265 CEO turnovers in 230 multi-segment firms between 1993 and 2002, with a total of 715 segments.[12] Of these new CEOs, 98 (37%) are specialists, overseeing 287 (40%) of the segments. Of these 287 segments in specialists' firms, 128 (45%) are in the in-group, and 159 (55%) are in the out-group. In each of the summary tables, I present descriptive statistics for the full sample, and then break down by CEO type and/or segment type.

Table 1 shows the number of turnovers by year. The succession events distribute rather evenly over the ten-year sample period, although there is a higher concentration of turnovers in 1995 and between 1999 and 2001. The specialist, generalist, and outside CEO subsamples display similar time patterns. I include year fixed effects in my baseline regression to control for possible systematic time effects.

Table 2 presents summary statistics for CEO characteristics as well as firm-level and segment-level financials. Panel A focuses on the new CEOs. Specialist CEOs and generalist CEOs are similar in age, education background, ownership, and the nature of their turnovers. The majority of the new CEOs are internal candidates promoted through planned successions. Firm-level summary statistics in Panel B show that firms appointing specialist CEOs and firms appointing generalist CEOs are comparable in *Q*, capital expenditures, cash flow, and the number of reported segments. Nevertheless, they differ in size. Compared with generalists' firms, specialists' firms are 36% larger in assets and 39% larger in sales. CEO candidates at larger firms are more likely to be specialists as the bigger the firm, the more complex its business activities

are, and, therefore, the less likely for any candidate to be an expert in every aspect of the company business. Firms appointing outside CEOs are the smallest in size.

Panel C of Table 2 indicates that segments in the general group are smaller in assets and in sales than the in-group and the out-group segments. The in-group segments, in particular, are significantly bigger than both the out-group and the general group, while the out-group segments and the general-group segments are similar in size. The difference in size between the in-group and the out-group segments suggests that specialist CEOs are normally promoted from bigger divisions of their firms. Segments are similar in all other aspects including investment opportunities and operating performance.[13] In particular, it is worth noting that the segment capital expenditures measure for the three groups of segments does not differ significantly.

2. Empirical Results

2.1 Change in Segment Capital Allocation around CEO Turnover

In this section, I study new CEOs' internal capital allocation patterns by examining capital allocation changes in different types of segments after CEO turnover using OLS regressions. Focusing on changes helps control for time-invariant segment-level and firm-level factors affecting capital allocation. I estimate the following model on all segments in *inside* CEOs' firms for the year before and the year after the turnover, excluding the turnover year:[14]

$$I_{ijt} = \beta_{0j} + \beta_1 * After + \beta_2 * Specialist + \beta_3 * Specialist * After + \beta_4 * Specialist * Out\text{-}group + \beta_5 * Specialist * Out\text{-}group * After + \gamma * X_{ijt} + \delta * Year_t + \varepsilon_{ijt}. \quad (1)$$

In equation (1), I_{ijt} is a measure for segment capital allocation (the investment ratio or the industry-adjusted investment ratio) of segment *i* in firm *j* at time *t*. The intercept term β_{0j} is firm-specific and captures firm fixed effects to absorb unobserved heterogeneity such as differences in segment reporting between firms. *After*, *Specialist*, and *Out-group* are all dummy variables.

[12] Thirty-five firms had two CEO turnovers during the sample period. I treat these separate turnover events as separate observations.
[13] All four groups of segments in the sample also have comparable industry compositions (unreported). The most represented industry group is manufacturing.
[14] I exclude the year of the turnover from the analysis because it includes both pre- and post-succession periods.

After takes the value zero in the year before turnover and one in the year after turnover. *Specialist* equals one if the new CEO of the firm is a specialist and zero if she is a generalist. *Out-group* is equal to one if segment *i* is an out-group segment and zero otherwise. Note that if *Out-group* equals one, *Specialist* is always equal to one, since an out-group segment is in a specialist's firm by definition. Hence, *Specialist* differentiates segments under specialist CEOs, including both the in-group and the out-group segments, from segments under generalist CEOs, while *Out-group* further differentiates the out-group segments from the in-group segments.

Under this setting, β_1 measures the average change in segment capital allocation around turnover for the general group, and β_3 measures the difference in the average change in capital allocation around turnover between the in-group and the general group. The key coefficient of interest is β_5, which is in essence a difference-in-differences estimator that captures the difference in the average change in capital expenditures around turnover between the out-group and the in-group. If, all else equal, specialist CEOs allocate in proportion more capital expenditures to segments in the out-group, one would predict that $\beta_5 > 0$.

X_{ijt} contains a set of controls for factors other than division affiliation at the segment level and at the firm level that might influence segment capital expenditures. Segment imputed *Q* and segment cash flow are standard controls for investment opportunities and financial resources at the segment level, respectively. I include segment sales to control for differences in segment size.[15] Firm cash flow (operating income before depreciation over assets) is added to account for firm-level financial constraints. Since previous studies have shown that the origin of the CEO and the nature of the turnover can impact firm behavior and performance, I also include dummy variables to control for whether the CEO is an insider or an outsider and whether the turnover is natural or forced.[16] Finally, $Year_t$ is a calendar year dummy for year fixed effects.[17] In all the

[15] Alternatively, using segment assets as a proxy for size does not change the results. Controlling for relative segment size (segment assets over firm assets) also does not alter the results.
[16] See, for example, Denis and Denis (1995), Parrino (1997), and Warner, Watts, and Wruck (1988).
[17] Additional controls such as CEO age, education, ownership, board characteristics, number of segments in the firm, segment assets/sales growth, and segment affiliation with the departing CEO do not affect the results.

analyses reported in this paper, I use robust standard errors clustered by firm to account for the potential dependence of the error term across firms.

Table 3 reports the regression results. The dependent variables are segment investment ratio for the first three columns and industry-adjusted segment investment ratio for the last three columns. The estimates for the coefficient on *Specialist*Out-group*After*, β_5, are indeed positive and statistically significant for both measures of capital expenditures in all specifications. Using the estimates from Column V, the out-group segments see a significant increase of 0.019 ($\beta_1+\beta_3+\beta_5$) in normalized capital expenditures after CEO turnover, *ceteris paribus*. This change in capital allocation for the out-group segments is 0.013 (β_5) higher than that for the in-group segments and 0.020 ($\beta_3+\beta_5$) higher than that for the segments in the general group. The magnitude of these differences is very similar for both measures of segment capital allocation, all significant at the 5% level or better.[18] Given an average segment investment ratio of 0.06 and an average industry-adjusted segment investment ratio of 0.012 in a specialist's firm before turnover, a difference of 0.013 in the change of the investment ratios between the in-group and out-group segments is also economically meaningful.

When compared with the general group, the in-group segments see a slightly higher change in investment ratio after turnover, although the difference is not statistically different from zero. Consistent with the existing research on divisional investment in conglomerates (e.g., Scharfstein, 1998), I also find that investment of segments in diversified firms has a negative (albeit insignificant) relationship with segment *Q* but is positively related to segment cash flow. Other control variables do not seem to affect segment capital allocation.

Overall, the regression results are consistent with the bridge-building hypothesis. After turnover, the out-group segments receive more favorable treatment in the capital allocation process from a specialist CEO compared with the in-group segments. The sharp difference in

[18] In a univariate difference-in-difference comparison, I confirm using the Wilcoxon rank-sum test that the distributions of the changes in segment investment ratios (unadjusted and industry-adjusted) for the in-group and for the out-group are statistically different (unreported). The changes in segment investment ratios for the in-group and the general group have similar underlying distributions.

capital allocation changes between the in-group and the out-group cannot be explained away by firm-level or segment-level heterogeneity or turnover characteristics.

2.2 Robustness Checks

This section demonstrates the robustness of the regression results. Details on the robustness tests described in this section including the regression results can be found in the online appendix.

Alternative definition of specialists and generalists: Under the original definitions, specialists and generalists are identified among *inside* CEOs. Outside CEOs, however, differ substantially in their industry experience as well. Given the diverse nature of business at conglomerates, not all outside CEOs are equally affiliated with all the segments in their new firms. Paul Kuhn, the CEO of Kaman Corporation, is such an example from the sample. Kuhn, who became CEO of Kaman in 1999, was previously senior vice president in charge of the aerospace engine businesses for Coltec Industries, Inc., and had spent his entire career in the aircraft engine industry. Kaman Corporation has three business segments: Aerospace, Industrial Distribution, and Music Distribution. Clearly, although an outsider, Kuhn is a specialist as he has a much stronger affiliation with the Aerospace segment. Therefore, I broaden the definition of specialists to include outside CEOs who have primary industry experience in certain, but not all, segments in their new firms. From the 71 outside CEOs in the sample, I identify seven as specialists according to this broader definition. Together, they represent 36 segment-year observations covering 18 segments in total, eight in the in-group and 10 in the out-group. The remaining outside CEOs are classified as generalists. Segments in the external group are assigned to the in-group, the out-group, and the general group accordingly.

The bridge-building hypothesis predicts that outside specialist CEOs should also favor the out-group segments in the capital allocation process because outside specialists would be subject to similar political concerns as the inside specialists due to their affiliation with the in-group. I found that this is indeed the case. On average, the out-group segments under an outside

specialist also witness a more positive change in capital expenditures than the in-group segments. I will use this broader definition of specialists later in the paper to conduct further tests and distinguish alternative explanations.

I also consider alternative ways to categorize CEOs as specialists versus generalists using the following stricter definitions. A CEO is classified as a specialist only if fewer than half of all segments in the firm are in-group segments.[19] A CEO is classified as a generalist if she has always worked in a general role such as chief financial officer or general counsel. My results are robust with this cleaner and narrower set of CEO specialists and generalists.

Scaling of capital expenditures: The results are robust to scaling capital expenditures in the investment ratios by beginning-of-period assets (defined as end-of-period assets minus capital expenditures plus depreciation) or by sales. In addition, to alleviate the concern that large asset disposals in the out-group segments or large asset additions in the in-group segments not accounted for by capital expenditures might bias the results, I re-estimate the regressions after eliminating the top 10% in-group segments and the bottom 10% out-group segments ranked by asset growth rate. The results are not affected.

Time frame around CEO turnover and sample composition: Lengthening the time frame around turnover by using data from two years before to two years after CEO turnover in the analysis yields similar results. I also find that the results hold for both the pre-1998 and the post-1998 sample periods, despite the change in the segment reporting rules in 1997.[20]

Divestitures of segments: A potential problem in the specification is that only segments that exist both before and after the turnover are included in the analysis. The results will be biased if a significant number of out-group segments are completely divested by the specialist CEOs and thus disappear in the post-turnover period. To address this concern, I examine all segments in specialists' firms in the original dataset to identify segments that exist at the time of

[19] Alternatively, I consider only specialist CEOs who are affiliated with only one division of the firm. The results are qualitatively similar.

[20] Prior to 1998, the Statement of Financial Accounting Standards (SFAS) 14 defines firm segments as major lines of business representing 10% or more of the firm's combined assets, sales, or earnings. Starting from 1998, SFAS 131 requires firms to define segments as operating segments, reflecting the actual organizational structure of the company.

turnover but disappear in the year after turnover. I find three instances of divestitures of out-group segments and two instances of divestitures of in-group segments. Given the small number of segment divestitures observed in the sample and the fact that they occur in both the in-group and the out-group segments, it is unlikely that focusing on segments existing in both the pre- and the post-turnover periods introduces any bias.

2.3 Sharper Tests of the Bridge-Building Hypothesis

The difference in capital allocation changes between the in-group and the out-group segments in a specialist's firm around turnover is consistent with the prediction of the bridge-building hypothesis. In this section, I further test the bridge-building hypothesis by exploring whether the difference in capital expenditure changes between the two groups is related to the CEO's relative bargaining power within the firm. The intuition is that a specialist CEO with less power should engage in more bridge-building efforts, and, therefore, the difference between the average changes in the investment ratios of the in-group and the out-group should be more pronounced. I first examine specialist CEOs' titles before turnover. Then I focus on the industry relatedness of the out-group segments to the in-group segments.

2.3.1 Specialists' Titles before Turnover

A common measure used by financial researchers to evaluate the status of top management is executive titles (Morck, Shleifer, and Vishny, 1989; Adams, Almeida, and Ferreira, 2005). In this section, I distinguish specialists by the titles they hold before becoming CEOs. Specifically, I separate specialist CEOs into two groups: those who hold the title of Chief Operating Officer or President before succession (hereafter referred to as the COO specialists), and those who do not (the non-COO specialists).[21]

A COO specialist might not need to "bridge-build" as much as a non-COO specialist after a CEO turnover for two reasons. First, numerous studies show that the COO or the President is the most likely person to become the next CEO (Dechow and Sloan, 1991; Naveen, 2006), and

[21] For firms without such titles, I look for titles such as executive vice president of operations at the corporate level.

individuals in an organization derive power from formal positions and authority (Finkelstein, 1992). A COO specialist's status before succession as the heir apparent is, therefore, likely to give her more authority within the firm compared with a non-COO specialist promoted directly from the ranks of divisional managers. Second, responsible for the entire firm's operation as a corporate-level executive, a COO specialist would have more access to learning about the segments and industries she is not familiar with and more opportunities to gain management experience across all divisions in the firm. Her knowledge and experience would likely make her bargaining power as a CEO against divisional managers higher than that of a non-COO specialist.

Approximately 70% of all the specialists in the full sample are classified as COO specialists.[22] About one-third of these COO specialists hold the COO title no longer than a year before being appointed as CEO, and the median time duration between the COO appointment and the CEO appointment is two years. I estimate the following model using the sample of all *specialist* CEOs:

$$I_{ijt} = \beta_{0j} + \beta_1 * After + \beta_2 * COO + \beta_3 * Out\text{-}group + \beta_4 * Out\text{-}group * COO + \beta_5 * COO * After + \beta_6 * Out\text{-}group * After + \beta_7 * Out\text{-}group * COO * After + \gamma * X_{ijt} + \delta * Year_t + \varepsilon_{ijt}. \quad (2)$$

As before, the dependent variable, I_{ijt}, is the investment ratio of segment *i* in firm *j* at time *t*, and *After* is equal to zero in the year before turnover and one in the year after turnover. *COO* is a dummy variable that equals one if the new CEO is a COO specialist and zero otherwise. *Out-group* takes the value one if segment *i* is an out-group segment and zero if it is an in-group segment. I control for segment *Q* and segment cash flow and include firm and year fixed effects.

In equation (2), β_1 measures the average change in capital expenditures of the in-group segments in a non-COO specialist's firm around turnover. β_5 captures the difference in the average change in capital expenditures between the in-group segments under a COO specialist and the in-group segments under a non-COO specialist. β_6 measures the difference in the average change in capital allocation between the out-group and the in-group segments in a non-COO

[22] This is consistent with the finding in Naveen (2006) that diversified firms are more likely to have formal relay succession plans.

specialist's firm. The coefficient of interest, β_7, is the triple-difference estimate that captures the effect of having a COO specialist on the difference in capital allocation change between the out-group and the in-group.

Table 4 reports the results of estimating equation (2). Columns I and II focus on the segment investment ratio, and Columns III and IV focus on the industry-adjusted segment investment ratio. The results indicate that the out-group segments experience an average increase in capital expenditures relative to the in-group segments under a non-COO specialist (β_6 positive and significant). A COO specialist, however, significantly reduces the difference (β_7 negative and significant) by increasing capital allocation to the in-group and reducing allocation to the out-group. Using the regression estimates from Column III, relative to a non-COO specialist, a COO specialist increases the change in the industry-adjusted investment ratio of the in-group from –0.022 to 0.008, and reduces the change for the out-group from 0.021 to 0.013.[23] These results suggest that a non-COO specialist displays a more pronounced pattern of bridge-building in capital allocation and is associated with a wider gap in the average capital expenditure changes between the in-group and the out-group segments around turnover.

2.3.2 Out-Group Segments' Industry Relatedness to In-Group Segments

In this section, I take a closer look at the segments in the out-group by dividing them into two groups based on whether the out-group segment's industry is related to any of the in-group segments' industries within the same firm.

The out-group segments' industry relatedness to the in-group segments might influence the CEO's tendency to bridge-build since a new specialist CEO is likely to have more bargaining power against related out-group divisions than unrelated ones. The political clout and expertise of a related out-group division's manager may not translate to as much bargaining power over the CEO as those of an unrelated one because the CEO is likely to have more knowledge and

[23] Specifically, the average change in the industry-adjusted segment investment ratio of the in-group under a non-COO specialist is β_1: –0.022. The average change for the out-group under a non-COO specialist is $\beta_1 + \beta_6$: –0.022 + 0.043 = 0.021. The average change for the in-group under a COO specialist is $\beta_1 + \beta_5$: –0.022 + 0.030 = 0.008. The average change for the out-group under a COO specialist is $\beta_1 + \beta_5 + \beta_6 + \beta_7$: –0.022 + 0.030 + 0.043 – 0.038 = 0.013.

experience as well as personal influence in a related out-group division. In other words, the more related an out-group segment is to the in-group segments, the less the division boundaries and hence the CEO's prior association matter. Therefore, one would expect the unrelated out-group segments to see a larger increase in capital expenditures after turnover than the related ones.

The industry relatedness of the out-group segments to the in-group segments is primarily identified based on two-digit SIC codes at the segment level. However, Scharfstein (1998) and Gertner, Powers, and Scharfstein (2002) argue that using two-digit SIC codes as a measure of relatedness among divisions of conglomerates is problematic because segments unrelated by SIC codes often produce related products and provide related services and vice versa. Therefore, I follow Lamont (1997), Scharfstein (1998), and Gertner, Powers, and Scharfstein (2002) and use my own subjective assessment to correct potential misclassifications by the two-digit approach after analyzing segment descriptions from company annual reports, filings, Web sites, and media articles. For example, by the two-digit SIC measure, Dayton Hudson Corp.'s Apparel and Accessory Stores segment (SIC: 5651) is unrelated to its Discount Department Stores segment (SIC: 5331), while I reclassify them as related. This approach yields 63 related out-group segments and 90 unrelated out-group segments.[24]

To focus on the out-group's industry relatedness to the in-group, I estimate the following regression on segments under all *specialist* CEOs:

$$I_{ijt} = \beta_{0j} + \beta_1 * After + \beta_2 * Out\text{-}group + \beta_3 * Out\text{-}group * Related + \beta_4 * Out\text{-}group * After + \beta_5 * Out\text{-}group * Related * After + \gamma * X_{ijt} + \delta * Year_t + \varepsilon_{ijt}. \quad (3)$$

Equation (3) includes a new dummy variable *Related*. *Related* equals one if the segment is an *out-group* segment whose industry is related to one or more industries of the in-group segments in the same firm and zero otherwise. β_1 measures the average change in capital expenditures of the in-group segments around turnover, while β_4 captures the difference in the change in capital expenditures between the *unrelated* out-group segments and the in-group

[24] The approach by two-digit SIC codes classifies 55 out-group segments as related and 98 as unrelated. Using the classification by two-digit SIC codes produces consistent albeit noisier regression coefficients.

segments. β_5 is the coefficient of interest in equation (3), which measures the difference in the average change between the related out-group segments and the unrelated out-group segments.

Table 5 presents the results of estimating equation (3). The regression estimates show that, as expected, the unrelated segments in the out-group experience a larger increase in both the segment investment ratio and the industry-adjusted ratio compared with the related segments. Relative to the in-group segments, the unrelated out-group segments on average experience a more positive change in capital expenditures around turnover. The sign and magnitude of β_5, however, indicates that the difference between the unrelated out-group segments and the in-group segments is reduced by 60% or more if the out-group segment is instead in an industry related to the industries of the in-group segments in the same firm.

2.4 Alternative Explanations

While the results so far are broadly consistent with the bridge-building hypothesis, they also admit several alternative explanations. In this section I discuss these interpretations and describe how I discriminate among them empirically. Details on the conducted tests and their results can be found in the online appendix.

2.4.1 Endogeneity

Since the job histories of the CEO may be a deciding factor in the board of directors' choice for appointment, the endogenous selection of CEOs and the divisions they are from could potentially bias the findings. The most obvious and natural endogeneity story, however, is one that would have precisely the opposite implications of the empirical findings in this paper. The board chooses a CEO who is an expert in a particular industry in order to grow that industry. Without the endogeneity problem, my results would only be stronger.

Two other versions of the endogeneity story, however, could potentially bias the results. One possibility is that a divisional manager who has successfully grown the business in her own segment could be selected by the board as the new CEO and instructed with the task of growing the firm's other businesses. This story, however, cannot explain why outside specialists also

display the same allocation pattern as the inside specialists do. It is less likely for a firm to hire an outside specialist in one industry only to ask her to grow the firm's other businesses. Moreover, it cannot explain why the out-group segments unrelated to the in-group's industries see a larger increase in capital expenditures than the related ones. The CEO's experience in running her old division would be more easily adapted to managing divisions in related industries, and such divisions should be the natural starting point if the CEO were to shift her management focus.

I further discriminate against this story by identifying the weak divisions in the firm and examine if there is any difference in the pattern of capital allocation changes for these divisions compared with strong divisions in the same firm. If the CEO is chosen from a successful in-group segment to help grow the out-group segments in the firm, the increase in capital expenditures should most likely flow first to the stronger segments with higher return on assets and better investment opportunities. Similarly, the weak segments in the *out-group* should have no priority over the more profitable segments in the *in-group* with better investment opportunities, unless the board irrationally decides to give preference to the out-group segments over the in-group segments unconditionally. However, I find that the out-group segments receive differential capital allocation regardless of segment operating performance and segment investment opportunities, inconsistent with what the endogeneity story might suggest. In fact, the difference in capital expenditure remains similar even when one compares the *high* cash flow (*Q*) segments in the *in-group* with the *low* cash flow (*Q*) segments in the *out-group*.

Alternatively, it might be the case that the board chooses a specialist CEO to utilize her expertise to reduce investments in the in-group. This version of the endogeneity story, on closer examination, also does not seem plausible. First, as stated before, conventional wisdom suggests that the reverse is more likely to be true where a CEO is selected to grow a particular industry using her knowledge. Second, if the board's decision makes economic sense, this story indicates that the in-group segments that are underperforming or have bleak prospects are more likely to see a reduction in capital expenditures. Yet, I find that the stronger segments in the in-group undergo a relative decrease in capital expenditures just as large as the weaker ones.

Finally, I address the issue of endogeneity in a more general manner by employing the propensity score matching methods (Dehejia and Wahba, 1999, 2002; Villalonga, 2004). I first run a probit regression of estimating the probability of a segment's membership in the out-group based on pre-turnover segment characteristics including size, cash flow, investment ratio, imputed *Q*, and sales growth. The predicted probabilities, or the propensity scores, are used as a summary measure to match the out-group segments and the in-group segments.[25] Using the matched sample to correct for any endogenous selection on observables, I then compute the difference-in-difference estimator to estimate the effect of being in the out-group on the change in capital allocation around CEO turnover.[26] The propensity score matching difference-in-difference estimator indicates that the average change in industry-adjusted investment ratio after a specialist CEO takes office is 0.015 higher for the out-group segments than for the in-group segment, significant at the 5% level. The magnitude and significance level of the estimator are consistent with the OLS estimates in Tables 3.

In summary, while it is impossible to resolve the endogeneity concerns completely, endogeneity seems unlikely to account for or bias the empirical findings documented in the paper.

2.4.2 Mean Reversion in Capital Expenditures

If the in-group segments on average have higher capital expenditures than the out-group segments before the turnover, then mean reversion might cause allocation changes in the same pattern as observed in the data. I test this explanation by examining the pre-turnover capital expenditures in the in-group and in the out-group. The investment ratios of the in-group and the out-group segments are not significantly different from each other prior to the succession.[27] Pre-turnover segment capital expenditures do not have predictive power for membership in the in-group or the out-group, and segments in the in-group are no more likely to be overinvesting than

[25] I follow Dehejia and Wahba (1999) to match the in-group and out-group segments by block (i.e., the stratification algorithm).

[26] The estimator is calculated following Becker and Ichino (2002) as the weighted average of the mean difference in capital allocation change between the out-group and in-group segments within each block in the stratification algorithm, with the weight of each block given by the block's share of out-group segments in the matched sample.

[27] The average pre-turnover segment investment ratios for the in-group and the out-group segments are 0.063 and 0.060, respectively. The average pre-turnover industry-adjusted segment investment ratios for the in-group and the out-group segments are 0.015 and 0.010, respectively. Both differences are not statistically different from zero.

those in the out-group before CEO turnover.[28] Moreover, unlike overinvesting in-group segments, overinvesting out-group segments with comparable pre-turnover investment ratios do not see a reduction in capital expenditures after the turnover, providing further evidence against the mean reversion explanation.

2.4.3 Diversification

Some agency models (e.g., Amihud and Lev, 1981) argue that managers diversify firm investment to reduce the bankruptcy risk. This managerial preference for diversification could lead to the same pattern of segment investment change studied in this paper since the in-group segments are on average bigger in size than the out-group segments and a new CEO thus might choose to invest in the smaller out-group segments in order to rebalance the firm's portfolio of segments.[29] To distinguish the diversification hypothesis from the bridge-building hypothesis, I divide the in-group and the out-group segments according to their size.[30] I find that the out-group segments that are the biggest segments in the firm still witness an increase in capital expenditures after CEO turnover, even when compared with the smaller in-group segments. Moreover, the increase in capital expenditures for the biggest out-group segments is significantly larger than the increase for the other out-group segments. These results are inconsistent with the prediction of the diversification hypothesis but instead are consistent with the bridge-building hypothesis, if one believes that managers from the bigger out-group segments are more powerful in the firm and thus hold more bargaining power against the CEO in the capital allocation process.

2.5 Change in Segment Investment Efficiency around CEO Turnover

In this section I investigate whether CEO type affects segment investment efficiency. The dark-side theories of internal capital markets suggest that the agency conflict and the power struggle between the CEO and the divisional managers may cause investment distortion at the segment level within conglomerates (Rajan, Servaes, and Zingales, 2000; Scharfstein and Stein,

[28] Following the literature (e.g., Dittmar and Shivdasani, 2003), I define a segment to be overinvesting if its pre-turnover industry-adjusted investment ratio is positive.
[29] I thank René Stulz for suggesting this alternative explanation.
[30] Specifically, I examine the out-group segments with a relative size of more than 50% of their firm's assets.

2000). Empirically, the distortion typically occurs in a "socialist" fashion, with too much capital allocated to the low *Q* segments and too little to the high *Q* segments, and the sensitivity of investment to *Q* is lower for divisions within conglomerates than it is for single-segment firms (Rajan, Servaes, and Zingales, 2000; Scharfstein, 1998). While the conclusion of socialist cross-subsidization and the use of industry *Q* as a proxy for segment investment opportunities are subject to methodological critiques including selection bias and measurement error (Chevalier, 2004; Whited, 2001), researchers have addressed the concerns by examining the change in investment sensitivity to *Q* around refocusing corporate events at conglomerates such as spin-offs (Gertner, Powers, and Scharfstein, 2002) and divestitures (Dittmar and Shivdasani, 2003).[31] A positive change in the *Q*-sensitivity is interpreted as an improvement in investment efficiency.

Whether the CEO is a generalist or a specialist might influence segment investment efficiency because a generalist CEO is more likely to be able to evaluate investment projects in all segments of the firm on an equal footing and allocate funds more efficiently across divisions without being biased by the bridge-building tendencies. In Table 6, I study the changes in the sensitivity of segment investment to *Q* before and after the CEO turnover using the full sample.

Table 6 reports the results for segments under generalist CEOs and segments under specialists CEOs separately. The *Q*-sensitivity increases significantly for segments in generalists' firms after CEO turnover: a unit increase in segment *Q* leads to a difference of 0.011 in normalized investment, equivalent to more than 21% of the average post-turnover investment ratio of 0.052 for segments in the general group. The magnitude and significance of this improvement in *Q*-sensitivity are comparable to the findings in Dittmar and Shivdasani (2003), which documents an increased sensitivity of segment investment to segment market-to-book ratio in conglomerates after divestitures. In contrast, segments in specialists' firms see virtually no change in the *Q*-sensitivity. Further investigation (unreported) shows that there is no difference in investment efficiency change between the in-group and the out-group segments in specialists'

[31] Gertner, Powers, and Scharfstein (2002) suggest that industry *Q* and firm-specific *Q* have similar explanatory power as proxies for investment opportunities. They also argue that measurement errors are unlikely to be driving the results as long as they are the same before and after the event. See Stein (2003) for more discussion.

firms. This is not surprising because any increase in investment in the out-group constrains the amount of capital available to the in-group if there is a limited capital budget at the firm level. Thus, investment distortions in the out-group segments of a specialist's firm can lead to distortions in the in-group as well. A generalist, in contrast, is not subject to the bridge-building bias in capital allocation decisions, and the impartiality might allow her to do a good job of winner-picking (Stein, 1997) and improve investment efficiency across all divisions.[32]

Additionally, I explore the market's reaction to the announcement of the appointment of generalist versus specialist CEOs by examining the abnormal return around the announcement.[33] I find that the market reacts more positively to announcements of generalist CEO appointments. The average three-day cumulative abnormal return (CAR) from day -1 to day +1 around announcement is not significantly different from zero (-0.1%) for incoming CEOs who are specialists, while the three-day CAR for the generalist CEO turnover announcements is 1.7%, significantly different from zero and from the CAR for the specialist CEO turnover announcements at the 1% level. This difference is robust to using a different event window or adding various firm-level and turnover-related controls including firm size, profitability, investment opportunity, the nature of the turnover, and the origin of the CEO. The magnitude of the CAR for generalist CEO appointments is comparable to results from previous studies that document positive abnormal returns for a subsample of top management changes that are likely to induce improvements in firm policies.[34] Overall, the announcement period returns suggest that the market views the appointment of a generalist CEO as positive news for the conglomerate,

[32] In Stein (1997), the CEO of a conglomerate is more likely to do a good job of winner-picking when the segments of the firm operate in related lines of business, because the industry relatedness makes the relative performance evaluation of investment projects easier for the CEO.

[33] These results are not reported in tables but are available upon request. Announcement period abnormal returns are calculated following the standard estimation methodology for event study with daily returns as in Brown and Warner (1985). Specifically, for each observation in the sample, I use trading days -200 through -20 relative to the event date as the estimation period and require that a stock have at least 30 non-missing daily returns in this period in order to be included in the estimation. The daily returns are regressed on the value-weighted returns of the market portfolio for the estimation period. The estimated factor loadings from the regression results are then used to estimate market model predicted returns. The difference between the actual daily return and the market model prediction during the event window is the measure of abnormal performance.

[34] See, for example, Furtado and Rozeff (1987) and Bonnier and Bruner (1989). Furtado and Karan (1990) provides a review of the empirical evidence from these papers along with many other studies.

corroborating the findings that having a generalist CEO is associated with increased investment efficiency at the segment level around turnover.

3. Conclusion

The aim of this paper has been to investigate how the job histories of CEOs influence their capital allocation decisions when they preside over multi-divisional firms. I focus on the change in segment capital expenditures around succession, and find that the out-group segments of a specialist's firm experience significant increases in capital expenditures relative to the in-group segments after CEO turnover. The difference in capital allocation change between the in-group and the out-group segments is particularly pronounced if the CEO has not held a corporate-level executive position prior to the CEO appointment, or if the out-group segments are unrelated to the in-group segments. I also find evidence that having a specialist CEO negatively affects investment efficiency after turnover. The results suggest that new CEOs are influenced by political concerns in the capital allocation process. New specialist CEOs use the capital budget as a bridge-building tool to elicit cooperation from powerful divisional managers.

The results of this study have practical implications for organizational design. First, specialist CEOs' tendency to bridge-build should be taken into consideration when firms are making executive search decisions. Just like an overconfident CEO (Malmendier and Tate, 2005), a specialist CEO whose incentives are perfectly aligned may still choose to allocate capital sub-optimally if she believes that by bridge-building and thereby soliciting cooperation and support from division managers she is acting in the best interest of shareholders.[35] Consequently, it might be hard to rely on effective compensation contracting to ensure optimal actions from specialist CEOs whose incentives for bridge-building are high.

Second, a policy of rotating senior managers across different divisions on a regular basis, as adopted by General Electric, could yield managerial benefits. Stein (2003) suggests that such a policy lessens managers' incentive to lobby for capital and reduces their bargaining power

relative to that of the CEO by preventing them from accumulating expertise and political capital in any given division. This paper suggests that another distinct potential benefit of the job-rotation policy is to help CEO candidates acquire expertise and authority over multiple lines of business, thereby increasing their political capital and bargaining power once they become CEOs. Moreover, a well-rounded CEO is more likely to be successful at "winner-picking" (Stein, 1997) in a firm with diversified businesses. Finally, a formal relay succession plan, compared to a tournament among eligible candidates, might help groom a more powerful CEO.

A question left unexplored in the paper is whether and how CEOs change their capital allocation preferences over the life cycle of their CEO careers. A CEO is likely to be particularly vulnerable to the political complications in the firm when she is new to the CEO position. As she becomes more experienced at her job, bridge-building might become less essential compared with other objectives (e.g., entrenchment). Another natural extension to the paper is to examine the relationship between specialist CEOs' industry affiliation and their acquisition decisions. Is a specialist CEO more likely to make acquisitions in her own industry? Are CEO-related acquisitions more value-enhancing for the shareholders? These are all areas for future research.

[35] I divide CEOs into a group with high stock ownership or high-powered incentives versus a group with low stock ownership or low-powered incentives, and examine the effect of CEO stock ownership and compensation incentives on bridge-building. CEO ownership and compensation incentives do not seem to matter for the results.

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Table 1

Number of CEO Turnovers by Year

This table indicates by year the number of CEO turnovers in the sample. Numbers and percentages for the full sample are presented first, followed by a breakout based on CEO types: inside CEOs (specialists and generalists) and outside CEOs.

			Inside CEOs					
	All Turnovers		Specialists		Generalists		Outside CEOs	
Turnover Year	#	%	#	%	#	%	#	%
1993	16	6.0%	7	7.1%	7	7.3%	2	2.8%
1994	22	8.3%	11	11.2%	7	7.3%	4	5.6%
1995	35	13.2%	14	14.3%	10	10.4%	11	15.5%
1996	26	9.8%	5	5.1%	14	14.6%	7	9.9%
1997	24	9.1%	10	10.2%	9	9.4%	5	7.0%
1998	14	5.3%	2	2.0%	4	4.2%	8	11.3%
1999	30	11.3%	12	12.2%	11	11.5%	7	9.9%
2000	42	15.8%	20	20.4%	10	10.4%	12	16.9%
2001	36	13.6%	9	9.2%	16	16.7%	11	15.5%
2002	20	7.5%	8	8.2%	8	8.3%	4	5.6%
Total	265	100%	98	100%	96	100%	71	100%

Table 2

Summary Statistics

Panel A provides summary statistics for CEOs in the sample. Age promoted is the age at which the CEO is appointed. CEO tenure is the number of years the CEO is in office (for CEOs still in office at the end of 2003, CEO tenure is 2003 minus the turnover year). Stock ownership is the number of common shares owned by the CEO divided by the firm's total number of shares outstanding. MBA indicates whether or not the CEO has an MBA degree. Statistics for all CEOs are presented first, followed by a breakout based on CEO types: inside CEOs (specialists and generalists) and outside CEOs. Panel B provides firm-level summary statistics. Tobin's *Q* is calculated as the book value of assets (Compustat Industrial Annual Item 6) plus the market value of equity (price times shares outstanding from CRSP) less the sum of the book value of common equity (Item 60) and balance sheet deferred taxes (Item 74) all over assets. Investment ratio is capital expenditures (Item 128) over assets. Cash flow ratio is operating income before depreciation (Item 13) over assets. Statistics for all sample firms are presented first, followed by a breakout based on firms' CEO type: inside CEOs' firms (specialists' firms and generalists' firms) and outside CEOs' firms. Panel C provides segment-level summary statistics. A segment's imputed *Q* is the median Tobin's *Q* of single-segment firms that operate in the same industry of the segment, matched to the segments based on the narrowest SIC grouping that yields at least five single-segment firms. Segment investment ratio is segment capital expenditures (as reported by Compustat Segment Files) divided by segment assets. Segment cash flow ratio is segment operating income before depreciation divided by segment assets. Statistics for all segments in the sample are presented first, followed by a breakout based on segment types (in-group, out-group, general group, and external group).

Table 2

Panel A: CEO Summary Statistics

	All CEOs		Inside CEOs: Specialists		Inside CEOs: Generalists		Outside CEOs	
CEO	Mean	Std. Err.	Mean	Std. Err.	Mean	Std. Err.	Mean	Std. Err.
Age promoted	52.125	0.382	51.837	0.564	52.042	0.703	52.634	0.734
CEO tenure	4.721	0.137	4.959	0.237	4.688	0.231	4.437	0.237
Stock ownership	0.008	0.002	0.005	0.002	0.012	0.005	0.009	0.002
Inside CEOs	73.21%		100.00%		100.00%		0.00%	
Forced turnover	19.62%		10.20%		10.42%		45.07%	
MBA	43.40%		44.90%		35.42%		52.11%	
Number of CEOs	265		98		96		71	

Panel B: Firm-Level Summary Statistics

	All Firms		Inside CEOs' Firms: Specialists' Firms		Inside CEOs' Firms: Generalists' Firms		Outside CEOs' Firms	
Firm-Level	Mean	Std. Err.	Mean	Std. Err.	Mean	Std. Err.	Mean	Std. Err.
Assets (MM)	4154.69	377.70	5210.78	721.47	3856.02	554.44	3100.83	639.40
Sales (MM)	4343.14	368.12	5715.13	732.74	4128.73	598.45	2739.32	385.49
Q	1.647	0.052	1.679	0.090	1.748	0.094	1.468	0.073
Investment ratio	0.066	0.003	0.064	0.004	0.070	0.006	0.065	0.006
Cash flow ratio	0.151	0.004	0.158	0.006	0.157	0.006	0.132	0.010
Number of segments	3.162	0.070	3.224	0.124	3.073	0.111	3.197	0.131
Number of firms	265		98		96		71	

Panel C: Segment-Level Summary Statistics

	All Turnovers: All Segments		Inside CEOs: Specialists: In-Group		Inside CEOs: Specialists: Out-Group		Inside CEOs: Generalists: General Group		Outside CEOs: External Group	
Segment-Level	Mean	Std. Err.	Mean	Std. Err.	Mean	Std. Err.	Mean	Std. Err.	Mean	Std. Err.
Assets (MM)	1332.83	77.86	2026.53	260.11	1305.49	163.64	1317.06	120.45	901.55	105.43
Sales (MM)	1421.76	79.73	2223.91	265.08	1490.27	163.35	1400.43	132.99	846.24	88.73
Imputed *Q*	1.516	0.019	1.556	0.047	1.509	0.039	1.515	0.033	1.494	0.039
Investment ratio	0.064	0.002	0.063	0.003	0.060	0.004	0.066	0.004	0.066	0.004
Cash flow ratio	0.161	0.005	0.170	0.008	0.164	0.011	0.163	0.009	0.150	0.012
Assets growth	0.123	0.015	0.170	0.037	0.168	0.035	0.104	0.023	0.078	0.026
Number of segments	715		128		159		241		187	

Table 3

Change in Segment Capital Allocation around CEO Turnover: Regression Analysis

This table reports the results of estimating regression equation (1) as given in the text. The dependent variables are segment investment ratio in Columns I to III, and industry-adjusted segment investment ratio in Columns IV to VI. Segment investment ratio is defined as segment capital expenditures divided by segment assets. Industry-adjusted segment investment ratio is computed by subtracting from segment investment ratio the corresponding industry median ratio. *After* takes the value zero in the year before turnover and one in the year after turnover. *Specialist* equals one if the new CEO of the firm is a specialist and zero if she is a generalist. *Out-group* is equal to one if the segment is an out-group segment and zero otherwise. Segment *Q* is the median Tobin's *Q* of single-segment firms that operate in the same industry of the segment. Segment cash flow is segment operating income before depreciation divided by segment assets in Columns I to III and is industry-adjusted in Columns IV to VI. Company cash flow is operating income before depreciation (Item 13) over assets. *Forced* takes the value one if the turnover is forced and zero otherwise. The regressions include year dummy variables and firm fixed effects. Robust standard errors (clustered by firm) are in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level.

Table 3

	Dependent Variable					
	Segment Investment Ratio			Industry-Adjusted Segment Investment Ratio		
Independent Variables	(I)	(II)	(III)	(IV)	(V)	(VI)
After	-0.004	-0.006	-0.005	-0.002	-0.001	-0.002
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Specialist	0.010	0.008	0.008	0.015*	0.017*	0.017*
	(0.010)	(0.011)	(0.010)	(0.009)	(0.009)	(0.009)
Specialist * After	0.008	0.010*	0.006	0.004	0.007	0.005
	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.007)
Specialist * Out-group	-0.005	-0.004	-0.005	-0.007	-0.007	-0.008
	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)	(0.005)
Specialist * Out-group * After	0.013**	0.012**	0.012**	0.014**	0.013**	0.013**
	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Segment *Q*		-5E-04	-2E-04		-0.003	-0.004
		(0.003)	(0.003)		(0.003)	(0.004)
Segment cash flow		0.042	0.037		0.042**	0.033
		(0.028)	(0.028)		(0.018)	(0.023)
Segment sales (log)			-0.002			-0.002
			(0.003)			(0.003)
Company cash flow			0.115*			0.024
			(0.060)			(0.036)
Forced turnover			-0.004			-0.007
			(0.018)			(0.015)
Forced * After			0.008			0.009
			(0.010)			(0.010)
No. of observations	1056	993	989	1056	993	989
No. of firms	178	172	172	178	172	172
R^2	0.49	0.50	0.50	0.36	0.37	0.38

Table 4

Change in Segment Capital Allocation around Turnover in *Specialists*' Firms: COO Specialists vs. Non-COO Specialists

This table reports the results of estimating regression equation (2) as given in the text, using the sample of segments in all specialists' firms. The dependent variables are the segment investment ratio for Columns I and II, and the industry-adjusted segment investment ratio for Columns III and IV. Segment investment ratio is defined as segment capital expenditures divided by segment assets. Industry-adjusted segment investment ratio is computed by subtracting from segment investment ratio the corresponding industry median ratio. *After* takes the value zero in the year before turnover and one in the year after turnover. *COO* is equal to one if the CEO holds the title of COO or President before turnover (COO specialists) and zero if not (non-COO specialists). *Out-group* is equal to one if the segment is an out-group segment and zero otherwise. Segment *Q* is the median Tobin's *Q* of single-segment firms that operate in the same industry of the segment. Segment cash flow is segment operating income before depreciation divided by segment assets in Columns I and II, and is industry-adjusted in Columns III and IV. Robust standard errors (clustered by firm) are in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level.

	Dependent Variable			
	Segment Investment Ratio		Industry-Adjusted Segment Investment Ratio	
Independent Variables	(I)	(II)	(III)	(IV)
After	-0.023*	-0.024**	-0.022	-0.027*
	(0.012)	(0.012)	(0.014)	(0.015)
COO	-0.013	-0.019	-0.013	-0.034**
	(0.014)	(0.013)	(0.020)	(0.016)
Out-group	-0.019	-0.018	-0.023**	-0.023**
	(0.012)	(0.012)	(0.011)	(0.012)
Out-group * COO	0.018	0.018	0.021	0.021
	(0.013)	(0.013)	(0.013)	(0.013)
COO * After	0.029**	0.029**	0.030*	0.033**
	(0.014)	(0.014)	(0.016)	(0.016)
Out-group * After	0.043**	0.038**	0.043**	0.042**
	(0.020)	(0.018)	(0.020)	(0.019)
Out-group * COO * After	-0.037*	-0.033*	-0.038*	-0.038*
	(0.021)	(0.019)	(0.021)	(0.020)
Segment *Q*		-2E-04		-0.007**
		(0.004)		(0.004)
Segment cash flow		0.102**		0.084***
		(0.048)		(0.024)
No. of observations	554	554	554	554
No. of firms	87	87	87	87
R^2	0.50	0.54	0.42	0.47

Table 5

Change in Segment Capital Allocation around Turnover in *Specialists*' Firms: Out-Group's Industry Relatedness to In-Group

This table reports the results of estimating regression equation (3) as given in the text, using the sample of segments in all specialists' firms. The dependent variables are the segment investment ratio for Columns I and II, and the industry-adjusted segment investment ratio for Columns III and IV. Segment investment ratio is defined as segment capital expenditures divided by segment assets. Industry-adjusted segment investment ratio is computed by subtracting from segment investment ratio the corresponding industry median ratio. *After* takes the value zero in the year before turnover and one in the year after turnover. *Out-group* is equal to one if the segment is an out-group segment and zero otherwise. *Related* is equal to one if the segment is an out-group segment whose industry is related to one or more industries of the in-group segments in the same firm and zero otherwise. Segment *Q* is the median Tobin's *Q* of single-segment firms that operate in the same industry of the segment. Segment cash flow is segment operating income before depreciation divided by segment assets in Columns I and II, and is industry-adjusted in Columns III and IV. Robust standard errors (clustered by firm) are in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level.

	Dependent Variable			
	Segment Investment Ratio		Segment Investment Ratio	
Independent Variables	(I)	(II)	(III)	(IV)
After	-0.002	-0.003	-1E-04	-0.001
	(0.005)	(0.004)	(0.006)	(0.006)
Out-group	-0.004	-0.004	-0.008	0.008
	(0.006)	(0.006)	(0.006)	(0.006)
Out-group * Related	-0.001	-0.001	0.002	0.002
	(0.008)	(0.008)	(0.008)	(0.007)
Out-group * After	0.022***	0.018**	0.021**	0.019**
	(0.008)	(0.008)	(0.008)	(0.008)
Out-group * Related * After	-0.017**	-0.013*	-0.016**	-0.012*
	(0.007)	(0.007)	(0.007)	(0.007)
Segment *Q*		3E-04		-0.007*
		(0.004)		(0.004)
Segment cash flow		0.099**		0.080***
		(0.048)		(0.023)
No. of observations	554	554	554	554
No. of firms	87	87	87	87
R^2	0.50	0.54	0.41	0.46

Table 6

Change in Segment Investment Efficiency around CEO Turnover: Generalists vs. Specialists

The dependent variable is the segment investment ratio. Segment investment ratio is defined as segment capital expenditures divided by segment assets. Columns I and II contain the regression results for all generalist CEOs. Columns III and IV contain the regression results for all specialist CEOs. *After* takes the value zero in the year before turnover and one in the year after turnover. Segment *Q* is the median Tobin's *Q* of single-segment firms that operate in the same industry of the segment. Segment cash flow is segment operating income before depreciation divided by segment assets. The regressions include year dummy variables and firm fixed effects. Robust standard errors (clustered by firm) are in parentheses. Asterisks denote statistical significance at the 1% (***), 5% (**), or 10% (*) level.

	Dependent Variable: Segment Investment Ratio			
	Generalists		Specialists	
Independent variables	(I)	(II)	(III)	(IV)
Segment *Q*	-0.007	-0.007	-0.001	1E-04
	(0.005)	(0.005)	(0.005)	(0.005)
Segment *Q* * After	0.011**	0.011**	9E-05	9E-05
	(0.006)	(0.006)	(0.005)	(0.005)
After	-0.020*	-0.021*	0.007	-0.005
	(0.011)	(0.012)	(0.009)	(0.010)
Segment cash flow		0.028		0.081
		(0.036)		(0.057)
Segment cash flow * After		0.009		0.049
		(0.047)		(0.039)
No. of observations	765	765	572	572
No. of firms	142	142	94	94
R^2	0.46	0.47	0.49	0.54