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# The Roles Boards Play in CEO Succession Planning

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I am submitting herewith a dissertation written by Yi Li Rivolta entitled "The Roles Boards Play in CEO Succession Planning." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Business Administration.

Tracie Woidtke, Major Professor

We have read this dissertation and recommend its acceptance:

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Accepted for the Council:

Dixie L. Thompson

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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# **The Roles Boards Play in CEO Succession Planning**

A Dissertation Presented for the  
Doctor of Philosophy  
Degree  
The University of Tennessee, Knoxville

Yi Li Rivolta  
August 2014

## ABSTRACT

A lack of CEO succession planning increases business risk as disruption is more likely during a CEO transition. One difficulty of examining the importance of CEO succession planning is that the planning process is difficult to observe and evaluate. The main purposes of this dissertation are two-fold. First is to investigate whether CEO succession planning matters by comparing disruption costs in firms with planned departure and those with unexpected CEO departures due to death and illness. The second purpose is to investigate whether inside or outside directors improve organizational resiliency using the context of sudden CEO departures when CEO succession planning is not possible and the former CEO is not available for consultation. Using a unique hand-collected data set of CEO turnovers from 1996 to 2009, I find evidence that firms with unexpected CEO departures have significantly shorter lead time and greater disruption costs, compared to firms with planned CEO departures. Specifically, shorter lead time is associated with less favorable cumulative stock performance and greater reduction in capital expenditure around the incumbent CEO's departure. These results may indicate that a lack of CEO succession planning is associated with greater disruption costs. In fact, a lack of succession planning could cost firms approximately \$136 million if the incumbent CEO departs unexpectedly. In addition, firms with both inside directors other than the CEO and well-connected outside directors are most resilient, whereas firms with neither non-CEO inside directors nor connected outside directors are least resilient and suffer the most. In addition, firms with greater inside director presence are less likely to engage in big bath accounting, i.e., taking advantage of the departure to largely write off assets.

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## INTRODUCTION

CEO succession planning is the process by which the board of directors prepares for the transition of leadership from one CEO to the next. It is cited as one of the most important yet challenging roles of the board (Biggs, 2004). A lack of CEO succession planning is disruptive and increases business risk. Furthermore, this disruption in business activities creates costs that adversely affect shareholder wealth (Vancil 1987). The perceived importance of CEO succession planning is underscored by the new SEC rule (SEC Staff Legal Bulletin 14E, 2009), which recommends firms to include a CEO succession planning proposal in their proxy statements. Despite the apparent importance of CEO succession planning, literature on its necessity and process during the transition has been scarce, possibly because firms are hesitant to disclose detailed succession planning information.

There are two papers in my dissertation. The purpose of the first paper is two-fold. First, I examine whether CEO succession planning matters. Second, I investigate which actions board of directors take to prepare for the transition. Because the succession planning process is difficult to observe, I use lead time – the time between the incumbent CEO’s departure announcement and the actual departure date to proxy the possibility of succession planning. Specifically, I examine whether firms with planned CEO departures (i.e., through retirement) have longer lead time and lower disruption costs compared to firms with unexpected CEO departures (i.e., due to death, illness, and sudden resignation). Presumably, firms with planned CEO retirement will have time to make changes to their board in preparation for the succession, resulting in a smoother transition and lower disruption costs. By contrast, firms with unexpected CEO departures may not

have time to make adjustments to their boards, leading them to experience greater disruption costs. Albeit not a perfect measure for the actual length or depth of the succession planning process, I argue that lead time is a close proxy for the likelihood of succession planning in that it allows firms to compose a succession plan even if there is none in place.

The purpose of the second paper is to investigate whether certain board characteristics are related to a firm's resilience by examining sudden CEO departures, when CEO succession planning is not possible. Understanding the relation between board composition and a firm's ability to quickly recover from shocks such as a sudden CEO departure is important in understanding a firm's ability to manage risk. Specifically, I examine whether non-CEO inside directors improve a firm's ability to quickly recover from a sudden loss in executive leadership. Inside directors may possess superior firm specific knowledge and experience which may allow firms to recover from shocks more quickly. For instance, inside directors may be better able to assume the role of CEO in either a permanent role for a quick recovery or in a temporary role to provide stability during the search for a new CEO. Agrawal, Knoeber, and Tsoulouhas (2006) indicate that it is less costly for firms to replace a CEO with an internal candidate, and thus, firms only choose external candidates when they are superior. Moreover, Masulis and Mobbs (2009) suggest that inside directors can provide higher quality internal candidates. In contrast, too many inside directors on a firm's board is often associated with ineffective boards and entrenchment.

I further examine whether outside directors with numerous connections enhance a firm's resilience, or mitigate the costs associated with sudden CEO departures. Coles,

Daniel, and Naveen, and Omer, Shelley, and Tice (2012) indicate that outside directors may add value through their networks. Thus, well-connected outside directors may be better able to quickly identify through their networks highly qualified replacements to lead the recovery. In contrast, Fich and Shivdasani (2006) argue that outside directors sitting on numerous boards are too busy to effectively fulfill their responsibilities as directors. In this case, outside directors may quickly choose replacements through their connections, but the replacements may not be well qualified to lead a recovery.

I find evidence that firms with unexpected CEO departures have significantly shorter lead time and greater disruption costs, compared to firms with planned CEO departures. Specifically, shorter lead time is associated with less favorable cumulative stock performance and greater reduction in capital expenditure around the incumbent CEO's departure. These results may indicate that a lack of CEO succession planning is associated with greater disruption costs. In fact, a lack of succession planning could cost firms approximately \$136 million if the incumbent CEO departs unexpectedly. In addition, firms with both inside directors other than the CEO and well-connected outside directors are most resilient, whereas firms with neither non-CEO inside directors nor connected outside directors are least resilient and suffer the most. In addition, firms with greater inside director presence are less likely to engage in big bath accounting, i.e., taking advantage of the departure to largely write off assets.

This dissertation contributes to the CEO succession planning literature by investigating whether and how CEO succession planning matters. To my knowledge, this is the first study to use lead time as a proxy for succession planning and to compare firms with planned versus unexpected CEO departures in order to evaluate the importance of

CEO succession planning. This comparison permits to determine whether a longer lead time reduces or offsets disruption costs associated with CEO succession planning. To my knowledge, this paper is also the first to examine the actions firms make to their boards to prepare for the transition of power prior to a CEO departure.

The findings in this dissertation are of particular importance in light of the new SEC requirement regarding CEO succession planning (see SEC Staff Legal Bulletin 14E, 2009). Indeed, survey data<sup>1</sup> reveals a surprisingly lack of preparedness for top leadership transitions in US companies. For instance, only about half (51%) of survey respondents could name a permanent successor if needed, and 39% reported that they had zero viable internal candidates. If CEO succession matters, perhaps firms need to be better prepared and have a succession plan in place to ensure a smoother transition. My findings show that longer lead time in CEO succession planning is highly related to lower disruption costs, and lend support to the new SEC requirement. CEO succession planning should, indeed, be a core board responsibility, along with conventional roles such as compensation, governance, and auditing.

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<sup>1</sup> Hendrick and Struggle 2010 survey on CEO succession planning of 140 CEOs and directors of North America public and private companies. Source: <http://rockcenter.law.stanford.edu/wp-content/uploads/2010/06/CEO-Survey-Brochure-Final2.pdf>

**CHAPTER I**  
**DOES LEAD TIME IN CEO SUCCESSION MATTER?**

## **Abstract**

A lack of CEO succession planning increases business risk as disruption is more likely during a CEO transition (Vancil 1987). In October 2009, the Securities and Exchange Commission (SEC) issued Staff Legal Bulletin No. 14E regarding 14a-8(i)(7), which fully elevated CEO succession planning to the status of a core board responsibility, along with conventional roles such as compensation, governance, and auditing. One difficulty of examining the importance of CEO succession planning is that the planning process is difficult to observe and evaluate. The main purpose of this paper is to use lead time (the number of days between the incumbent CEOs' departure announcement date and their actual departure date) to proxy the possibility of CEO succession planning, and to investigate whether CEO succession planning matters by comparing disruption costs in firms with planned departure and those with unexpected CEO departures due to death and illness. Using a unique hand-collected data set of 919 CEO turnovers from 1999 to 2008, I find evidence that firms with unexpected CEO departures have significantly shorter lead time and greater disruption costs, compared to firms with planned CEO departures. Specifically, shorter lead time is associated with less favorable cumulative stock performance and greater reduction in capital expenditure around the incumbent CEO's departure. These results indicate that a lack of CEO succession planning is associated with greater disruption costs. In fact, a lack of succession planning could cost firms approximately \$136 million if the incumbent CEO departs unexpectedly.

## 1. Introduction

CEO succession planning is the process by which the board of directors prepares for the transition of leadership from one CEO to the next. It is cited as one of the most important yet challenging roles of the board (Biggs, 2004). A lack of CEO succession planning is disruptive and increases business risk. Furthermore, this disruption in business activities creates costs that adversely affect shareholder wealth (Vancil 1987). The perceived importance of CEO succession planning is underscored by the new SEC recommendation (SEC Staff Legal Bulletin 14E, 2009), which encourages firms to include a CEO succession planning proposal in their proxy statements.

Despite the apparent importance of CEO succession planning, literature on its necessity and process during the transition has been scarce, possibly because firms are hesitant to disclose detailed succession planning information. Consider for instance the recent change in leadership at Ford Motor Co. When announcing that Mark Field will succeed Allan Mulally as new Chief Executive Officer, Ford's spokeswoman mentioned that the "company takes succession planning very seriously and has succession plans in place for each of the key leadership positions. However, for competitive reasons, Ford does not discuss succession plans externally"<sup>2</sup>. This example highlights how difficult it can be for researchers to investigate whether and how CEO succession planning matters, mainly because the planning process is difficult to observe and evaluate.

The purpose of this paper is two-fold. First, I examine whether CEO succession planning matters. Second, I investigate which actions board of directors take to prepare for the transition. Because the succession planning process is difficult to observe, I use

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<sup>2</sup> Keith Naughton, April 21, 2014, Ford said to decide on Fields as CEO as Mulally plans departure (Bloomberg)

lead time – the time between the incumbent CEO’s departure announcement and the actual departure date to proxy for succession planning. Specifically, I examine whether firms with planned CEO departures (i.e., through retirement) have longer lead time and lower disruption costs compared to firms with unexpected CEO departures (i.e., due to death, illness, and sudden resignation). Presumably, firms with planned CEO retirement will have time to make changes to their board in preparation for the succession, resulting in a smoother transition and lower disruption costs. By contrast, firms with unexpected CEO departures may not have time to make adjustments to their boards, leading them to experience greater disruption costs. Albeit not a perfect measure for the actual length or depth of the succession planning process, I argue that lead time is a close proxy for the likelihood of succession planning in that it allows firms to compose a succession plan even if there is none in place.

A few papers have attempted to investigate the importance of CEO succession planning by examining shareholder reactions during heir apparent successions. For instance, Behn, Riley Jr. and Yang (2005) examine whether shareholders value firms with a succession plan in place. Specifically, they use whether firms have an heir apparent (i.e. an officer holding the title of COO and/or President and is at least five years younger than the incumbent CEO) as a proxy for succession planning and investigate shareholder reactions at the announcement of a sudden CEO death. The authors find that the cumulative announcement returns on the date of death are higher in firms with an heir apparent successor. The major difference between my paper and Behn et al. (2005) is that I use a much cleaner proxy for succession by hand collecting firms with a clear indication of planned CEO departure. The issue with using general CEO turnover event to examine

the importance of CEO succession planning is that shareholder reactions are impacted by the cause of turnovers. For instance, after a forced CEO turnover, it will be difficult to disentangle whether shareholders react positively because the company may have a succession plan in place or because it fired an incompetent CEO.

A CEO departure is categorized as a planned departure if the incumbent CEO's departure announcement contains key terms indicating that the departure is part of an orderly transition of power.<sup>3</sup> Unexpected CEO departures, by contrast, may include departures due to sudden death, illness, or resignation. I used three measures to proxy disruption costs: (1) one-, two-, and three-month cumulative market-adjusted stock returns; (2) change in sales scaled by sales the year prior to departure; and (3) change in capital expenditure scaled by sales the year prior to departure. Change in sales and change in capital expenditure are measured up to three years after the incumbent CEOs' actual departure date.

My sample consists of 919 CEO departures, including 843 planned and 76 unexpected CEO departures, during the period of 1999 to 2008. I find that firms with unexpected departures have significantly shorter lead time than those with planned CEO departures. They also have significantly more negative excess stock returns during a 90-day period. Within the planned departure subsample, firms with above-median lead time experience significantly lower disruption costs and a smoother transition. Specifically, while there is no difference in the cumulative market-adjusted stock returns within 3

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<sup>3</sup> Key words indicating an orderly transition of power include, but are not limited to: "succession", "succession planning", "succession plan", "natural transition", "retirement age", "retirement", and "orderly transition of power".

months of the transition, firms with above-median lead time have significantly more favorable change in sales after the departure.

When examining the changes directors make to their firm, and to their board, in anticipation of the CEO departure, I find that firms with planned departures typically do two things. First of all, they are more likely to use relay successions with an heir apparent—typically the COO and/or president (Canalla and Shen 2001, Shen and Canalla Jr. 2003, Zhang and Rajagopalan 2004, Behn, Riley Jr. and Yang 2005). Specifically, the heir apparent is appointed as COO and/or president approximately two years (692 days) before the planned departure. The new CEO candidates typically are appointed to the board two to three years in advance in those firms with planned departure. Such findings are consistent with prior literature that posits that when a CEO nears retirement, the potential successor is “groomed” as the COO and/or president, while joining the board to facilitate the succession (Mace 1971, Vancil 1987, Hermalin and Waisbacj 1988). Second, new CEOs are appointed to the board as part of the succession planning. In the planned departure subsample, more than two-third (35.7%) of the new CEOs joined the board two years prior, and nearly 50% of the new CEOs joined the board one year prior to the transition.

On the other hand, there is no evidence of “grooming” or “preparing” in firms with unexpected CEO departures. Not only are these firms less likely to use relay successions, but also should a COO or president be promoted to CEO after an unexpected departure, data shows that they have been in the COO/president position for at least four years prior to the departure. Additionally, new CEOs have significantly longer board tenure, and nearly 90% of them have been a director for at least three years prior to the

incumbent CEO's departure. These findings suggest that, when faced with an unexpected CEO departure when there is no time for succession planning, firms tend to appoint a successor with lengthy firm and board experience to weather the storm.

This paper contributes to the CEO succession planning literature by investigating whether and how CEO succession planning matters. To my knowledge, this is the first study to use lead time as a proxy for succession planning and to compare firms with planned versus unexpected CEO departures in order to evaluate the importance of CEO succession planning. This comparison permits to determine whether a longer lead time reduces or offsets disruption costs associated with CEO succession planning. To my knowledge, this paper is also the first to examine the actions firms make to their boards to prepare for the transition of power prior to a CEO departure. My findings indicate that the new CEO candidate is more likely to be the designated successor and usually appointed to the board approximately two years in advance prior to the planned departure to smooth transition.

The findings in this paper are of particular importance in light of the new SEC requirement regarding CEO succession planning (see SEC Staff Legal Bulletin 14E, 2009). Indeed, survey data<sup>4</sup> reveals a surprisingly lack of preparedness for top leadership transitions in US companies. For instance, only about half (51%) of survey respondents could name a permanent successor if needed, and 39% reported that they had zero viable internal candidates. If CEO succession matters, perhaps firms need to be better prepared and have a succession plan in place to ensure a smoother transition. My findings show

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<sup>4</sup> Hendrick and Struggle 2010 survey on CEO succession planning of 140 CEOs and directors of North America public and private companies. Source: <http://rockcenter.law.stanford.edu/wp-content/uploads/2010/06/CEO-Survey-Brochure-Final2.pdf>

that a lack of succession planning could cost firms approximately \$136 million if the incumbent CEO departs unexpectedly, therefore lend support to the new SEC recommendation. CEO succession planning should, indeed, be elevated to a core aspect of a firm's corporate governance regime.

The remainder of the paper is organized as follows. Section 2 discusses the prior literature and develops my hypotheses. Section 3 describes the data and provides summary statistics. Section 4 presents univariate and multivariate results using unexpected CEO departures. Section 5 provides a summary and conclusion.

## **2. Prior Literature and Hypotheses Development**

### **2.1. *Importance of CEO succession planning***

Since it is difficult to disentangle whether firms have a succession planning in place or not, existing literature on the importance of succession planning has mainly focused on shareholder reactions and changes in firm performance around the sudden/unexpected death of the CEO or other senior managers. Studies as early as Johnson, Magee, Nagrajan, and Newman (1985) examine the relationship between CEO death and shareholder wealth through announcement returns. They find that senior executive sudden death may have different impact on shareholder wealth, depending upon the characteristics of employment relationship of the passing and replacing executives. The net excess return is positively associated with the passing of a founder CEO, and negatively associated with the passing executive's position other than founder in the company.

Worrell, Davidson III, Chandy and Garrison (1986) attempt to investigate the consequence of senior executive turnover by examining announcement returns of death.

They find that shareholders are indifferent towards general senior executive death, but react negatively if the CEO died, if death is sudden, and if founder died. And they react positively towards chairman death (chairmen in their sample were in the age of 70s, 80s, and 90s).

Behn, Dawley, Riley and Yang (2006) find that delay in appointing a successor after unexpected senior executive death is associated with decreasing operating performance, measured by change in sales, change in income before extraordinary items scaled by sales, calculated over one-year and two-year period, and lower cumulative returns around the death of the CEO. In a more recent paper, Salas 2010 argues that stock price reaction towards senior executive sudden death could be a proxy of entrenchment. Positive shareholder reaction may indicate death removed entrenched management, yet negative reaction may indicate the passing of a highly effective and hard to replace executive.

In general, these studies find that sudden/unexpected CEO departures are detrimental to shareholder wealth. When faced with sudden/unexpected CEO departures, firms and their boards may not have sufficient time to compose a succession plan, hence experience higher disruption costs reflected by negative shareholder reactions. I predict that firms with planned departure may experience lower disruption costs partially proxied by short-term cumulative market-adjusted stock performance.

## ***2.2. Succession type and outcome***

Prior literature categorizes CEO succession into relay, horse race, or outside succession based on whether there exists an heir apparent successor (Canalla and Shen 2001, Shen and Canalla Jr. 2003, Zhang and Rajagopalan 2004, Behn, Riley Jr. and Yang

2005). A firm is identified to have an heir apparent if an executive is holding the title of COO and/or president. Behn et al. (2005) uses heir apparent successor to proxy for CEO succession planning, and find that shareholders react less negatively at the announcement of sudden CEO death if firms have identified an heir apparent. The authors then argue that CEO succession planning seems to add value to companies engaged in the transition of power.

Shen and Cannella Jr (2003A) find that shareholders prefer heir succession to non-heir inside succession. In addition, outside successions are associated with poorer firm performance and positive announcement returns, reflecting shareholders' dissatisfaction towards the incumbent CEO and desire for a change in firm management. However, the authors recommend that firms carefully select and groom heirs, and monitor them first. If firm performance continues to be good, firms should ensure promotion. If not, then board of directors should consider outside succession. Shen and Cannella Jr (2003B) also specifically examine relay succession. Their findings suggest that shareholders prefer relay succession over non-relay succession. Although there is insignificant stock price reaction towards the initiation of heir apparent appointment, shareholders react positively towards the promotion, and negatively towards the departure. Outside succession is also associated with a positive stock price reaction.

Zhang and Rajaopalan (2004) also find relay succession to add value. Specifically, they find that relay succession is associated with higher pre and post succession firm performance. However, the more internal candidates in a firm, the lower the likelihood of relay succession. Firms may opt for horse race succession when there are more qualified internal candidates. In a more recent paper, Mobbs and Raheja (2012)

argue that succession planning is not one-type-fits-all, compared to tournaments promotion (horse race), successor-incentive promotion is associated with higher pay-for-performance sensitivity to the designated successor. They authors find that relay successions are more common in firms or industries where firm specific knowledge is more important to the CEO position and where the supply of potential outside CEO replacements is limited.

Overall, firms with a succession plan in place seem more likely to use relay successions. I predict that firms with planned departure have longer lead time and are more likely to use relay successions. Presumably a longer-lead time may allow firms to compose a plan and start grooming an heir apparent, even if there is no plan in place. Longer lead time may also allow firms to have lower disruption costs and smoother transition. I use long-term (from one year before to three years after the departure) industry and performance adjusted operating performance, as well as change in capital expenditure to partially proxy disruption costs.

### **3. Data and Summary Statistics**

I use data from eight different sources. I first identify the initial sample of CEO departures during the period 1991-2009 from Execucomp, which covers S&P 1500 firms. CRSP and Compustat provide stock returns and accounting information. CEO successor board experience and corporate governance data are identified through the Investor Responsibility Research Center (IRRC) Director Database<sup>5</sup>. Institutional ownership information is obtained through Thomson Reuters Institutional Ownership Data. I hand

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<sup>5</sup> This database is now called Risk Metrics

collect data to fill in any observations where CEO appointment date or the date he/she joined the company is missing in Execucomp, for the purpose of identifying CEO tenure.

The initial sample contains 2,522 CEO departures identified from Execucomp during the period of 1991-2009. I use the fiscal year as unit of time and merge the initial sample with CRSP and Compustat, then merge with IRRC Director Database by matching each annual shareholder meeting date for a firm with the fiscal year in which the meeting is held. I exclude dual class firms and any observations where there was no actual succession; for instance, the change of CEO captured is due to the change of their last name, but the two observations are actually the same person. After the merging process, there were around 2,300 CEO departures during the 1991-2009 period.

For all 2,300 CEO departures, I use Factiva, Lexis Nexis and proxy statements to hand collect the following information: (1) CEO successor origin. This information is missing for some observations due to the missing data in Execucomp on the date the CEO joined the company. I follow Parrino's (1997) definition on insider versus outsiders. Insiders are successors that have been with the company for at least one year prior to becoming CEO; and outsiders are successors that have been with the company for less than a year prior to becoming CEO. (2) Interim CEOs. Whether the news release states that the successor is an interim or permanent CEO. (3) Cause of departure. I categorize the departure of the CEO into natural retirement, forced resignation, unexpected departures, M&A activity, restructuring, proxy fight, and the separation of CEO/chairman duality. (4) The earliest announcement date of incumbent CEO departure and permanent replacement CEO appointment. (5) The actual incumbent CEO departure and new CEO takeover date. (6) Whether the replacement CEO has been on the appointing company's

board of directors at least six months before the appointment announcement. (7) Cause of the unexpected departure. Whether the unexpected departure is due to sudden death, illness, or is due to incumbent CEO being hired away either by a better company, or accepted a government job. (8) Whether the replacement CEO has had CEO experience before in other companies. (9) Whether the retiring CEO is the founder of the company, and whether the company is a family company. (10) The previous positions held by replacement CEOs.

After collecting data for the whole CEO departure sample, I narrow my focus onto planned departures and unexpected CEO departures. A CEO departure is categorized as a planned departure if the incumbent CEOs' departure announcement contains key terms indicating that the departure is part of an orderly transition of power. The key terms include "succession", "succession planning", "succession plan", "natural transition", "retirement age", "retirement", "required retirement" and "orderly transition of power. A CEO departure is categorized as unexpected when the CEO departure (or decision to leave) is neither a result of poor performance, nor of regulatory and/or criminal investigation. It should be a genuinely unexpected event. Although a CEO's departure may have come to a surprise to the market, it will not be included in my sample if the board was aware of the departure (or decision to leave), or if it was under the mutual agreement between the CEO and the board. The final sample consists of 921 CEO departures, out of which 843 are planned departure and 78 are unexpected departures from 1999 to 2008<sup>6</sup>.

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<sup>6</sup> Financial and utility firms are excluded from my sample

I used three measures to proxy disruption costs: (1) one-, two-, and three-month cumulative market-adjusted stock returns after the departure announcement (2) Change in firm performance from one year before to three years after the incumbent CEO departure announcement and (3) change in capital expenditure from one year before to three years after the departure announcement. I use change in sales scaled by sales the year before incumbent CEO's departure as a measure of performance.

## **4. Analysis**

### **4.1. Univariate Analysis**

#### ***4.1.1. CEO departures through time***

--INSERT TABLE 1 ABOUT HERE--

Table 1 shows both planned departure and unexpected CEO departures through time from 1999 to 2008. I also tabulate lead time and departing CEO age. There seems to be no systematic clustering over time. Both planned and unexpected CEO departures are randomly distributed through time. However, there is a fairly strong difference in lead time between the two subsamples. On average, firms have a 76-day lead time when the incumbent CEO plans to retire; whereas when faced with an unexpected CEO departure, firms only have a 3.5-day lead time. In addition to lead time, there is also a difference in departing CEO age between the two subsamples. CEOs typically near retirement age (reference) of 62-65 in the planned departure subsample. On the other hand, the age of CEOs unexpected left the firm ranges from 51 to 75, indicating that unexpected departures happen fairly randomly across difference age groups.

#### ***4.2. Descriptive statistics in firms with planned departure and unexpected CEO departures***

--INSERT TABLE 2 ABOUT HERE--

Table 2 provides summary statistics of firm, departing CEO, and corporate governance characteristics on firms with planned departure and unexpected CEO departures. There is no systematic difference between the two subsamples except for free cash flows. Firms with planned departure have greater Free Cash Flow (4.12% versus 2.58%) compared to firms with unexpected CEO departures. Prior literature uses Free Cash Flow (FCF) as a measure of managerial discretion on the use of internally generated cash flows (Jensen 1986, Stulz 1990, Richardson 2006, Chen Chen and Wei 2011). Another difference between the two subsamples is the percentage of inside directors. Although board size and independence are similar in both samples, firms with planned departure have lower percentage of inside directors on board (20.32% versus 22.86%). This result indicates that firms with planned departure have a greater presence of affiliated/grey directors on board.

#### ***4.3. Comparison of disruption/transitional characteristics between firms with planned departure and unexpected CEO departures***

--INSERT TABLE 3 ABOUT HERE--

Panel A in Table 3 shows the comparison of CEO transitional characteristics between firms with planned departure and unexpected CEO departures. The delay between incumbent CEOs' departure announcement date and their actual departure date (lead time) is 75 days when the departure is planned. On the other hand, when the departure is unexpected due to death, illness, and sudden resignation, the lead time is significantly shorter at 3.53 days. This result is consistent with my earlier prediction that

firms with planned departure have longer lead time. In addition, new CEO successors are identified twice as quickly in firms with planned departure, compared to unexpected departures (approximately 15 days versus 30 days). This is an indication that when a CEO nears retirement, he/she may have already identified the successor; whereas when a CEO unexpected departs, it may take firms longer to find a replacement. Another interesting result is that on the same day the incumbent CEO leaves a firm, a new CEO will take over, hence the transition time is zero when the retirement is planned in advance. However, firms with unexpected CEO departure experience approximately 60 days without a permanent CEO in place, measured by the difference between *days before new CEO takeover* and *lead time*.

Although lead time proxies the likelihood either CEO succession plan in place or succession planning, it may not be an accurate measure for how long firms have been succession planning. An alternative measure for the length of succession planning, particularly relay succession, is the number of days since the new CEO was appointed as a COO and/or President. I hand-collect the date the new CEO was appointed to the position of COO and/or President from Lexis-Nexis and Factiva for firms who seemingly used relay succession. Anecdotal evidence indicates that firms typically appoint the heir apparent to the COO/President position one or two years in advance for “grooming” purpose. The two-year period will allow the to-be CEO gain hands-on experience firms’ day-to-day operations, and be familiar with the board of directors and other senior managers. Consider, for instance, the recent CEO power transition in Ford Motor Co. Ford announced on April 21, 2014 that it is to name Mark Field as the new CEO, effective on July 1. News release reported “Fields emerged as Mulally’s likely successor

when he was promoted to COO in December 2012. Ford had said that Mulally would stay through 2014”.<sup>7</sup> Consistent with Ford Motor’s example, I find that 341(40.45%) companies with planned departure used relay succession. The average “grooming period” is 692.72 days, approximately two years, before the COO and/or President becomes the new CEO. Yet this is not the case in firms with unexpected CEO departures. Not only are these firms less likely to use relay succession (28.20%), if a COO/President was appointed as the new CEO, their tenure as the COO/President is between three and four years. Similarly, the new CEOs have board tenure of 2.8 years in firms with planned departure, compared to 7.06 years in those with unexpected CEO departures. These findings indicate that when firms are faced with a shock such as the unexpected departure of its CEO, they tend to appoint executives who are familiar to operating and have longer board tenure to weather the storm.

Panel B in Table 3 provides comparison of shareholder reactions at the announcement of incumbent CEO departures. I use Eventus to generate cumulative abnormal returns (CARs) three days around the departure announcement using both the market model and market adjusted returns (not tabulated). For the cumulative returns up to 90 days after the departure announcement, I use valuated market adjusted returns from CRSP. Consistent with planning, shareholders react insignificantly at the announcement of incumbent CEO retirement, but negatively ( $p \leq 0.01$ ) at the announcement of unexpected CEO departures. This negative reaction indicates investor uncertainty towards the future of a company when its CEO left due to death, illness and sudden

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<sup>7</sup> Keith Naughton, April 21, 2014, Ford said to decide on Fields as CEO as Mulally plans departure (Bloomberg)

resignation. The differences in shareholder reaction at the departure announcement are statistically significant at 1% level between the two subsamples.

Panel C in Table 3 shows the comparison of long term change in firm performance and firm investment opportunities measured by change in sales and change in capital expenditure, respectively. Firms with planned departure have significantly less change in sales for up to two years after the year of the actual departure. This is contrary to my prediction that firms with planned retirement may have more positive or less negative change in sales around the incumbent CEO's departure. However, this result may be caused by the fact that firms with unexpected departures have significantly lower sales the year prior to departure, therefore, when scaled, they show a larger change in sales compared to firms with planned departure. In the later part of the paper, I show that when the departure is planned, firms with above-median lead time have significantly greater change in sales. There is no significant difference in change in capital expenditure between the two subsamples.

#### ***4.4. Comparison of board adjustments***

--INSERT TABLE 4 ABOUT HERE--

Based on my earlier assumption that when firms have longer lead time, they may be able to compose a succession plan even when there is none in place. In this section, I examine board adjustments firms make in order to prepare for succession planning. Table 4 shows the comparison of board characteristics over a three-year period prior to CEO departure in firms with planned departure and unexpected departures. Both firms have similar board size and independence, as well as the change in board size and independence. From two years to one year before the power transition, both subsamples

experience an increase in existing director turnover, possibly caused by the shift in board composition, when firms start putting the successor on board. Specifically, 28.23% of the CEO successor joined the board at least three years before the planned departure, and nearly half of the new CEOs have board tenure of at least one year before they pick up the baton in firms with planned departure; where as almost all new CEOs have been on the board for at least three years before an unexpected CEO departure. The new CEO board tenure differences between the two subsamples are economically and statistically significant. This result demonstrates that when firms have a succession plan in place or in progress, appointing the new CEO to the board at least two years in advance may be part of the actions firms make to the board in anticipation of the transition of power.

#### ***4.5. Comparison of above and below median lead time in the subsample of firms with planned departure***

In the previous analysis, I compared firms with planned departure and unexpected CEO departure. I find that firms with planned departure have longer lead time and lower disruption costs. In this section, I focus on planned departure and compare firms with above and below median lead time. The purpose of this comparison is to investigate within planned departure, whether firms with longer lead time have similar disruption costs and make similar adjustment to the board with firms with shorter lead time. The median lead time in firms with planned departure is 34 days, and out of the 843 retirements, 420 have above-, and 423 have below-median lead time. Table 5 Panel A shows the descriptive statistics and comparison in firm, departing CEO and corporate governance characteristics for both subsamples. There seems to be a difference between firms with longer (above median) and shorter (below median) lead time. Specifically,

firms with longer lead time are larger and older firms with higher institutional investors and lower stock price volatility the prior fiscal year. In addition, they have larger boards with greater board independence and are more clustered in the post 2001 period. They also have better connected outside directors and lower percentage of departing founder CEOs. Notice that it is not the intention of this paper to examine the determinants of longer or shorter lead time. The focus of this paper is to investigate whether longer lead time is associated with a smoother transition.

--INSERT TABLE 5 ABOUT HERE--

Panel B in Table 5 shows the comparison of CEO transitional characteristics in firms with above or below median lead time (34 days). The average lead time in the above median subsample is 142 days and 9 days in the below median subsample. Although there is a dramatic difference in lead time, both subsamples experience very short period of no CEO in place (difference between days in new CEO takeover and lead time). However, firms with longer lead time are more likely to use relay successions and are more likely to appoint an insider, or an existing director as the new permanent CEO, which is consistent with succession planning.

Both subsamples have insignificant abnormal returns around the announcement dates of planned departures. This result may indicate that investors have been aware of the upcoming retirement and the stock price incorporated this information. However, there is a significant difference in firms' long-term performance and capital expenditure between the two subsamples. Panel D in Table 5 shows the differences. In particular, firms with above-median lead time have significantly more favorable change in industry- and-performance adjusted ROAs for up to two year after the year of retirement. The

mean differences in change in performance are 1.29% and 1.08%, respectively, and are both economically and statistically significant.

#### ***4.6. Board adjustments made by firms with above or below-median lead time***

--INSERT TABLE 6 ABOUT HERE--

Table 6 shows the potential board adjustment up to three year prior to the planned departure in firms with above or below median lead time. The purpose of this comparison is to examine whether firms with longer lead time plan for succession differently from firms with shorter lead time. Similar to the comparison between planned and unexpected CEO departures, firms with longer lead time start decreasing existing director turnover from three to two years, possibly to reduce director turnover costs and to prepare for succession. In addition, a greater proportion of new CEOs were appointed to the board at least one year in advance when firms have longer lead time. On the contrary, firms with shorter lead time experience an increase of existing director turnover over the same period, and have lower proportion of the new CEOs appointed to the board. In summary, board tenure of at least one year seems to be desirable as part of the succession planning process.

### **5. Multivariate analysis**

#### ***5.1. Cumulative abnormal stock returns after the incumbent CEOs' actual departure date***

--INSERT TABLE 7 ABOUT HERE--

Univariate analysis does not control for other factors that could impact the change in performance. In this section, I extend my analysis to a multivariate setting. I rely on related prior studies, for instance, Yermack (1996), Naveen (2006), Coles et al. (2008),

and Coles et al. (2012), for guidance in selecting control variables. Table 7 shows the multivariate analysis results on the cumulative abnormal stock returns 30, 60, 90, and 360 days after the incumbent CEOs' actual departure date. The cumulative returns are calculated using market-adjusted model. I use Ordinary Least Squares (OLS) regression with the White Robustness Error, controlling for firm, corporate governance, and departing CEO characteristics. The dependent variables are all in percentage format.

The result shows that *ceteris paribus*, unexpected CEO departures are associated with significantly negative CARs. Specifically, a change from planned departure to unexpected departure decreases the CARs (0,0), CARs (-1,1), and CARs (-3,3) by 1.77%, 2.97%, and 3.40%, respectively. Furthermore, it decreases the excess stock returns within a 30-day period after the departure by 5.99%.

## ***5.2. Change in firm performance***

--INSERT TABLE 8 ABOUT HERE--

Table 8 shows the multivariate analysis results on change in firm performance around the fiscal year of the actual departure date. The dependent variable in columns (1) to (6) is the change in sales from one year before to three years after the actual departure. I control for whether firms unexpectedly lost its CEO, whether firms used a horse race succession, as well as whether a firms have above or below median lead time, in addition to other firm and corporate governance variables. The coefficients are estimated using the Ordinary Least Squares (OLS) with the White robustness error. Columns (1), (3), and (5) do not include any interaction terms, and columns (2), (4), and (6) take into consideration of the interaction between unexpected departure and horse race succession. The dependent variables are all in percentage format.

The results show that an unexpected departures decreases change in sales by 2.15%, but this impact only shows up three years after the incumbent CEO's departure. In addition, firms with above median lead time have greater change in sales from one year before to up to three years after the departure. Specially, a change from having below to above median lead time increases the change in sales by 6.70%, 6.00%, and 8.40%, respectively. This result indicates that firms with longer lead time may be better preparing/prepared for the CEO transition, therefore have better change in firm performance. As mentioned in the earlier part of this paper, although lead time may not be an accurate measure of the length or depth of succession planning, it proxies for the likelihood of succession planning, and firms with longer lead time are more likely to have a succession in place or compose one. The interaction between unexpected CEO departure and horse race succession is not significantly related to change in sales.

### ***5.3. Change in capital expenditure***

--INSERT TABLE 9 ABOUT HERE--

Table 9 shows the results of the coefficients using OLS regression with the White robustness errors. The dependent variables are changes in CAPEX from one year before to three years after the departure. The multivariate results show that unexpected CEO departures are associated with decreases in change in CAPEX for at least three years after the CEO departure. A change from planned to unexpected CEO departure decreases CAPEX by 3.42%, 1.97% and 3.92% from one year to three years after the departure, respectively. An interesting result is that horse race succession seems to be associated with a disruption of capital expenditure. Specifically, when firms use horse race succession, change in CapEx decreases approximately 3-4% from one year before to

three years after the departure. This result may be an indication that having internal candidates competing for the CEO position may cause a delay in firms' on-going project. However, when taking into consideration of the interaction terms, when the CEO departure is unexpected, having a horse race succession increases capital expenditure. This indicates the horse race may be more beneficial when CEO suddenly departs, rather than in planned departures. If a firm allows its internal talent to compete for the CEO position rather than appointing a default person as the new CEO after an unexpected departure, the winner may be able to better continue with corporate expansion.

#### ***5.4. The costs of not planning for succession***

--INSERT TABLE 10 ABOUT HERE--

CEO succession is not free. So far my findings indicate that a lack of CEO succession may be detrimental to shareholder value and to long term firm performance. However, it may be beneficial for certain firms to not plan for succession, if the benefit outweighs the costs of planning. In this section, I intend to calculate the costs of firms not having a plan for succession and show the impact of CEO succession planning on change in firm value. Table 10 shows the results. Based on the CARs calculated in the earlier sections, firms with planned departure have an average CAR of 0.11% across the three event windows around the incumbent CEO's departure announcement. Given that their market capitalization is on average \$10,273 million, the dollar change of their market value is \$11.30 million. In comparison, firms with unexpected CEO departures have an average CAR of -2.18% across the three event windows around the departure

announcement. Given that their average market capitalization is \$5,717 million, the dollar change of their market capitalization is -\$124.63 million. The change in firm value potentially due to succession planning is therefore \$135.93 million.

The 2014 report on senior executive succession planning and talent development by IED and Stanford University shows that a CEO succession plan is reviewed by the board of directors from once a year to once a quarter. When boards do meet to discuss succession plans, they typically allot an hour for succession planning. Therefore, given that a typical board in a public traded company in the US has 10 members (Coles, Daniel and Naveen 2008) and that board members are compensated \$100 per hour for their time, the total costs to have directors discuss CEO succession planning will range from \$10,000 to \$40,000. For the sake of the argument in this section, I treat this cost as negligible. Therefore, the costs of not planning for succession is about \$136 million. Given the large magnitude of the change in firm value associated with a lack of succession planning, I argue that it is doubtful that the costs of not planning for succession will outweigh the benefits. Although it is not the intention of this paper to investigate whether all firms should have a succession plan, it will certainly be interesting for future research to examine why firms will choose to not plan for succession, and what types of firms benefit the most from having a succession plan.

## **6. Conclusion**

While CEO succession planning has received a lot of attention recently—particularly in social media, there has been a dearth of studies evaluating its necessity. Moreover, the succession planning process itself has not been clearly described, possibly because this process is difficult to observe and evaluate. In this paper, I determine

whether CEO succession planning matters and I examine which actions board of directors take to prepare for a succession in the company's top executive leadership. To do so, I use lead time—a proxy measure for CEO succession planning representing the number of days between the incumbent CEO's departure announcement and their actual departure date. I also use this measure to compare firms with planned departure (i.e. retirement) to firms with unexpected CEO departures and find that firms with planned departure have significantly longer lead time and lower disruption costs. Specifically, when the CEO departure is expected, firms tend to experience less negative excess stock returns, more favorable change in firm performance, as well as continued capital expenditures. This paper contributes to the CEO succession planning literature by showing that longer lead time in CEO succession planning is critical to lower disruption costs and ensure a smoother transition. Thus, the new SEC requirement that CEO succession planning be fully elevated to the status of core board responsibility is empirically supported.

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## Appendix A1

### Variable definitions

**Blockholder** is a binary variable that equals to 1 if there is at least one blockholder in the sample firm, and 0 otherwise. *Blockholder* and *institutional ownership* information are obtained from Thomson Financial database.

**Change in Indperf\_adj ROA** is the change in industry-and-performance-adjusted ROAs from one year up to three years after the incumbent CEO departure.

**Lead time** is the number of days between the incumbent CEOs' departure announcement date and their actual departure date.

**Days before announcing the new CEO** is the number of days between the incumbent CEOs' departure announcement date and the appointment date of a new permanent CEO.

**Days before new CEO takeover** is the number of days between the incumbent CEOs' departure announcement date and actual date the new CEO takes over.

**Days since new CEO appt COO/President** is the executive tenure as COO and/or President.

**Departing CEO founder** is a binary variable that equals to 1 if the departing CEO was the founder, and 0 otherwise.

**Firm age** is the maximum number of years between CRSP listing age and Compustat listing age.

**Firm risk<sub>t-1</sub>** is the standard deviation of daily stock price during the prior calendar year.

**Industry-adjusted ROA<sub>t-1</sub>** is measured as a sample firm's ROA minus the median industry ROA, using the Fama and French (1997) 48-industry classification.

**Industry-and-performance-adjusted ROA<sub>t-1</sub>** is defined as each sample firm's ROA less the ROA of a non sample firm, matched on primary two-digit SIC industry and with the ROA within 10% in the previous year. If no firm in the same two-digit industry has a year-1 ROA within 10%, I first select the firm in the same one-digit industry, and then disregard industry and only match on year-1 ROA within 10%.

**Market value of equity (mkcap)** is calculated using end of the year closing price of equity to multiply common stock shares outstanding.

**New CEO is current employee** is a binary variable that equals to 1 if the replacement CEO has been with the hiring company for at least 2 years prior to the departure, and 0 if they are hired from outside (this is a result not summary stats).

**New CEO is Current director** is an indicator variable that equals to 1 if the replacement CEO has been a director in the firm for at least 6 months, and 0 otherwise.

**New CEO Age** is obtained from Execucomp as of the year of CEO departure.

**New CEO # of external board seats** is the total number of other public board connections the new CEO possesses.

**Outside director connections** is calculated as the sum of other public board seats held by outside directors in the sample firm.

**Post year 2001** is a binary variable that equals to 1 if the year of departure is after 2001, 0 otherwise.

**Percentage of insider directors** and **Number of inside directors** are the percentage and number of inside directors on board.

**Relay succession** is an indicator variable that equals to 1 if the new CEO has been the COO and/or President before they were promoted.

**R&D intensity** is defined as research and development expenditure to sales. I calculate R&D intensity by taking the maximum value of 0, or R&D expense from Compustat, whichever is larger, and then divide it by sales.

**ROA** is the operating earnings before interest and taxes (OIBDP) over total book assets (AT).

**Total # of inside directors** is the total number of inside directors on board.

**% of existing director departures<sub>t+n</sub>** is the percentage of existing director turnover rate up to three years after the CEO departure.

**% of senior management turnover within 18mons** is the percentage of senior management (president, CFO, and COO) that left the company 18 months after the departures.

**Appendix A2**

**Table 1 Planned retirement and unexpected CEO departure by time**

This table shows the distribution of planned and unexpected CEO departures during the period of 1999 to 2008. Departing CEO age information is from Execucomp and may not be available for all observations. *Lead time* is the number of days between the incumbent CEO’s departure announcement date and their actual departure date.

Year	Reasons for CEO departure					
	Planned (N=843)			Unexpected (N=76)		
	Frequency	Lead time (days)	Departing CEO age	Frequency	Lead time (days)	Departing CEO age
1999	77 (9.13%)	80.44	63.56	5 (6.58%)	0.00	60.00
2000	99 (11.74%)	81.87	61.01	8 (10.53%)	9.37	72.00
2001	107 (12.69%)	79.87	62.36	10 (13.16%)	7.40	53.00
2002	80 (9.49%)	61.16	61.37	7 (9.21%)	0.00	54.00
2003	77 (9.13%)	76.07	63.17	7 (9.21%)	2.57	56.25
2004	82 (9.73%)	70.53	61.27	9 (11.84%)	1.77	56.00
2005	91 (10.79%)	69.96	61.15	4 (5.26%)	0.00	51.50
2006	73 (8.66%)	84.08	63.84	6 (7.89%)	0.00	60.67
2007	88 (10.44%)	83.93	61.69	7 (9.21%)	0.00	58.00
2008	69 (8.19%)	74.64	62.44	13 (17.11%)	6.53	54.67
<b>Total</b>	<b>843 (100%)</b>	<b>75.70</b>	<b>62.11</b>	<b>76 (100%)</b>	<b>3.53</b>	<b>56.41</b>

**Table 2 Firm, corporate governance, and departing CEO characteristics**

This table shows the univariate comparison of firm, corporate governance and departing CEO characteristics. The mean values of each variable are followed by mean differences between subsamples of firms with planned and unexpected CEO departures. *Previous 1yr adj. stock return* is the cumulative abnormal return in the prior year, and *Previous 1yr raw stock return* is the raw cumulative stock return the prior year. The median differences are tabulated for two variables: market capitalization and prior 1-year cumulative stock returns. \*\*\*, \*\*, and \* indicate that the mean is significantly different from 0 at 1%, 5%, and 10% level. Bolded letters and *c*, *b*, and *a* indicate a two-sided t-test for mean differences between subsamples of Planned retirement and unexpected CEO departures are significant at 1%, 5% and 10% level. The definition of all other variables is in the Appendix. Note: information on some variables may not be available for the whole sample period.

	Reasons for CEO departure		Mean difference between (1) and (2)
	(1) Planned (N=843)	(2) Unexpected (N=76)	
<u>Firm characteristics</u>			
Firm age	24.24	22.41	1.83
Tobin's Q	2.79	2.48	0.31
Market Cap (000,000)	10,273	5,717	4,556
R&D intensity	2.37%	2.97%	-0.60%
Leverage	22.68%	22.20%	0.40%
Free cash flow	<b>4.12%</b>	<b>2.42%</b>	<b>1.70%<sup>a</sup></b>
Firm risk <sub><i>t-1</i></sub>	2.51%	2.67%	-0.16%
Institutional ownership	64.68%	64.04%	0.64%
Blockholder	74.38%	66.67%	6.71%
Industry adjusted ROA <sub><i>t-1</i></sub>	4.87%	4.47%	0.40%
Market to book ratio	1.42	1.38	0.04
Previous 1yr adj. stock return	7.35%***	-0.46%	7.52%
Previous 1yr raw stock return	2.23%***	2.10%*	0.12%
<u>Corporate Governance Characteristics</u>			
% of inside directors	<b>20.32%</b>	<b>23.03%</b>	<b>-2.71%<sup>a</sup></b>
Num. of inside directors	1.97	2.17	-0.10
Board size	10.01	9.67	0.34
Board independence	67.45%	68.67%	-1.22%
Departing CEO founder	9.63%	9.21%	0.42%

**Table 3 Comparison of transitional characteristics and disruption costs between planned and unexpected CEO departures**

This table shows the univariate comparison of CEO transitional characteristics and disruption costs between firms with Planned retirement and unexpected CEO departures. Panel A shows the comparison of CEO transitional characteristics. *Lead time* is the number of days between the incumbent CEO's departure announcement date and their actual departure date. *Days before announcing the new CEO* is the number of days between the incumbent CEOs' departure announcement date and the appointment date of a new permanent CEO. *Days before new CEO takeover* is the number of days between the incumbent CEOs' departure announcement date and actual date the new CEO takes over. *Relay succession* is an indicator variable that equals to 1 if the new CEO has been the COO and/or President before they were promoted. *Days since new CEO appt COO/President* is the executive tenure as COO and/or President. Panel B shows the comparison of market reaction (cumulative abnormal returns) at the announcement of the incumbent CEO departure, as well as excess stock returns within 30, 60, and 90 days after the incumbent CEOs' actual departure date. The announcement CARs are computed in Eventus using both market adjusted (untabulated) and market model, and the excess returns are the market-adjusted cumulative stock returns within 30, 60, and 90 days of actual departure date. Stock return data is from CRSP. Panel C shows the comparison of changes in firm performance. I calculate both industry-adjusted ROAs (not tabulated, but available by request), as well as industry-and-performance adjusted ROAs. Definitions of all other variables are in the Appendix. \*\*\*, \*\*, and \* indicate that the mean is significantly different from 0 at 1%, 5%, and 10% level. Bolded letters *c*, *b*, and *a* indicate a two-sided t-test for mean differences between Planned retirement and unexpected CEO departure subsamples are significant at 1%, 5% and 10% level. Changes in performance are winsorized at 1%.

*Panel A. Comparison of CEO transitional characteristics*

	(1) Planned retirement (N=843)	(2) Unexpected departure (N=76)	Mean difference between (1) and (2)
Lead time	<b>75.01</b>	<b>3.53</b>	<b>71.48<sup>c</sup></b>
Days before new CEO takeover	75.54	68.92	6.61
Days without leadership	<b>0.53</b>	<b>61.33</b>	<b>-60.80<sup>c</sup></b>
Senior management turnover	<b>18.38%</b>	<b>38.36%</b>	<b>-20.00%<sup>c</sup></b>
New CEO is current employee	75.03%	73.07%	1.95%
New CEO is on board	50.29%	47.43%	2.86%
New CEO board tenure (years)	<b>2.80</b>	<b>7.06</b>	<b>-4.26<sup>c</sup></b>
Relay succession	<b>40.45%</b>	<b>28.20%</b>	<b>12.24%<sup>c</sup></b>
# of firms with relay succ.	<b>341</b>	<b>22</b>	--
--Years since new CEO appt COO/President	<b>1.89</b>	<b>3.47</b>	<b>-1.58<sup>c</sup></b>

*Panel B: Cumulative abnormal stock returns*

CARs (0,0)	<b>0.06%</b>	<b>-1.31%***</b>	<b>1.37%<sup>c</sup></b>
CARs (-1,1)	<b>0.24%</b>	<b>-2.29%***</b>	<b>2.53%<sup>c</sup></b>
CARs (-3,3)	<b>0.04%</b>	<b>-2.95%***</b>	<b>3.00%<sup>c</sup></b>
Excess return (0,30)	<b>0.06%</b>	<b>-5.73%***</b>	<b>5.79%<sup>c</sup></b>
Excess return (0,60)	<b>0.24%</b>	<b>-3.44%**</b>	<b>3.68%<sup>a</sup></b>

*Panel C. Change in firm performance related measures*

	(1) Planned retirement (N=843)	(2) Unexpected departure (N=76)	Mean difference between (1) and (2)
Sales <sub>t-1</sub> (000,000)	6,169.05	3,624.25	2,544.80
Chg in sales <sub>t-1 to t+1</sub> (%)	18.09%	27.19%	-1.41
Chg in sales <sub>t-1 to t+2</sub> (%)	<b>24.20%</b>	<b>43.18%</b>	<b>-2.88<sup>b</sup></b>
Chg in sales <sub>t-1 to t+3</sub> (%)	33.37%	44.46%	-1.30
ROA <sub>t-1</sub>	13.56%	12.87%	0.68%
ROA <sub>t+1</sub>	12.89%	12.33%	0.56%
ROA <sub>t+2</sub>	12.79%	13.17%	-0.38%
ROA <sub>t+3</sub>	12.35%	12.70%	-0.35%
CapEx <sub>t-1</sub> (000,000)	347.53	246.48	101.00
Chg in CapEx <sub>t-1 to t+1</sub> (%)	7.69%	8.38%	-0.51
Chg in CapEx <sub>t-1 to t+2</sub> (%)	7.72%	8.87%	-0.85
Chg in CapEx <sub>t-1 to t+3</sub> (%)	8.16%	10.23%	-1.36

**Table 4 Firm and board adjustment comparison**

This table shows the board and director characteristics three years prior to the CEO departure. Bolded letters *c*, *b*, and *a* indicate a two-sided t-test for mean differences between firms with planned and unexpected CEO departures are significant at 1%, 5% and 10% level. Definitions of all variables are in the Appendix.

	Planned retirement (N=843)			Unexpected departures (N=76)		
	t-3	$\Delta t-2$	$\Delta t-1$	t-3	$\Delta t-2$	$\Delta t-1$
Board size	9.94	0.03	0.01	10.02	-0.13	0.06
Board independence	65.71%	<b>0.98%</b>	1.17%	63.33%	<b>3.52%<sup>a</sup></b>	1.89%
Existing director turnover	<b>9.25%</b>	-0.58%	2.01%	<b>12.04%<sup>a</sup></b>	-0.20%	2.49%
Free cash flow	4.28%	-0.25%	<b>0.07%</b>	3.97%	-0.25%	<b>-1.45%<sup>a</sup></b>
Capital expenditure (000,000)	331.67	18.91%	17.39%	216.27	31.41%	24.09%
	t-3	t-2	t-1	t-3	t-2	t-1
% of firms apt COO/Pres	6.17%	<b>13.05%</b>	<b>12.81%</b>	5.26%	<b>3.94%<sup>a</sup></b>	<b>2.63%<sup>a</sup></b>
% of firms apt new CEO on board	4.51%	<b>9.37%</b>	<b>17.32%</b>	5.13%	<b>5.13%<sup>a</sup></b>	<b>2.56%<sup>b</sup></b>

**Table 5 Differences in transitional costs between with above versus below median lead time when Planned retirement**

This table shows the univariate comparison of CEO transitional characteristics and disruption costs between firms with above and below-median lead time when the CEO departures are Planned retirement. Panel A shows the comparison of CEO transitional characteristics. Panel B shows the comparison of market reaction (cumulative abnormal returns) at the announcement of the incumbent CEO departure, as well as excess stock returns within 30, 60, and 90 days after the incumbent CEOs' actual departure date. Panel C shows the comparison of firm performance and the change in capital expenditures (CAPEX). CAPEX data is from Compustat, and the change in CAPEX is calculated as the difference between CAPEX one-, two-, and three-years after the departure and CAPEX one year prior to the departure. I calculate both industry-adjusted ROAs (not tabulated, but available by request), as well as industry-and-performance adjusted ROAs. Definitions of all other variables are in the earlier tables and in the Appendix. \*\*\*, \*\*, and \* indicate that the mean is significantly different from 0 at 1%, 5%, and 10% level. Bolded letters *c*, *b*, and *a* indicate a two-sided t-test for mean differences between Planned retirement and unexpected CEO departure subsamples are significant at 1%, 5% and 10% level. Changes in performance are winsorized at 1%.

*Panel A. Comparison of firm and corporate governance characteristics*

	(1) Above median (N=420)	(2) Below median (N=423)	Mean difference between (1) and (2) (t-stat)
<u>Firm characteristics</u>			
Firm age	<b>25.88</b>	<b>22.63</b>	<b>3.25<sup>c</sup></b>
Tobin's Q	2.82	2.74	0.08
Market Cap (000,000)	<b>12,463.45</b>	<b>7,728.96</b>	<b>4,734.50</b>
Market to book ratio	1.41	1.44	-0.03
R&D intensity	2.23%	2.54%	-0.31%
Leverage	22.97%	22.34%	0.64%
Free cash flow	4.39%	3.80%	0.59%
Firm risk <sub><i>t-1</i></sub>	<b>2.35%</b>	<b>2.68%</b>	<b>-0.33%<sup>c</sup></b>
Institutional ownership	<b>64.16%</b>	<b>60.99%</b>	<b>3.17%<sup>a</sup></b>
Blockholder	73.72%	72.82%	2.90%
Industry adjusted ROA <sub><i>t-1</i></sub>	5.24%	4.43%	0.81%
Previous 1yr adj.stock return	<b>4.13%**</b>	<b>10.43%***</b>	<b>-6.31%<sup>a</sup></b>
<u>Corporate Governance Characteristics</u>			
Board size	<b>10.36</b>	<b>9.60</b>	<b>0.76<sup>c</sup></b>
Board independence	<b>69.52%</b>	<b>65.00%</b>	<b>4.52%<sup>c</sup></b>
Departing CEO founder	<b>7.06%</b>	<b>12.63%</b>	<b>-5.56%<sup>c</sup></b>

**Table 5 Continued***Panel B. Comparison of CEO transitional characteristics*

	(1) Above median (N=420)	(2) Below median (N=423)	Mean difference between (1) and (2)
Lead time (median=34)	<b>142.24</b>	<b>9.46</b>	<b>132.78<sup>c</sup></b>
Days in new CEO takeover	<b>142.45</b>	<b>11.09</b>	<b>131.36<sup>c</sup></b>
Days without leadership	0.21	1.63	-1.42
Senior management turnover	19.05%	17.73%	1.32%
New CEO is current employee	<b>82.14%</b>	<b>67.93%</b>	<b>14.21%<sup>c</sup></b>
New CEO is on board	<b>54.52%</b>	<b>46.08%</b>	<b>8.44%<sup>c</sup></b>
New CEO board tenure	2.82	2.78	0.04
Relay succession	<b>47.85%</b>	<b>33.09%</b>	<b>14.76%<sup>a</sup></b>
# of firms using relay succ	201	140	71
--Days since new CEO appt COO/President (years)	1.88	1.92	-0.04

*Panel C: Cumulative abnormal stock returns*

CARs (0,0)	-0.04%	0.61%	-0.65%
CARs (-1,1)	0.14%	0.34%	-0.20%
CARs (-3,3)	0.16%	-0.07%	0.23%
Excess return (0,30)	-0.04%	0.52%	-0.54%
Excess return (0,60)	0.01%	0.71%	-0.70%

*Panel D. Change in sales and capital expenditure*

Sales $_{t-1}$ (000,000)	<b>7,722.42</b>	<b>4,626.63</b>	<b>3,095.80<sup>b</sup></b>
Chg in sales $_{t-1}$ to $t+1$ (%)	20.08%	16.09%	1.08
Chg in sales $_{t-1}$ to $t+2$ (%)	<b>26.96%</b>	<b>21.42%</b>	<b>1.68<sup>a</sup></b>
Chg in sales $_{t-1}$ to $t+3$ (%)	<b>38.01%</b>	<b>28.62%</b>	<b>2.02<sup>a</sup></b>
CAPEX $_{t-1}$ (000,000)	<b>427.68</b>	<b>265.36</b>	<b>162.32<sup>a</sup></b>
Chg CAPEX $_{t-1}$ to $t+1$ (%)	8.02%	7.36%	0.84
Chg CAPEX $_{t-1}$ to $t+2$ (%)	7.95%	7.49%	0.58
Chg CAPEX $_{t-1}$ to $t+3$ (%)	8.52%	7.79%	0.87

**Table 6 Firm and board adjustments by firms with above versus below lead time when Planned retirement**

This table shows the board and director characteristics three years prior to the CEO departure. Bolded letters *c*, *b*, and *a* indicate a two-sided t-test for mean differences between Planned retirement firms with above and below-median lead time are significant at 1%, 5% and 10% level. Definitions of all variables are in the Appendix.

	Above median (N=420)			Below median (N=423)		
	t-3	$\Delta t-2$	$\Delta t-1$	t-3	$\Delta t-2$	$\Delta t-1$
Board size	10.19	0.00	0.08	9.68	0.51	-0.07
Board independence	67.15%	1.04%	1.43%	64.25%	0.93%	0.92%
Existing director turnover	10.24%	<b>-1.98%</b>	2.21%	8.21%	<b>0.85%</b> <sup>a</sup>	1.86%
Free cash flow	4.27%	0.15%	0.01%	4.28%	-0.67%	0.13%
Capital expenditure (000,000)	410.18	15.95%	14.21%	257.95	21.90%	13.38%
	t-3	t-2	t-1	t-3	t-2	t-1
% of firms apt COO/Pres	6.17%	13.05%	12.81%	5.67%	13.00%	12.76%
% of firms apt new CEO on board	5.00%	<b>11.19%</b>	<b>23.33%</b>	4.02%	<b>7.56%</b> <sup>a</sup>	<b>11.34%</b> <sup>c</sup>

**Table 7 Multivariate Analysis on Excess Stock Returns after Incumbent CEO Departure**

This table shows the estimate of OLS regressions of excess stock returns within 30, 60, 90 and 360 days after the incumbent CEOs' actual departure date. The dependent variables are value-weighted-market-adjusted excess stock returns. All dependent variables are in the percentage format. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% level, respectively. *p*-values are reported in the parentheses.

Independent variables	(1) CARs (0,0) (%)	(2) CARs (-1,1) (%)	(3) CARs (-3,3) (%)	(3) Excess return (0,30) (%)
Log (Market cap)	0.078 (0.38)	0.062 (0.65)	0.006 (0.98)	0.330 (0.34)
Founder CEO	-0.262 (0.50)	-0.381 (0.54)	1.140 (0.23)	0.052 (0.96)
Firm risk (%)	0.105 (0.87)	0.300 (0.46)	0.273 (0.99)	0.183 (0.20)
R&D intensity (%)	-0.029 (0.43)	0.068 (0.35)	-0.092 (0.33)	0.083 (0.57)
Institutional ownership (%)	<b>-0.011***</b> (0.01)	<b>-0.014**</b> (0.03)	-0.013 (0.18)	0.002 (0.87)
Prior 1yr stock return (%)	-0.000 (0.96)	0.000 (0.53)	-0.006 (0.37)	<b>0.017*</b> (0.09)
Leverage (%)	0.336 (0.66)	0.494 (0.68)	0.680 (0.64)	-0.581 (0.82)
Free cash flow (%)	-0.519 (0.79)	-2.240 (0.64)	1.090 (0.84)	5.880 (0.46)
<b>Unexpected departure</b>	<b>-1.770***</b> <b>(0.00)</b>	<b>-2.970***</b> <b>(0.00)</b>	<b>-3.340***</b> <b>(0.00)</b>	<b>-5.990***</b> <b>(0.00)</b>
Constant, year and industry dummies	Yes	Yes	Yes	Yes
Number of observations	901	901	901	892
R-sq	0.052	0.049	0.039	0.046

**Table 8 Multivariate analysis: Change in Sales around Incumbent CEOs' Actual Departure**

This table shows the estimate of OLS regressions of percentage changes in sales over the transition period from one year before departure to three years after the actual departure. The dependent variables are changes in sales scaled by sales the year prior to the CEO departure. Definitions of all variables are in the Appendix. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% level, respectively. *p*-values are reported in the parentheses.

Independent variables	(1) Change in sales <sub>t+1</sub>	(2) Change in sales <sub>t+1</sub>	(3) Change in sales <sub>t+2</sub>	(1) Change in sales <sub>t+2</sub>	(2) Change in sales <sub>t+3</sub>	(3) Change in sales <sub>t+3</sub>
Log (Market cap)	0.590 (0.50)	0.350 (0.69)	0.785 (0.48)	0.568 (0.61)	1.200 (0.40)	1.070 (0.45)
Founder CEO	4.010 (0.38)	3.970 (0.39)	6.050 (0.27)	5.950 (0.29)	7.470 (0.33)	8.470 (0.27)
Firm risk	0.154 (0.88)	0.784 (0.79)	-1.339 (0.65)	-0.604 (0.58)	-2.164 (0.93)	-0.630 (0.85)
Prior 1yr stock return	<b>0.147**</b> (0.00)	<b>0.149**</b> (0.00)	<b>0.166**</b> (0.00)	<b>0.167*</b> (0.00)	<b>0.172***</b> (0.00)	<b>0.171***</b> (0.00)
Institutional ownership	<b>0.095*</b> (0.09)	<b>0.086*</b> (0.08)	<b>0.110*</b> (0.09)	0.101 (0.12)	<b>0.134*</b> (0.10)	0.129 (0.12)
Leverage	<b>-0.127*</b> (0.09)	<b>-0.119*</b> (0.10)	-0.144 (0.15)	-0.133 (0.17)	<b>-0.211*</b> (0.08)	-0.191 (0.11)
Unexpected departure	0.073 (0.20)	-0.050 (0.28)	0.104 (0.18)	-0.682 (0.25)	0.033 (0.68)	<b>-2.146***</b> (0.00)
Horse race succession	-0.045 (0.16)	-0.032 (0.33)	-0.058 (0.16)	-0.034 (0.43)	-0.077 (0.16)	-0.059 (0.27)
Above median lead time		<b>0.067***</b> (0.00)		<b>0.060**</b> (0.04)		<b>0.084**</b> (0.03)
Unexpected departure*		-0.097		-0.212		-0.031
Horse race succession		(0.38)		(0.13)		(0.84)

**Table 8 Continued**

	(1) Change in sales <sub>t+1</sub>	(2) Change in sales <sub>t+1</sub>	(3) Change in sales <sub>t+2</sub>	(1) Change in sales <sub>t+2</sub>	(2) Change in sales <sub>t+3</sub>	(3) Change in sales <sub>t+3</sub>
Constant, year, and industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	883	883	849	849	814	814
R-sq	0.185	0.190	0.371	0.379	0.097	0.098

**Table 9 Multivariate analysis: Change in capital expenditures around incumbent CEOs' actual departure in firms**

This table shows the estimate of OLS regressions of changes in CAPEX over the period from one year before to three years after the actual departure. The dependent variables are change in CapEx scaled by sales the year before CEO departure. Definitions of all variables are in the Appendix. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% level, respectively. *p*-values are reported in the parentheses.

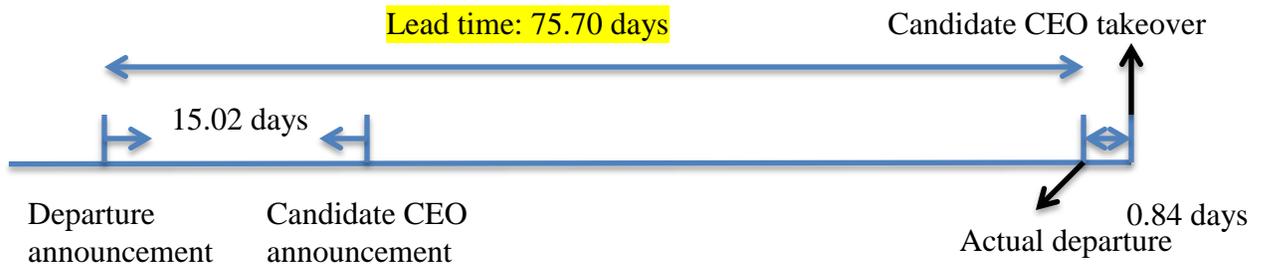
Independent variables	(1) Change in CAPEX <sub>t+1</sub> (%)	(1) Change in CAPEX <sub>t+2</sub> (%)	(2) Change in CAPEX <sub>t+3</sub> (%)
Log (Market cap)	-0.010 (0.98)	0.114 (0.57)	0.057 (0.81)
Founder CEO	-1.390 (0.18)	-0.301 (0.78)	0.273 (0.83)
Firm risk	0.348 (0.45)	0.356 (0.42)	0.037 (0.93)
R&D intensity	-6.470 (0.43)	0.995 (0.91)	-1.890 (0.84)
Institutional ownership	<b>2.500*</b> (0.06)	<b>3.090**</b> (0.03)	<b>3.170**</b> (0.03)
Prior 1yr stock return	<b>3.680***</b> (0.00)	<b>3.332***</b> (0.01)	<b>3.000***</b> (0.00)
Leverage	<b>4.460*</b> (0.07)	<b>6.280**</b> (0.02)	<b>7.520***</b> (0.01)
Free cash flow	-3.590 (0.60)	2.860 (0.63)	3.570 (0.63)
Unexpected departures	<b>-3.420***</b> (0.01)	<b>-1.970*</b> (0.01)	<b>-3.920**</b> (0.02)
Horse Race	<b>-3.34**</b> (0.02)	-3.05 (0.12)	<b>-4.49**</b> (0.02)
Unexpected departures *Horse race	<b>4.330*</b> (0.01)	<b>2.890*</b> (0.08)	0.895 (0.66)
Constant, year, and industry dummies	Yes	Yes	Yes
Number of observations	762	736	707
R-sq	0.391	0.370	0.428

**Table 10 The Cost of CEO Succession Planning**

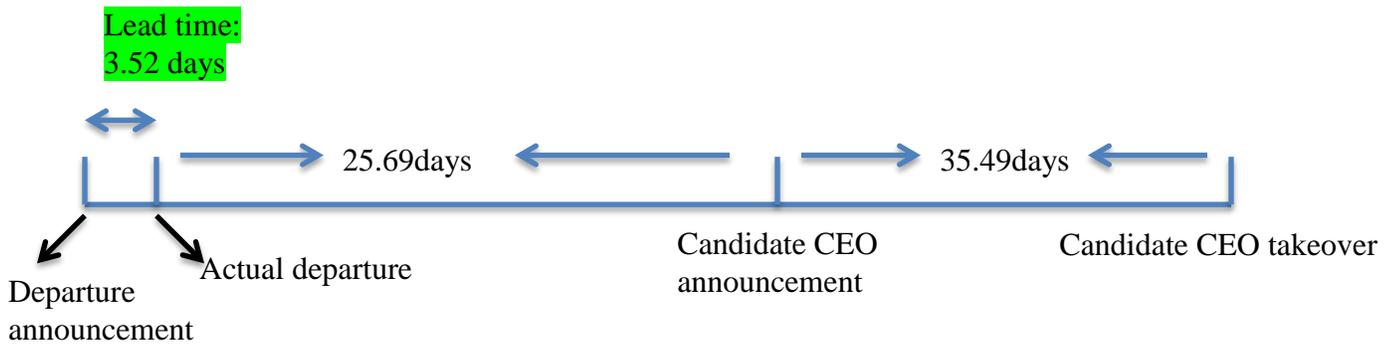
This table shows that calculation of the costs of CEO succession planning, based on the CARs and market capitalization of the firms with planned versus unexpected CEO departures.

Reasons of departure	CARs	Avg. CARs	Market cap <sub>t-1</sub> (000,000)	\$ of change in value (000,000)	Board of director compensation
Planned	0.06% (0,0)	0.11%	10,273	11.30	\$10,000-\$40,000
	0.24% (-1,1)				
	0.04% (-3,3)				
Unexpected	-1.31%	-2.18%	5,717	-124.63	\$10,000-\$40,000
	-2.29%				
	-2.95%				

$\Delta$  due to planning= $|-124.63-11.30|$ =\$135.93 (mln)



**Figure 1. Time line of planned successions**



**Figure 2. Time line of unexpected CEO departures**

**CHAPTER 2**  
**BOARD COMPOSITION AND ORGANIZATIONAL RESILIENCE: EVIDENCE**  
**FROM SUDDEN CEO DEPARTURES**

## **Abstract**

A firm's ability to quickly recover from setbacks is of great importance to its stakeholders and investors. Although critics argue that inside directors decrease the monitoring effectiveness of a board, inside directors arguably possess superior firm specific experience and knowledge which could improve organizational resiliency. The main purpose of this paper is to investigate whether inside directors improve organizational resiliency using the context of sudden CEO departures when CEO succession is not possible. The sudden departure of a CEO creates uncertainty for a company's managers, employees, customers, suppliers, and investors. Lengthy delays before making a replacement, or lack of resiliency, are commonly accompanied by an erosion in operating performance. Using a unique data set of 351 sudden CEO departures from 1991 to 2009, I find evidence that firms with inside directors other than the CEO are more resilient. The likelihood of identifying an inside replacement after a sudden departure and the average change in abnormal operating performance around a sudden departure are both greater when firms have at least one insider other than the CEO on the board. In addition, firms with greater inside director presence are less likely to engage in big bath accounting, i.e., taking advantage of the departure to largely write off assets. In further tests, I find that a firm's resiliency after a sudden CEO departure appears to also be enhanced when its outside directors are well-connected.

## 1. Introduction

Firms can face several shocks during their life cycle. A firm's ability to quickly recover from setbacks is of great importance to its stakeholders and investors. One particularly critical shock to a firm is the sudden departure of its CEO (Worrell, Davidson III, Chandy and Garrison, 1986; Behn, Dawley, Riley and Yang, 2006; Salas, 2010). The sudden loss of a CEO has the potential to throw a company into a tailspin. Consider, for example, the unanticipated resignation of Hewlett-Packard's (HP) former CEO Mark Hurd on August 6, 2010.<sup>8</sup> Its press release reported that Hurd's decision was made following an investigation surrounding a claim of sexual harassment against Hurd and HP by a former contractor to the company. HP's market value fell by \$10 billion, close to a 10 percent decline following Hurd's resignation. The perceived importance of being resilient when faced with a sudden CEO departure is underscored by the new requirement that firms must include a CEO succession planning proposal in their proxy statements (SEC Staff Legal Bulletin 14E).

The purpose of this paper is to investigate whether certain board characteristics are related to a firm's resilience by examining sudden CEO departures, when CEO succession is not possible. Understanding the relation between board composition and a firm's ability to quickly recover from shocks such as a sudden CEO departure is important in understanding a firm's ability to manage risk. Specifically, I examine whether non-CEO inside directors improve a firm's ability to quickly recover from a sudden loss in executive leadership. Inside directors may possess superior firm specific knowledge and experience which may allow firms to recover from shocks more quickly.

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<sup>8</sup> "HP CEO Mark Hurd resigns; CFO Cathie Lesjak Appointed Interim CEO; HP Announces Preliminary Results and Raises Full-year Outlook", HP press release, August 2010.

For instance, inside directors may be better able to assume the role of CEO in either a permanent role for a quick recovery or in a temporary role to provide stability during the search for a new CEO. Agrawal, Knoeber, and Tsoulouhas (2006) indicate that it is less costly for firms to replace a CEO with an internal candidate, and thus, firms only choose external candidates when they are superior. Moreover, Masulis and Mobbs (2009) suggest that inside directors can provide higher quality internal candidates. In contrast, too many inside directors on a firm's board is often associated with ineffective boards and entrenchment.

A CEO departure is categorized as sudden if it is unanticipated by the board of directors, hence no adjustments to the board have been made to prepare for the departure. Sudden CEO departures may consist of the unexpected CEO departures due to death and illness, as well as sudden forced CEO departures due to lawsuits and criminal investigations. In the first half of the paper, I use the whole sample of 351 sudden CEO departures<sup>9</sup> between 1991 and 2009, and find that firms with more non-CEO inside directors are associated with lower disruption and transitional costs, or greater resilience. Specifically, the likelihood of identifying an internal replacement is significantly greater when firms have at least one non-CEO insider on the board. Additionally, the average change in industry-and-performance adjusted operating performance from one year before to three years after the sudden CEO departure is economically greater in firms with non-CEO inside directors. In addition, firms with greater inside director presence are less likely to engage in large write-offs of assets, i.e., taking a big bath after the CEO departure. In the second part of the paper, I use the stricter sample of 119 unexpected

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<sup>9</sup> Financial and utility firms are excluded in my sample.

departures due to death, illness, and sudden resignation over the same period, to make sure that the results are not subjected to sample construction. The results are consistent with those in the broader sample of sudden CEO departures.

I further examine whether outside directors with numerous connections enhance a firm's resilience, or mitigate the costs associated with sudden CEO departures. Coles, Daniel, and Naveen, and Omer, Shelley, and Tice (2012) indicate that outside directors may add value through their networks. Thus, well-connected outside directors may be better able to quickly identify through their networks highly qualified replacements to lead the recovery. In contrast, Fich and Shivdasani (2006) argue that outside directors sitting on numerous boards are too busy to effectively fulfill their responsibilities as directors. In this case, outside directors may quickly choose replacements through their connections, but the replacements may not be well qualified to lead a recovery. I find that well-connected outside directors are associated with greater resilience after sudden CEO departures, and that they play both the identification and certification roles in the replacement CEO selection process through their network. In fact, firms with both non-CEO inside directors and well-connected outside directors appear to be more resilient to sudden CEO departures; whereas firms with no non-CEO inside directors and not connected outside directors are least resilient. Specifically, well-connected outside directors are associated with more experienced replacement CEOs. Moreover, replacement CEOs tend to be appointed within a shorter time period, are more likely to be part of an outside director's network, and are better connected themselves. The results are robust to controlling for other factors that may influence the CEO selection process and to using different criteria when identifying a CEO departure as sudden.

To my knowledge this is the first study to examine the relation between certain board characteristics and a firm's ability to recover after a potentially disruptive shock, i.e., a sudden CEO departure. Prior literature (Worrell, Davidson III, Chandy and Garrison, 1986; Behn, Dawley, Riley and Yang, 2006; Salas, 2010, Rivolta 2014) suggests that CEO succession planning is important. This paper sheds light on the important roles inside directors play in crisis management and organizational resilience when succession planning is not possible. In addition, consistent with the argument in Coles et al. (2012), the results provide another avenue through which well-connected outside directors can add value identifying and certifying the new CEO through their connections/networks. Given the importance of both non-CEO inside directors and well-connected outside directors, the findings in this paper help inform the debate on uniform mandates for boards. Numerous studies examine the monitoring role of boards, but the advisory role is not as well-explored. Consistent with Linck et al., Coles et al., and Boone et al., the results in this paper provide another avenue through which inside directors and well-connected outside directors may add value advising firms in the new CEO selection process after sudden CEO departures. Last but not least, this paper contributes to the literature of earning management in the form of large write-offs of assets, i.e., big bath. Moehrle (2002) and Christensen et al. (2008) argue that large negative special charges can be an extreme form of earnings management. The results in this paper show that firms with inside directors are less likely to engage in big bath accounting.

The remainder of the paper is organized as follows. Section 2 discusses the prior literature and develops my hypotheses. Section 3 describes the data and provides summary statistics. Section 4 presents univariate and multivariate results using sudden

CEO departures. Section 5 provides additional analysis using the stricter sample of unexpected CEO departures. Section 6 provides a summary and conclusion.

## **2. Prior Literature and Hypotheses Development**

### ***2.1. Inside/outside Successions***

The existing literature on the succession type reflects a common theme: inside successions are associated with maintenance strategies, and outside successions are associated with changes in corporate culture and resource allocation. Agrawal, et al. (2006) find that firms prefer inside succession to outside succession, unless the outside replacements are significantly better than the insiders. Naveen (2006) argues that the likelihood of inside succession is dependent upon firm complexity and industry homogeneity. Specifically, inside successions are more common in larger, more diversified firms, and firms in more heterogeneous industries, in which the costs of information transfer is higher. Behn et al. (2006) report that firms who choose inside successors outperform those who choose outside successors. I predict that boards with a greater number of non-CEO inside directors prior to the departure may be more prone to appoint an insider after a sudden CEO departure given that firms have a larger pool of internal candidate and that it may take boards less time to appoint a candidate from inside than outside the company.

### ***2.2. Firm specific information, R&D intensity and board structure***

Current corporate governance studies on inside directors have found that they possess superior firm specific information than outside directors. Studies as early as

Fama and Jensen (1983) argue that though independent of the CEO, outsider directors lack information on firm projects. Along the same line, Raheja, C. (2005) suggests that high R&D intensive firms benefit from having more insiders on board, and that board size and composition is a function of the “trade-off between maximizing the incentive for insiders to reveal their private information, minimizing coordination costs among outsiders and maximizing the ability of outsiders to reject inferior projects” (p.283). Adams and Ferreira (2007) advocate “friendly” board structures with insiders, as they argue that insiders possess more firm specific information than outsiders, and that a friendly board facilitates the transfer of information from insiders to outside board members. Masulis and Mobbs (2009) conclude that insiders possess more firm specific information. They find that outside directorships provide incentives for inside directors to facilitate the transfer of information to other directors, hence improving board performance and firm performance. Following Raheja, C. (2005) and Coles et al. (2008), I use R&D intensity to proxy for the importance of firm specific knowledge. I predict that high R&D intensity firms are more likely to choose a new permanent CEO from inside the company.

### ***2.3. Inside director as the new CEO***

Musulis and Mobbs (2009) define inside directors holding outside board seats as certified inside directors (CIDs), and argue that the knowledge and skills possessed by these CIDs provide incentives for the current CEO to improve performance, or they may be replaced by the CIDs. Current literature has not provided much information regarding inside directors’ potential as the new CEO. Given the earlier discussion that inside directors possess firm specific knowledge, and that they are already familiar with other

board members and senior managers, the transition should be smoother. Therefore, I hypothesize that the appointment of an inside director as the new CEO is associated with lower costs in the transition, and better change in firm performance.

#### ***2.4. Board structure and change in firm performance after the departure***

Sudden CEO departures generate disruption costs during the transitional period. I proxy these costs using the new CEO's tenure, as well as the delay between incumbent CEO departure and the successor appointment. Existing literature has found that the new CEO, especially those hired from the outside, typically have about 18 months to prove their competency to shareholders (Zhang 2008, Conlin 2009, and Zhang and Rajagopalan 2010). This argument is grounded in the information asymmetry theory that board of directors may have incomplete information about the CEO candidate. Hence, it is possible that the board may have hired the wrong executive and subsequently fires the new CEO to correct the mistake, which leads to greater new CEO turnover. The new CEO turnover could be a huge cost to the company given the average severance pay the companies are offering to their executives (Huang 2011). I test whether the new CEO turnover could be lower (longer tenure) if they were appointed by with strong insider presences.

Behn et al. 2006 find that delay in appointing a successor after unexpected senior executive death is associated with decreasing operating performance, measured by change in sales, change in income before extraordinary items scaled by sales, calculated over one-year and two-year period, and lower cumulative returns around the death of the CEO. Following their study, I hypothesize that firms with strong insider presence boards,

as well as better-connected boards, experience shorter delays, hence shorter periods of uncertainty.

The arguments above also suggest that if certain boards are effective at managing the information they possess, and lowering transitional cost after a sudden event, then they should be associated with better change in firm performance, or at least maintain continuity. In more R&D intensive firms, having more insiders on board may be associated with greater change in performance.

### ***2.5. Can well-connected outside director enhance firm resilience?***

Outside directors may also play a role in choosing the new CEO, via their connections to other public boards. Omer et al. (2012) argues that well-connected directors may not be associated with lower firm performance, as busy director hypothesis predicted. These directors may be beneficial to firms with greater investment opportunities, because they facilitate the transfer of useful information. In addition, Coles et al. (2012) argue that outside director connections proxy for derived demand for their experience, expertise, and service. Firms that have greater advising needs benefit from having well connected outside directors. I predict that well connected outside directors may also be exposed to a larger pool of qualified outside CEO candidates. Therefore, they may enhance firm resilience via their network, after a sudden CEO departure. Their roles may be particularly important in firms with no non-CEO inside directors before the departure.

### ***2.6. Big bath hypothesis***

Big bath accounting has been described as firms having large write-offs in their profit and loss statement in order to create more favorable returns in the subsequent years

(Healy 1985, Watts and Zimmerman 1986, Walsh, Craig, and Clarke 1991, Moehrle 2002). Moehrle (2002) argues that big bath can be seen as an extreme form of earnings management. Christensen, Paik, and Stice (2008) relate big bath to a firm's deferred tax allowance. They use large negative special items charges (Compustat Annual Data Item 17) to proxy big bath, and identify all firms reporting special charges that exceeds 10% of their total assets the same fiscal year. The authors hypothesize that big bath firms will have lower operating performance the year after. They reason that if managers possess private information about a firm's future perspective, the performance next year should reflect this information. I use the same measure to proxy big bath. Big bath is a binary variable that equals to 1 if firms report negative special item charges that equals to or exceeds 10% of their total asset, and 0 otherwise. Since inside directors may possess more firm specific information, I predict that firms with greater insider presence are more likely take advantage of the CEO departure and write off bad assets, i.e., taking a big bath.

### **3. Data and Summary Statistics**

I use data from eight different sources. I first identify the initial sample of CEO departures during the period 1991-2009 from Execucomp, which covers S&P 1500 firms. CRSP and Compustat provide stock returns and accounting information. CEO successor board experience and corporate governance data are identified through the Investor Responsibility Research Center (IRRC) Director Database<sup>10</sup>. For the time period not covered by IRRC (1991-995), I use Compact Disclosure data to gather board size and

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<sup>10</sup> This database is now called Risk Metrics

independence information<sup>11</sup>. Institutional ownership information is obtained through Thomson Reuters Institutional Ownership Data. I hand collect data to fill in any observations where CEO appointment date or the date he/she joined the company is missing in Execucomp, for the purpose of identifying CEO tenure.

The initial sample contains 2,522 CEO departures identified from Execucomp during the period of 1991-2009. I use the fiscal year as unit of time and merge the initial sample with CRSP and Compustat, then merge with IRRC Director Database by matching each annual shareholder meeting date for a firm with the fiscal year in which the meeting is held. I exclude dual class firms and any observations where there was no actual succession; for instance, the change of CEO captured is due to the change of their last name, but the two observations are actually the same person. After the merging process, there were around 2,300 CEO departures during the 1991-2009 period.

For all 2,300 CEO departures, I use Factiva, Lexis Nexis and proxy statements to hand collect the following information: (1) CEO successor origin. This information is missing for some observations due to the missing data in Execucomp on the date the CEO joined the company. I follow Parrino (1997) definition on insider versus outsiders. Insiders are successors that have been with the company for at least one year prior to becoming CEO; and outsiders are successors that have been with the company for less than a year prior to becoming CEO. (2) Interim CEOs. Whether the news release states that the successor is an interim or permanent CEO. (3) Cause of departure. I categorize the departure of the CEO into natural retirement, forced resignation, unexpected

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<sup>11</sup> I am grateful for Tina Yang at Villanova University for generously sharing director data with me.

departures, M&A activity, restructuring, proxy fight, and the separation of CEO/chairman duality. (4) The earliest announcement date of incumbent CEO departure and permanent replacement CEO appointment. (5) The actual incumbent CEO departure and new CEO takeover date. (6) Whether the replacement CEO has been on the appointing company's board of directors at least six months before the appointment announcement. (7) Cause of the unexpected departure. Whether the unexpected departure is due to sudden death, illness, or is due to incumbent CEO being hired away either by a better company, or accepted a government job. (8) Whether the replacement CEO has had CEO experience before in other companies. (9) Whether the retiring CEO is the founder of the company, and whether the company is a family company. (10) The previous positions held by replacement CEOs.

After collecting data for the whole CEO departure sample, I narrow my focus onto sudden CEO departures. In the first half of the paper, I examine my research questions by using the whole sample. A CEO departure is categorized as sudden if it is unanticipated by the board of directors, hence no adjustments to the board have been made to prepare for the departure. Sudden CEO departures may consist of the unexpected CEO departures due to death and illness, as well as sudden forced CEO departures due to lawsuits and criminal investigations. A CEO departure is categorized as unexpected when the CEO departure (or decision to leave) is neither a result of poor performance, nor of regulatory and/or criminal investigation. It should be a genuinely unexpected event. Although a CEO's departure may have come to a surprise to the market, it will not be included in my sample if the board was aware of the departure (or decision to leave), or if it was under the mutual agreement between the CEO and the board. In the second part of

the paper, I use a stricter sample of unexpected CEO departures to make sure that my results are not subjected to sample construction. The final sample consists of 351 sudden CEO departures from 1991 to 2009, out of which 119 are unexpected departures.

I use two measures of performance. The first is the industry-adjusted ROA, measured as a sample firm's ROA minus the median industry ROA, using the Fama and French (1997) 48-industry classification. To control for potential mean reversion in accounting returns for poorly performing firms, I follow the methodology of Barber and Lyon (1996) to compute changes in industry-and-performance adjusted ROA. Each sample firm with a sudden CEO departure is matched to a control firm with no CEO departures. Industry-and-performance adjusted ROA is then defined as each sample firm's ROA less the ROA of a control firm, matched on primary two-digit SIC industry and with the ROA within 10% in the previous year. If no firm in the same two-digit industry has a year-1 ROA within 10%, I first select the firm in the same one-digit industry, and then disregard industry and only match on year-1 ROA within 10%.

In order to demonstrate that firms that experience sudden CEO departures are comparable to the universe of firms that experienced general CEO departures, I compare summary statistics on firm, corporate governance and departing CEO characteristics to Coles et al. 2008 (JFE) (untabulated). Their sample consists of 8,125 CEO turnovers over the period of 1992-2001. The definition of all variables is provided in the Appendix. The average board size in my sample is nine members, with two insiders and seven outsiders. The insider percentage is 20.63%. These numbers are comparable to those in Coles et al. Boards on average have two insiders and eight outsiders, with insider percentage 22% for firm year observations from Execucomp over the period of 1992-2001. Using data over

the period 1989-1994, Huson et al. (2001) find that the median board size is 12, with median insider percentage of 21%. The mean firm age in my sample is 20 years, R&D intensity is 3.74%, and stock price volatility is 3.29%. These results are a bit different from those of Coles et al.. They report an average of 28 years in firm age, R&D intensity of 1.9%, and firm risk 2.6%. Compared to their general sample, firms that experience sudden CEO departures are younger, more R&D intensive, and experienced greater stock volatility during the prior year.

#### **4. Analysis Using the Sudden CEO Departures**

##### **4.1. Comparison of CEO transitional characteristics**

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To provide an initial assessment of my hypotheses, I compare sudden CEO departure replacement decisions for two categories of firms: (1) firms with at least one non-CEO inside director and (2) firms with no non-CEO inside director. Table 1 illustrates the comparison of the firm and corporate governance characteristics based on inside director presence. There seems to be no systematic differences in firm characteristics in the two subsamples, except for Tobin' Q. Firms with greater inside director presence have higher firm valuation. However, the differences in corporate governance characteristics are significant. Specifically, firms with at least one non-CEO inside director have greater insider presence by design. They also have larger boards with lower board independence, are more likely to be clustered during the time period before 2001. These results indicate that since there is no significant difference in firm characteristics between the two subsamples ex ante, any performance differences ex post to the departure may be associated with the difference in board composition.

--INSERT TABLE 2 ABOUT HERE--

Table 2 shows the CEO transition characteristic based on inside director presence. Panel A shows that permanent replacement CEO characteristics. Firms are significantly more likely to use inside succession and to appoint an inside director as the new CEO if they have at least one non-CEO inside director on board. Specifically, the likelihood of inside succession is 64.80% versus 30.85% ( $p < 0.01$ ), and the likelihood of appointing an inside director is 45.81% when there is at least one non-CEO inside director. The new CEOs appointed by both boards are similar in age and possess equal external board seats. In addition, the proportion of new outside CEOs identified through existing board members' network is similar.

Panel B demonstrates the replacement transitional characteristics. On average, the number of days without permanent or interim CEO leadership is 53.92 days in the subsample with at least one non-CEO inside director. Although this period without leadership is shorter in this subsample, the difference is not statistically significant. In addition, although firms in both subsamples are equally likely to use interim CEOs while searching for the permanent replacement, 48.97% of the interims are inside directors in firms with at least one non-CEO inside director. And the vast 75% of these inside director interims became the permanent replacement later on. In the same subsample, 12.25% of the interim CEOs are outside directors, and 42.85% of these outside directors eventually became the permanent CEO. In contrast, in the subsample of firm with no non-CEO inside directors, 25.00% of the interims are outside directors and 37.50% of them became the permanent CEO later on. These results indicate that non-CEO inside directors can play two roles in reducing transitional costs: they can either be appointed as the new

permanent CEO, or act as interim to provide stability to the firm, while it searches for a competent new permanent CEO. This is consistent with the hypotheses in section 2.1 that firms are more likely to use inside succession and appoint inside directors as the new CEOs when they have a larger inside director presence.

#### ***4.2. Change in stock and firm performance around sudden CEO departures***

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Table 3 shows the univariate analysis results for change in stock and firm performance around the announcement of unexpected CEO departures. I calculate all three measures of firm performance: raw ROA, Fama French 48 industry-adjusted ROA, as well as industry-and-performance-adjusted ROA to control for mean reversion. I argue that change in firm performance one year around the year of sudden CEO departure announcement measures the costs associated with the transition, as firms adapt to the shock; whereas changes in performance two years and three years after the departure announcement may reflect the new CEO quality. Panel A tabulates the Cumulative Abnormal Returns (CARs) from 3 days before to 3 days after the announcement of incumbent CEO departure. Panel B shows the comparison of prior fiscal year industry-and-performance adjusted ROA to up to three years after the departure announcement based on inside director presence. And Panel C tests the big bath hypothesis and compare the percentage of firms reporting a largely negative special item charge that equals to or exceeds 10% of total assets in the same fiscal year.

The results show that investors react negatively at the departure announcements in both subsamples, indicating that facing sudden CEO departures, shareholders are concerned with the future perspective of the company. The only difference between the

subsamples is that there seems to be information leakage in firms with no non-CEO inside directors, as the CAR is negative and significant in the event window (-3,3). Firms with greater inside director presence have significantly higher ROAs from one year before to up to three years after the departure announcement year. The differences in ROAs seem to be fairly consistent throughout the three-year period. In addition, there is no statistical difference in the change in industry-and-performance-adjusted ROA. These results indicate that there is not a unambiguous relation between inside director presence and change in firm performance around sudden CEO departure. However, this relation is fairly significant in the stricter sample of unexpected CEO departures, which will be discussed in detail later. Last but not least, I test whether firms with greater inside director presence are more likely to take advantage of the CEO departure and engage in big bath accounting. Panel C shows that percentage of firms taking a big bath one year before and up to three years after the departure announcement. I find that contrary to my prediction, firms with greater inside director presence are significantly less likely to engage in big bath accounting, compared to their counterparts. Specially, approximately 4-5% of the firms with at least one non-CEO inside director are involved in recording largely negative (greater than 10% of their total assets) special items. In comparison, 9-12% of the firms with no non-CEO inside director are involved in taking a big bath after the incumbent CEO departure. This result may indicate that inside directors can help firms weather the storm so that firms have less need to manipulate the books to smooth earnings or to create better returns for the future. Whereas firms without inside directors other than the CEO may have to write off bad assets to make returns look acceptable in the near future.

### ***4.3. The determinants of inside succession and the appointment of inside director as the replacement CEO***

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In Table 4, I examine the determinants of an inside succession and the appointment of an inside director as the new permanent CEO. I use both linear probability model, controlling for industry fixed effects and Probit regressions to estimate the determinants. I use two measures to capture inside director presence: whether firms have at least one non-CEO inside director, and the total number of inside directors on board. Consistent with my prediction, *ceteris paribus*, firms with more inside directors on board are more likely to appoint an inside successor. Each additional non-CEO inside directors increases the likelihood of inside succession by 24.2% ( $p < 0.01$ ). Firms are also more likely to use inside succession after unexpected CEO departures. A change from sudden forced to unexpected CEO departure increases the likelihood of inside succession by 37.1% ( $p < 0.01$ ). In addition, I find that firm size is positively related to the likelihood of inside succession. This finding indicates that larger firms may have a greater pool of qualified inside talents, therefore, are more likely to use inside succession to maintain continuity, rather hiring from outside the company.

The likelihood of boards appointing an inside director as the new CEO demonstrates a similar pattern as the likelihood of inside succession. Specifically, each additional inside director increases the likelihood of boards appointing an inside director as the new permanent CEO by 13.3% ( $p < 0.01$ ). In addition, a change from sudden forced to unexpected CEO departure increases the likelihood of an inside director appointed as

the new CEO by 60.6% ( $p < 0.01$ ). Lastly, firms size also positively impacts the likelihood of boards appointing an inside director as the new CEO.

#### 4.4. *Can outside directors enhance firm resilience?*

In this section, I further examine the roles outside directors can play in enhancing firm resilience. Although the focus of this paper is on the role of inside directors, it is important to understand whether and how outside directors monitor and advise in the new CEO selection process. Coles et al. (2012) argue that the number of outside director connections (the sum of connections that the outside directors of a firm has with directors at other firms) is a proxy for outside directors' experience, expertise and services. Similar to Coles et al., I measure the connectedness of outside directors by calculating the total number of outside director connections for each sample firm. I then sort sample firms into terciles based the total number of outside director connections. I created two variables to capture the ways outside directors could identify qualified CEO successors via their connections. *Outside CEO same board* is a binary variable that equals to 1 if the new CEO is hired from outside, and has been sitting on the same board with at least one existing director in the departure firm, and 0 otherwise. *New outside CEO's board* is a binary variable that equals to 1 if at least one existing director has been sitting on the board of the outside replacement CEO's former company.

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It is important to understand when and how well-connected outside directors add value. Table 5 shows four combinations of inside director presence and outside directors connections, (1) LowInside-LowCnct: combination of no non-CEO inside director on board before departure and low outside director connections (bottom tercile connections).

(2) LowInside-HighCnct: combination of no non-CEO inside director on board before departure and top tercile outside director connections. (3) HighInside-LowCnct: combination of at least one non-CEO inside director on board before departure and bottom tercile outside director connections. (4) HighInside-HighCnct: combination of at least one non-CEO inside director on board before departure and top tercile outside director connections.

Overall, the results indicate that firms with non-CEO inside director and well-connected outside directors are more resilient, when faced with sudden CEO departures; whereas firms with no non-CEO inside directors and poorly connected outside directors are least resilient. On average, new CEOs appointed by non-CEO inside director and well-connected outside directors have the highest external board seats (1.20). These board seats may be a reflection of the new CEO's quality and reputation. Meanwhile, if the new CEO is hired from outside the company, they are most likely to be identified through interlocked directorships with existing directors (30.00%). Overall, firms with at least one non-CEO inside director seem to be more resilient. On average, they have the least negative CARs and were able to maintain the highest firm performance around the departure announcement year.

On the other hand, firms with neither the non-CEO inside director nor well-connected outside directors suffer the most. Specifically, new permanent CEOs appointed by the combination non-CEO inside director=0-LowCnct are poorly connected to other public boards. It takes boards the longest time to appoint a new CEO (136 days), and these CEOs are the least likely to stay more than 18 months after the replacement (16.07% new CEO turnover). From the valuation perspective, this combination has the

lowest ROA and change in industry-and-performance adjusted ROAs for up to three years after the departure, which indicates that not only these firms may have higher transitional costs, the new replacement CEO appointed may also be off worse quality. The same comparison using a stricter sample of sudden CEO departures are tabulated in Table 11 in the Appendix, and the results are consistent yet much stronger than using the broader sample of sudden CEO departures. These results imply that firms may not weather the storm well if there the incumbent CEO was the only insider on board and the outside directors are not well connected to other boards. In addition, the roles played by inside and outside directors in lowering transitional costs are particularly important when the departure is caused by truly exogenous shocks such as death and illness.

#### *4.5. Multivariate analysis on changes in firm performance around sudden departures*

--INSERT TABLE 6 ABOUT HERE--

Univariate analysis does not control for other factors that could impact the change in performance. In this section, I extend my analysis to a multivariate setting. I rely on related prior studies, for instance, Yermack (1996), Naveen (2006), Coles et al. (2008), and Coles et al. (2012), for guidance in selecting control variables. Out of the 351 firms in the unexpected CEO departure sample, 69 do not have three consecutive years of operation after the incumbent CEO departure. They drop out of sample due to bankruptcy, delisting, and mergers and acquisitions. In order to make sure that I am comparing the same firms before and after the departure, I only use the 282 firms with at least three years of ROA after the incumbent CEO's departure.

Table 6 shows the multivariate analysis results on change in firm performance around the fiscal year of the departure announcement. The dependent variable in columns (1) to (6) is the change in industry-and-performance-adjusted ROA from one year before to three years after the fiscal year of departure announcement. I control for whether firms have at least one non-CEO inside directors, as well as outside director connections, in addition to other firm and corporate governance variables. The coefficients are estimated using the Ordinary Least Squares (OLS) with the White robustness error.

Columns (1), (3), and (5) do not include interaction terms, and columns (2), (4), and (6) include interaction terms between inside director presence and R&D intensity, between outside director connection and R&D intensity, as well as between inside director presence and outside director connections. The main finding of this table is that non-CEO inside directors are only associated with greater change in firm performance when the departure is unexpected. Their roles after an unexpected CEO departure are particularly important in R&D intensive firms, in which firm specific knowledge is important. Specifically, although there is no significant relation between greater inside director presence alone and change in operating performance, for each additional percentage increase in R&D intensity, having at least one non-CEO inside director increases firm performance by 7.50%, and 6.20% two years and three years after the departure announcement year. This result is consistent with the hypothesis in section 2.3 that non-CEO inside directors are associated with better change in operating performance, in that the replacement CEOs selected by boards with greater insider presence may be better quality. It may also indicate that when the sudden CEO departure

is forced, firms may be trying to turn around by hiring from outside the company and rely less on inside directors.

Another interesting result is that outside directors connections are positively related to change in industry-and-performance adjusted ROAs, which indicates that well-connected outside directors enhance firm resilience and they play both the identification and certification roles in the new CEO selection process through their network. Each additional increase in the connections outside directors possess increases change in operating performance by 0.50% and 0.60% ( $p < 0.10$ ) two and three years after the departure announcement. This is consistent with the hypothesis in section 2.5 that well-connected outside directors may be associated with lower transitional cost around the sudden CEO departure. Replacement CEOs selected by boards with well-connected outside directors may also be of better quality.

#### ***4.6. Multivariate analysis on the percentage of firms taking a big bath***

--INSERT TABLE 7 ABOUT HERE--

Table 7 shows the multivariate analysis on the likelihood of firms taking a big bath after the CEO departure. I use the same measure as Christensen et al. (2008). The dependent variables in columns (1)-(6) are binary variables that equals to 1 if firms report a largely negative special items charge (Compustat annual data item 17) that equals to or exceeds their total assets over the next three years after a sudden CEO departure. I use Probit regressions controlling firm, corporate governance, and managerial discretion characteristics. Columns (1), (3), and (5) are without interaction terms, and (2), (4), and (6) control for interactions between the cause of the sudden departure and board composition, as well as between Free Cash Flow (FCF) and board composition.

The results show that firms with greater stock price volatility are more likely to engage in taking a big bath after the sudden CEO departure. Christensen et al. (2008) argue that if managers have pessimistic private information about the future perspective of a firm, they are more likely to take a big bath and smooth earnings and try to create better future returns. Managers in firms with greater risk are already more volatile, and when faced with a sudden shock of losing their CEO, they may be more likely to engage in taking a big bath. Similarly, firms with high R&D intensity and greater managerial discretion over internal capital are more likely to take a big bath after the sudden departure.

However, firms with at least one non-CEO inside director are less likely to take a big bath. This is consistent with my earlier findings that inside directors can play important roles in helping firms weather the storm. They may be more capable of continue with the ongoing positive NPV project the departure CEO initiated. For instance, firms with greater inside director presence have economically more positive change in Capital Expenditure (CAPEX) (untabulated). Therefore firms may have less incentive to engage in big bath accounting. Furthermore, greater inside director presence is associated with even lower likelihood of big bath accounting when the CEO departure is categorized as unexpected. Insider directors' roles may be particularly important when the CEO departure is caused by death, illness, and sudden resignation. Section 5 provides detailed discussion of inside directors' roles after an unexpected CEO departure.

Firms with greater free cash flow are associated with higher likelihood of big bath accounting. This relation is even stronger the first year after the departure when FCF interacts with outside director connection. There are two possible explanations of this

stronger relationship. First of all, well connected outside directors may provide access to external capital for the firm (Coles et al 2012). Therefore managers with greater discretionary freedom may have greater incentive to engage in big bath accounting to smooth earnings and create better returns to gain excess to external capital in the near future. Alternatively, based on the earlier finding that well-connected outside directors identify qualified outside CEO successors. It is possible that when the outsider becomes the CEO, he/she demands managers to write off assets. However, it is difficult to disentangle the two possibilities in the current version of this paper.

In summary, inside directors play important roles in crisis management. They can either help firms identify qualified inside replacement, or provide stability either as the new permanent CEO, or as an interim while firms carry out a careful search for a qualified replacement. They are also associated with lower likelihood of big bath accounting. In addition, well connected outside directors can also add value by helping firms both identifying and certifying quality replacement CEOs through their connections.

## **5. Additional analysis using a stricter definition of sudden CEO departures**

In the previous section, I examined by research questions by using the broader sudden CEO departures. In this section, I repeat the same analysis by using a stricter sample of unexpected CEO departure due to death, illness, and sudden resignation. This sample consists of 119 CEO departures that are genuinely exogenous shocks. When faced with an unexpected CEO departure, the time for succession planning is next to zero if firms have no plan in place. Overall, the results are consistent with and much stronger than those using the broader sample of sudden CEO departures.

### ***5.1. Changes in stock and firm performance around unexpected CEO departures***

--INSERT TABLE 8 ABOUT HERE--

Comparison of firm and corporate governance characteristics are tabulated in Table 10 in the Appendix. Firms with greater inside director presence are younger than their counterpart. The differences in corporate governance characteristics are similar to the comparison using the broader sample. Table 8 shows the univariate analysis results for change in stock and firm performance around the announcement of the unexpected CEO departures. The results are similar to those in the broader sample but statistically are much stronger. Specifically, investors react negatively at the departure announcements in both subsamples, indicating that facing unexpected CEO departures, shareholders are concerned with the future perspective of the company. The differences in CARs are still statistically insignificant. However, firms with at least one non-CEO inside director are associated with higher return on assets and change in industry-and-performance-adjusted ROA two and three years after the incumbent CEO's departure announcement. The mean differences are 5.08% and 5.97% ( $p < 0.10$ ) in the second and third year, respectively. This result indicates that although investors are concerned about the uncertainty created by the unexpected CEO departures, having non-CEO inside directors may enhance firm reliance and help them weather the storm better. The positive change in firm performance may also indicate that firms may have a succession plan in place although the departure happened unexpectedly. The new CEOs may be able to continue the positive NPV projects started by the departing CEO.

## ***5.2. Multivariate analysis on change in firm performance around unexpected CEO departure***

--INSERT TABLE 9 ABOUT HERE--

Table 9 shows the multivariate analysis results on change in firm performance around the fiscal year of the unexpected CEO departure announcement. The dependent variable in columns (1) to (6) is the change in industry-and-performance-adjusted ROA from one year before to three years after the fiscal year of departure announcement. I use the same control variables in Table 5. The coefficients are estimated using the Ordinary Least Squares (OLS) with the White robustness error.

Columns (1), (3), and (5) do not include interaction terms, and columns (2), (4), and (6) include interaction terms between the cause of departure and inside director presence, between the cause of departure and outside director connection, and between inside director presence and R&D intensity. The main finding of this table is that non-CEO inside directors are associated with greater change in firm performance two and three years after the departure announcement. Specifically, each additional non-CEO inside director alone increases change in industry-and-parlance adjusted performance by 7.70% and 9.70% in year 2 and year 3, respectively. This result is consistent with the earlier findings in Table 5 that the replacement CEOs selected by boards with greater insider presence may be better quality. In addition, the coefficient on the interaction term between R&D intensity and non-CEO inside director is positive and significant throughout the three-year period after the departure announcement. This result indicates that inside directors play a particularly important role in R&D intensive firms, where firm specific information is important.

Also similar to the results in Table 5, outside directors connections are positively related to change in industry-and-performance adjusted ROAs, which indicates that well-connected outside directors enhance firm resilience and they play both the identification and certification roles in the new CEO selection process through their network. However, controlling for R&D intensity, each additional increase in the connections outside directors possess decreases change in operating performance by 13%-20% ( $p < 0.05$ ). This result may indicate that outside director connection may not be beneficial in R&D intensive firms after an unexpected CEO departure. These firms may in great need of inside guidance.

## **6. Conclusion**

I examine the relationship between board composition and organizational resilience. More specifically, I investigate whether a greater proportion of non-CEO inside directors and well-connected outside directors improves the firms' ability to weather a sudden shift in executive leadership. I find that firms with more non-CEO inside directors are associated with lower transitional and disruption costs. These directors possess both superior firm specific information and experience and are thus better able to either assume the role of CEO or more efficiently identify the replacement CEO than outside directors. Their roles are particularly important after an unexpected CEO departure due to death, illness and sudden resignation, as well as in R&D intensive firms, in which firm specific information is important. In addition, well connected outside directors appear to enhance the resiliency through their network. In fact, firms with both non-CEO inside directors and well-connected outside directors appear to be more resilient to sudden CEO departures than firms with neither directors. These results shed

light on the important monitoring and advising roles directors play in crisis management and organizational resilience when succession planning is not possible.

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## Appendix B1

### Variable definitions

**Blockholder** is a binary variable that equals to 1 if there is at least one blockholder in the sample firm, and 0 otherwise. *Blockholder* and *institutional ownership* information are obtained from Thomson Financial database.

**Change in Indperf\_adj ROA** is the change in industry-and-performance-adjusted ROAs from one year up to three years after the incumbent CEO departure.

**Current employee** is a binary variable that equals to 1 if the replacement CEO has been with the hiring company for at least 2 years prior to the departure, and 0 if they are hired from outside (this is a result not summary stats).

**Current director** is an indicator variable that equals to 1 if the replacement CEO has been a director in the firm for at least 6 months, and 0 otherwise.

**Current employee director** is an indicator variable that equals to 1 if the replacement CEO has been an insider/employee in the firm for at least 2 years and as a director in the firm for at least 6 months, and 0 otherwise.

**Departing CEO founder** is a binary variable that equals to 1 if the departing CEO was the founder, and 0 otherwise.

**Firm age** is the maximum number of years between CRSP listing age and Compustat listing age.

**Firm risk<sub>t-1</sub>** is the standard deviation of daily stock price during the prior calendar year.

**Industry-adjusted ROA<sub>t-1</sub>** is measured as a sample firm's ROA minus the median industry ROA, using the Fama and French (1997) 48-industry classification.

**Industry-and-performance-adjusted ROA<sub>t-1</sub>** is defined as each sample firm's ROA less the ROA of a non sample firm, matched on primary two-digit SIC industry and with the ROA within 10% in the previous year. If no firm in the same two-digit industry has a year-1 ROA within 10%, I first select the firm in the same one-digit industry, and then disregard industry and only match on year-1 ROA within 10%.

**Market value of equity (mkcap)** is calculated using end of the year closing price of equity to multiply common stock shares outstanding.

**Market to book** is the market to book ratio of equity.

**New CEO Age** is obtained from Execucomp as of the year of CEO departure.

**New CEO # of external board seats** is the total number of other public board connections the new CEO possesses.

**Outside CEO same board** is a binary variable that equals to 1 if the new CEO is hired from outside, and has been sitting on the same board with at least one existing director in the turnover firm, and 0 otherwise.

**Outside director connections** is calculated as the sum of other public board seats held by outside directors in the sample firm.

**Post year 2001** is a binary variable that equals to 1 if the year of departure is after 2001, 0 otherwise.

**Percentage of insider directors** and **Number of inside directors** are the percentage and number of inside directors on board.

**R&D intensity** is defined as research and development expenditure to sales. I calculate R&D intensity by taking the maximum value of 0, or R&D expense from Compustat, whichever is larger, and then divide it by sales.

**ROA** is the operating earnings before interest and taxes (OIBDP) over total book assets (AT).

**Total # of inside directors** is the total number of inside directors on board.

**# of days without leadership** is the number of days between the departure announcement of the incumbent CEO and the appointment of either an interim or permanent replacement.

**# Days w/o permanent CEO** is the number of days between the departure announcement of the incumbent CEO and the appointment of a permanent replacement CEO.

**% of director departures<sub>t+n</sub>** is the percentage of existing director turnover rate up to three years after the CEO departure.

**% of firms taking a big bath** is the percentage of firms reporting large negative special item charges (Compustat annual data item 17) that equals to or exceeds 10% of their total assets.

**% of interim appointment** is the percentage of sample firms that appointed an interim CEO before appointing a permanent CEO.

**% of permanent replacement CEO turnover within 18mons** is percentage of firms for which the new CEO left the company within 18 months after being hired.

**% of senior management turnover within 18mons** is the percentage of senior management (president, CFO, and COO) that left the company 18 months after the departures.

## Appendix B2

**Table 11 Comparison of firm and corporate governance characteristics based on inside director presentation**

This table shows the univariate comparison of firm and corporate governance characteristics based on whether boards have at least one or no non-CEO inside directors. The mean values of the variables are followed by the mean difference between the two subsamples. \*\*\*, \*\*, and \* indicate that the mean is significantly different from 0 at 1%, 5%, and 10% level. Bolded letters *c*, *b*, and *a* indicate a two-sided t-test for mean differences between the two subsamples are significant at 1%, 5% and 10% level. Note: information on some variables may not be available for the whole sample period.

	(1) <u>Non-CEO Inside</u> <u>Directors &gt;0</u> (N=176)	(2) <u>Non-CEO</u> <u>Inside</u> <u>Directors =0</u> (N=175)	Mean diff. between (1) and (2)
<u>Firm characteristics</u>			
Firm age	19.47	20.73	-1.26
Market Cap	5,242.83	6,205.02	-962.20
Tobin's Q	<b>2.44</b>	<b>1.85</b>	<b>0.59<sup>a</sup></b>
Market to book ratio	1.21	1.14	0.06
R&D intensity	3.69%	4.83%	-1.14%
Leverage	22.67%	22.97%	-0.31%
Free cash flow	2.21%	2.38%	-0.17%
Firm risk <sub><i>t-1</i></sub>	3.31%	3.28%	0.03%
Institutional ownership	61.24%	64.99%	-3.75%
Blockholder	70.22%	75.56%	-5.34%
Industry adjusted ROA <sub><i>d-1</i></sub>	2.81%***	1.03%	1.77%
<u>Corporate Governance</u>			
<u>Characteristics</u>			
% of inside directors	<b>29.37%</b>	<b>12.94%</b>	<b>16.80%<sup>c</sup></b>
Num. of inside directors	<b>2.73</b>	<b>1.00</b>	<b>1.73<sup>c</sup></b>
Board size	<b>9.62</b>	<b>8.58</b>	<b>1.04<sup>c</sup></b>
Board independence	<b>59.32%</b>	<b>76.06%</b>	<b>-16.70%<sup>c</sup></b>
Post year 2001	<b>58.33%</b>	<b>76.70%</b>	<b>-18.40%<sup>c</sup></b>
Outside director connections	6.93	7.60	-0.67
Departing CEO founder	6.81%	3.41%	3.40%

**Table 12 Comparison of CEO transition characteristics based on inside director presentation**

This table shows the univariate comparison of the CEO transitional characteristics based on whether boards have at least one or no non-CEO inside directors.  $t$  represents the fiscal year of the incumbent CEO departure announcement. Panel A shows permanent replacement CEO characteristics. Panel B shows the replacement transitional characteristics. The number in the parentheses indicates the percentage of interim CEOs eventually became the permanent CEOs. \*\*\*, \*\*, and \* indicate that the mean difference is significantly different from 0 at 1%, 5%, and 10% level. Note: information on some variables may not be available for the whole sample period. Definitions of all variables are in the Appendix.

*Panel A. Permanent Replacement CEO Characteristics*

	(1) <u>Non-CEO</u> <u>Inside Directors</u> <u>&gt;0</u> (N=176)	(2) <u>Non-CEO</u> <u>Inside Directors</u> <u>=0</u> (N=175)	Mean diff. between (1) and (2)
Current employee	<b>64.80%</b>	<b>30.85%</b>	<b>33.90%***</b>
Current director	<b>51.39%</b>	<b>21.71%</b>	<b>29.70%***</b>
Current employee director	<b>45.81%</b>	-	-
New CEO Age	52.48	52.28	0.20
New CEO # of external board seats	0.54	0.51	0.03
Outside CEO same board	12.76%	11.22%	1.54%

*Panel B. Replacement Transitional Characteristics*

	(1) <u>Non-CEO Inside</u> <u>Directors &gt;0</u> (N=176)	(2) <u>Non-CEO Inside</u> <u>Directors =0</u> (N=175)	Mean diff. between (1) and (2)
# of days without leadership	53.92	64.43	-10.51
% of director departures <sub><math>t+1</math></sub>	24.37%	19.06%	5.31%
% of director departures <sub><math>t+2</math></sub>	22.91%	25.62%	-2.70%
% of director departures <sub><math>t+3</math></sub>	<b>21.37%</b>	<b>30.90%</b>	<b>-9.53%*</b>
% of interim appointment	27.37%	22.86%	4.52%
--Interim was inside dir	<b>48.97%</b> (75.00%)	--	<b>48.97%***</b>
--Interim was outside dir	<b>12.25%</b> (42.85%)	<b>25.00%</b> (37.50%)	<b>12.25%*</b>
% of senior management turnover within 18mons	<b>54.77%</b>	<b>42.44%</b>	<b>12.30%<sup>a</sup></b>
% of permanent replacement CEO turnover within 18mons	6.14%	7.43%	-1.28%

**Table 13 Comparison of changes in stock and firm performance around sudden CEO departures based on inside director presence**

This table shows the univariate results of changes in stock and firm performance after a sudden CEO departure. Panel A shows the comparison of market reaction (cumulative abnormal returns) at the announcement of the incumbent CEO departure. The CARs are computed in Eventus using market model. Panel B shows the comparison of change in abnormal operating performance. I calculate raw, industry-adjusted (not tabulated, but available by request), and industry-and-performance adjusted ROAs up to three years after the departure announcement year. Panel C shows the percentage of firms taking a big bath – reporting a largely negative special item charge that exceeds 10% of total assets. \*\*\*, \*\*, and \* indicate that the mean is significantly different from 0 at 1%, 5%, and 10% level. Bolded letters *c*, *b*, and *a* indicate a two-sided t-test for mean differences between the two subsamples are significant at 1%, 5% and 10% level. Definitions of all variables are in the Appendix. Changes in performance are winsorized at 1%.

*Panel A Cumulative abnormal returns around the departure announcement*

	(1) <u>Non-CEO Inside</u> <u>Directors &gt;0</u> (N=176)	(2) <u>Non-CEO Inside</u> <u>Directors =0</u> (N=175)	Mean diff. between (1) and (2) (t-stat)
CAR (0,0)	-1.23% **	-0.40%	-0.83% (-1.15)
CAR (-1,1)	-2.29% ***	-0.11%	-2.18% (-1.55)
CAR (-3,3)	-2.55% ***	-2.19% *	-0.37% (-0.24)

*Panel B. Change in industry and performance adjusted performance around departure announcement*

	(1) <u>Non-CEO Inside</u> <u>Directors &gt;0</u> (N=176)	(2) <u>Non-CEO Inside</u> <u>Directors =0</u> (N=175)	Mean diff. between (1) and (2) (t-stat)
ROA <sub>t-1</sub>	<b>12.32%***</b>	<b>9.39%***</b>	<b>3.44%<sup>a</sup> (2.47)</b>
ROA <sub>t+1</sub>	<b>12.47%***</b>	<b>9.03%***</b>	<b>3.44%<sup>b</sup> (2.80)</b>
ROA <sub>t+2</sub>	<b>11.38%***</b>	<b>8.82%***</b>	<b>2.56%<sup>a</sup> (1.88)</b>
ROA <sub>t+3</sub>	<b>11.74%***</b>	<b>9.19%***</b>	<b>2.54%<sup>a</sup> (1.75)</b>
Indperf_adj ROA <sub>t-1</sub>	0.01%	0.07%	-0.06% (-0.63)
Change in indperf_adj ROA <sub>t+1</sub>	2.73% **	2.31% **	0.42% (0.16)
Change in indperf_adj ROA <sub>t+2</sub>	2.37% **	1.12%	1.25% (0.76)
Change in indperf_adj ROA <sub>t+3</sub>	2.57% *	1.39%	1.18% (0.55)

*Panel C: Big bath hypothesis*

Table 13 continued	(1) <u>Non-CEO Inside</u> <u>Directors &gt;0</u> (N=176)	(2) <u>Non-CEO Inside</u> <u>Directors =0</u> (N=175)	Mean diff. between (1) and (2) (t-stat)
% Firms Taking Big bath <sub>t-1</sub>	6.14%	10.85%	-4.71% (-1.59)

**Table 13 continued**

% Firms Taking Big bath <sub>t+1</sub>	<b>4.90%</b>	<b>9.75%</b>	<b>-4.85%<sup>a</sup> (-1.68)</b>
	(1)	(2)	Mean diff.
	<u>Non-CEO Inside</u>	<u>Non-CEO Inside</u>	between (1) and
	<u>Directors &gt;0</u>	<u>Directors =0</u>	(2) (t-stat)
	(N=176)	(N=175)	
% Firms Taking Big bath <sub>t+2</sub>	<b>4.52%</b>	<b>9.09%</b>	<b>-4.57%<sup>a</sup> (1.66)</b>
% Firms Taking Big bath <sub>t+3</sub>	<b>4.11%</b>	<b>11.97%</b>	<b>-7.86%<sup>a</sup> (-2.48)</b>

**Table 14 Multivariate analysis on the determinants of inside succession and the appointment of an inside director as the new CEO**

The table shows estimates of the linear probability model and probit regressions of the determinants of an inside succession and an inside director as the new permanent CEO. \*\*\*, \*\*, and \* indicate significance levels 1%, 5%, and 10%, respectively. *P*-values are in the parenthesis.

	<u>Inside Succession</u>		<u>Inside Director New CEO</u>	
	Probit	OLS	Probit	OLS
Log (Market Cap)	<b>0.160**</b> (0.02)	<b>0.045**</b> (0.04)	<b>0.149*</b> (0.06)	<b>0.033*</b> (0.10)
Log (Firm age)	0.083 (0.55)	0.020 (0.68)	-0.248 (0.11)	-0.059 (0.15)
Log (Board size)	0.197 (0.68)	0.055 (0.71)	-0.285 (0.60)	-0.062 (0.64)
R&D intensity	-1.508 (0.49)	-0.357 (0.60)	2.507 (0.26)	0.632 (0.37)
Free cash flow	0.631 (0.52)	0.272 (0.37)	-0.760 (0.48)	-0.169 (0.53)
Leverage	0.311 (0.62)	0.117 (0.58)	-0.528 (0.44)	-0.141 (0.43)
Prior year stock return	-0.123 (0.42)	-0.414 (0.43)	-0.161 (0.36)	-0.033 (0.48)
Stock price volatility <sub><i>t-1</i></sub>	<b>6.453**</b> <b>(0.05)</b>	<b>1.951*</b> <b>(0.06)</b>	-1.548 (0.90)	-0.736 (0.71)
Founder CEO	0.536 (0.30)	0.160 (0.29)	0.205 (0.68)	0.047 (0.77)
Unexpected departure	<b>1.161***</b> <b>(0.00)</b>	<b>0.371***</b> <b>(0.00)</b>	<b>0.443**</b> <b>(0.05)</b>	<b>0.133**</b> <b>(0.02)</b>
>=1 non-CEO inside directors	<b>0.731***</b> (0.00)	<b>0.242***</b> (0.00)		.
Log (Total # of inside directors)	.	.	<b>2.204***</b> (0.00)	<b>0.606***</b> (0.00)
Intercept	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes
N	351	351	351	351
R-sq or Pseudo R-sq	0.229	0.307	0.274	0.293

**Table 15 Do outside directors with connections influence resilience in firms with sudden CEO departures?**

This table shows the comparison of (1) low number of insiders (# of non-CEO inside directors=0) with low outside director connection *LowCnct* (bottom tercile # of connections), (2) low insider presence (# of non-CEO inside directors=0) with high outside director connections *HighCnct* (top tercile # of connections), (3) high insider presence (# of non-CEO inside directors $\geq$ 1) with low outside director connection (bottom tercile # of connections), and (4) high insider presence (# of inside directors $\geq$ 1) with high outside director connections (top tercile # of connections). Panel A shows the comparison of firm and permanent replacement CEO characteristics. Panel B shows CEO transitional characteristics. Panel C and D demonstrate change in stock and firm performance as well as the percentage of firms engaging in big bath accounting among the four combinations of inside director presence and outside director connections. Note that the middle tercile outside director connections are not included in this table. \*\*\*, \*\*, and \* indicate that the mean is significantly different from 0 at 1%, 5%, and 10% level. Bolded letters *c*, *b*, and *a* indicate a two-sided t-test for mean differences between high and low connection subsamples are significant at 1%, 5% and 10% level. *t-stats* are in the parentheses. Changes in performance are winsorized at 1%.

*Panel A. Firm and Permanent Replacement CEO Characteristics*

	Non-CEO inside director>0		Non-CEO inside director=0		t-stats of mean diff. between (1) and (2)	t-stats of mean diff. between (3) and (4)	t-stats of mean diff. between (1) and (3)	t-stats of mean diff. between (2) and (4)
	(1) HighCnct (N=50)	(2) LowCnct (N=64)	(3) HighCnct (N=58)	(4) LowCnct (N=56)				
Market Cap	<b>12,286.67</b>	<b>1,345.72</b>	<b>11,901.02</b>	<b>852.07</b>	<b>3.96</b>	<b>4.17</b>	0.19	0.10
R&D intensity	2.41%	3.73%	3.86%	5.42%	-1.25	-1.32	-1.45	-1.41
Founder CEO	2.00%	7.81%	1.72%	5.35%	-1.38	-1.05	0.11	0.53
New CEO Age	53.93	51.67	53.86	50.14	1.37	0.12	0.04	0.99
# of External board seats	<b>1.20</b>	<b>0.23</b>	<b>0.87</b>	<b>0.28</b>	<b>4.74</b>	<b>4.03</b>	1.43	-1.01
Outside CEO same board	<b>30.00%</b>	<b>5.88%</b>	<b>19.35%</b>	<b>3.22%</b>	<b>1.74</b>	<b>2.04</b>	0.69	0.43

*Panel B. CEO Transitional Characteristics*

	Non-CEO inside director>0		Non-CEO inside director=0		t-stats of mean diff. between (1) and (2)	t-stats of mean diff. between (3) and (4)	t-stats of mean diff. between (1) and (3)	t-stats of mean diff. between (2) and (4)
	(1) HighCnct (N=50)	(2) LowCnct (N=64)	(3) HighCnct (N=58)	(4) LowCnct (N=56)				
% of interim appointment	24.00%	31.25%	18.96%	23.21%	-0.85	-0.55	0.63	0.98
# Days w/o permanent CEO	109.20	123.72	<b>86.60</b>	<b>135.71</b>	-0.35	<b>-1.70</b>	0.82	-0.30
% of permanent replacement CEO turnover within 18mons	4.00%	6.25%	<b>1.72%</b>	<b>16.07%</b>	-0.53	<b>-2.77</b>	0.71	<b>-1.73</b>

**Table 15 continued***Panel C. Change in stock and firm performance around sudden departures*

	Non-CEO inside director>0		Non-CEO inside director=0		t-stats of mean diff. between (1) and (2)	t-stats of mean diff. between (3) and (4)	t-stats of mean diff. between (1) and (3)	t-stats of mean diff. between (2) and (4)
	(1) HighCnct (N=50)	(2) LowCnct (N=64)	(3) HighCnct (N=58)	(4) LowCnct (N=56)				
<i>CARs around the departure</i>								
<i>ann</i>								
CAR (0,0)	<b>0.40%</b>	<b>-2.76%**</b>	-0.84%	-1.84%*	<b>2.37</b>	0.72	1.17	-0.59
CAR (-1,1)	-0.02%	-2.23%*	-0.56%	-1.01%	1.34	0.12	0.34	-0.35
CAR (-3,3)	0.09%	-2.21%	-2.22%	-3.52%	1.14	0.37	1.19	-0.38
<i>Change in firm performance</i>								
ROA <sub>t-1</sub>	<b>16.13%</b>	<b>12.03%</b>	<b>12.29%</b>	<b>7.85%</b>	<b>2.06</b>	<b>2.19</b>	<b>2.32</b>	<b>1.87</b>
ROA <sub>t+1</sub>	<b>15.17%</b>	<b>11.00%</b>	10.54%	7.82%	<b>2.11</b>	1.13	<b>2.46</b>	1.29
ROA <sub>t+2</sub>	<b>15.06%</b>	<b>11.10%</b>	10.06%	7.61%	<b>1.66</b>	1.01	<b>2.54</b>	1.25
ROA <sub>t+3</sub>	14.71	11.97%	<b>11.87%</b>	<b>5.83%</b>	1.05	<b>2.41</b>	1.50	<b>1.99</b>
Indperf_ROA <sub>d-1</sub>	-0.04%	-0.06%	0.15%	-0.04%	0.14	1.17	-0.98	-0.16
Change indperf_ROA <sub>t+1</sub>	1.35%	1.13%	1.28%	3.23%*	0.08	-0.78	0.03	-0.72
Change indperf_ROA <sub>t+2</sub>	1.90%	3.84%	2.46%	1.86%	-0.60	0.21	-0.23	0.57
Change indperf_ROA <sub>t+3</sub>	2.98%*	4.24%	<b>5.69%**</b>	<b>-0.85%</b>	-0.34	<b>1.69</b>	-0.86	1.14

*Panel D Percentage of firms taking a big bath*

% Firms Taking Big bath <sub>t+1</sub>	0.00%	3.33%	7.14%	12.00%	-1.22	-0.85	<b>-1.82</b>	<b>-1.75</b>
% Firms Taking Big bath <sub>t+1</sub>	<b>0.00%</b>	<b>6.12%</b>	<b>3.92%</b>	<b>19.15%</b>	<b>-1.73</b>	<b>-2.43</b>	-1.37	<b>-1.95</b>
% Firms Taking Big bath <sub>t+1</sub>	2.27%	4.55%	6.52%	17.78%	-0.58	<b>-1.65</b>	-0.97	<b>-2.00</b>

**Table 16 Multivariate analysis: Change in firm performance around sudden CEO departures**

This table shows the estimate of OLS regressions of changes in firm performance from one year before to three years after the sudden CEO departure announcement. It only contains firms with at least three consecutive years of operation after the incumbent CEO departure. The dependent variables are changes in industry-and-performance adjusted ROAs. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% level, respectively. *p*-values are reported in the parentheses. Changes in performance are winsorized at 1%. Definitions of all variables are in the Appendix.

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)
	Change in indperf adjusted ROA <sub>t+1</sub>	Change in indperf adjusted ROA <sub>t+1</sub>	Change in indperf adjusted ROA <sub>t+2</sub>	Change in indperf adjusted ROA <sub>t+2</sub>	Change in indperf adjusted ROA <sub>t+3</sub>	Change in indperf adjusted ROA <sub>t+3</sub>
Log (Market cap)	-0.014 (0.14)	-0.017 (0.13)	-0.003 (0.65)	-0.002 (0.77)	0.002 (0.73)	0.002 (0.72)
Log (Firm age)	0.024 (0.28)	0.023 (0.29)	0.007 (0.59)	0.007 (0.57)	0.001 (0.91)	0.002 (0.84)
Log (board size)	-0.079 (0.28)	-0.093 (0.83)	0.003 (0.83)	0.010 (0.90)	0.017 (0.72)	0.018 (0.77)
Founder CEO	0.072 (0.48)	0.067 (0.49)	0.086 (0.19)	0.073 (0.30)	0.052 (0.28)	0.043 (0.41)
Post 2001 period	-0.043 (0.26)	-0.044 (0.27)	-0.034 (0.20)	-0.033 (0.21)	-0.026 (0.18)	-0.025 (0.19)
Firm risk	1.374 (0.37)	1.108 (0.46)	-0.025 (0.97)	0.182 (0.81)	0.138 (0.86)	0.238 (0.77)
>=1 non-CEO inside directors	0.0008 (0.72)	0.031 (0.61)	-0.010 (0.65)	0.028 (0.50)	0.017 (0.37)	0.028 (0.56)
R&D intensity	-0.112 (0.65)	-0.309 (0.60)	-0.464 (0.30)	0.405 (0.59)	<b>-0.612*</b> (0.06)	-0.104 (0.86)

**Table 16 continued**

	(1) Change in industry adjusted ROA <sub>r+1</sub>	(2) Change in industry adjusted ROA <sub>r+1</sub>	(3) Change in industry adjusted ROA <sub>r+2</sub>	(4) Change in industry adjusted ROA <sub>r+2</sub>	(5) Change in industry adjusted ROA <sub>r+3</sub>	(6) Change in industry adjusted ROA <sub>r+3</sub>
Unexpected	-0.011 (0.77)	0.006 (0.90)	0.009 (0.69)	-0.291 (0.47)	0.007 (0.71)	-0.012 (0.73)
Outside director connections	-0.000 (0.96)	0.004 (0.15)	-0.000 (0.96)	<b>0.005*</b> <b>(0.08)</b>	0.001 (0.21)	<b>0.006*</b> <b>(0.06)</b>
Unexpected* >=1 non-CEO inside directors		-0.003 (0.96)		<b>0.075*</b> <b>(0.09)</b>		<b>0.062*</b> <b>(0.08)</b>
Unexpected* Outside director connection		-0.002 (0.43)		-0.001 (0.70)		-0.002 (0.32)
R&D intensity * >=1 non-CEO inside directors		0.287 (0.49)		-0.585 (0.37)		-0.138 (0.78)
Constant and industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	282	282	283	283	254	254
R-sq	0.140	0.148	0.061	0.109	0.133	0.172

**Table 17 Multivariate analysis: firms taking a big bath after sudden CEO departures**

This table shows the estimate of Probit regressions of the big bath hypothesis up to three years after the sudden CEO departure announcement. It only contains firms with at least three consecutive years of operation after the incumbent CEO departure. I follow Christensen et al. (2008) definition of the big bath accounting. Firms are taking a big bath if they have largely negative Special Item expenses (Compustat Data Item 17), and this expense is at least 10% of the total asset in the same fiscal year. The dependent variables are binary variables that equals to 1 if a firm is taking a big bath, and 0 otherwise. The \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% level, respectively. *p*-values are reported in the parentheses.

Independent variables	(1)	(2)	(3)	(4)	(5)	(6)
	Big bath <sub>t+1</sub>	Big bath <sub>t+1</sub>	Big bath <sub>t+2</sub>	Big bath <sub>t+2</sub>	Big bath <sub>t+3</sub>	Big bath <sub>t+3</sub>
Log (Market cap)	-0.101 (0.92)	-0.151 (0.17)	-0.081 (0.45)	-0.059 (0.64)	-0.163 (0.14)	-0.182 (0.12)
Log (Firm age)	0.088 (0.63)	-0.042 (0.82)	0.224 (0.39)	0.172 (0.52)	-0.042 (0.84)	-0.048 (0.83)
Log (board size)	-1.048 (0.13)	-1.131 (0.16)	-0.097 (0.24)	<b>-1.601*</b> (0.07)	0.048 (0.95)	0.317 (0.68)
Post 2001 period	0.139 (0.65)	0.309 (0.33)	0.183 (0.56)	0.298 (0.42)	-0.114 (0.73)	-0.052 (0.85)
Firm risk	<b>23.320***</b> (0.01)	<b>19.140**</b> (0.02)	<b>21.270***</b> (0.01)	<b>22.950***</b> (0.01)	12.470 (0.24)	13.270 (0.23)
>=1 non-CEO inside directors	-0.024 (0.43)	0.797 (0.19)	-0.163 (0.66)	0.153 (0.76)	<b>-0.600*</b> (0.06)	<b>-1.110*</b> (0.02)
R&D intensity	<b>4.884**</b> (0.02)	-1.446 (0.81)	<b>3.956**</b> (0.04)	<b>15.850***</b> (0.00)	2.830 (0.27)	3.892 (0.43)
Free Cash Flow	<b>3.071***</b> (0.01)	<b>4.824*</b> (0.06)	1.141 (0.30)	<b>3.041**</b> (0.03)	<b>4.881***</b> (0.00)	<b>5.736*</b> (0.06)
Unexpected	-0.057 (0.85)	-0.199 (0.68)	-0.063 (0.86)	<b>-1.131**</b> (0.02)	<b>-0.829**</b> (0.02)	-0.248 (0.65)
Outside director connections	0.022 (0.35)	0.056 (0.12)	<b>-0.073**</b> (0.03)	-0.039 (0.55)	-0.009 (0.67)	0.005 (0.86)

**Table 17 continued**

	(1)	(2)	(3)	(4)	(5)	(6)
	Big bath <sub>t+1</sub>	Big bath <sub>t+1</sub>	Big bath <sub>t+2</sub>	Big bath <sub>t+2</sub>	Big bath <sub>t+3</sub>	Big bath <sub>t+3</sub>
Unexpected*		<b>-0.106**</b>		-0.011		-0.062
Outside director connection		(0.03)		(0.87)		(0.37)
Unexpected*		<b>-1.512**</b>		<b>-1.721**</b>		0.498
>=1 non-CEO inside directors		(0.03)		(0.02)		(0.54)
Free cash flow *		0.177		3.561		0.151
>=1 non-CEO inside directors		(0.96)		(0.16)		(0.97)
Free cash flow *		<b>11.780**</b>		-8.455		5.106
Outside director connection		(0.02)		(0.14)		(0.25)
Constant	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	282	282	283	283	254	254
Pseudo R-sq	0.193	0.303	0.266	0.347	0.208	0.233

**Table 18 Comparison of changes in stock and firm Performance around unexpected CEO departures based on inside director presence**

This table shows the univariate results of changes in stock and firm performance after an unexpected CEO departure. Panel A shows the comparison of market reaction (cumulative abnormal returns) at the announcement of the incumbent CEO departure. The CARs are computed in Eventus using market model. Panel B shows the comparison of firm performance. I calculate both unadjusted and industry-adjusted ROAs (not tabulated, but available by request), as well as industry-and-performance adjusted ROAs. \*\*\*, \*\*, and \* indicate that the mean is significantly different from 0 at 1%, 5%, and 10% level. Bolded letters *c*, *b*, and *a* indicate a two-sided t-test for mean differences between no non-CEO inside director and at least one non-CEO inside director subsamples are significant at 1%, 5% and 10% level. *t*-stats are in the parentheses. Definitions of all variables are in the Appendix. Changes in performance are winsorized at 1%.

*Panel A Cumulative abnormal returns around the departure announcement*

	(1) <u>Non-CEO Inside</u> <u>Directors &gt;0</u> (N=73)	(2) <u>Non-CEO Inside</u> <u>Directors =0</u> (N=46)	Mean diff. between (1) and (2) (t-stat)
CAR (0,0)	-1.22%**	-1.20%	-0.83% (-1.15)
CAR (-1,1)	-2.28%***	-1.59%	-2.18% (-1.55)
CAR (-3,3)	-2.75%***	-2.73%*	-0.37% (-0.24)

*Panel B. Change in industry and performance adjusted performance around departure*

	(1) <u>Non-CEO</u> <u>Inside</u> <u>Directors &gt;0</u> (N=73)	(2) <u>Non-CEO Inside</u> <u>Directors =0</u> (N=46)	Mean diff. between (1) and (2) (t-stat)
ROA <sub>t-1</sub>	<b>13.64%***</b>	<b>11.18%***</b>	<b>3.44%<sup>a</sup> (2.47)</b>
ROA <sub>t+1</sub>	<b>14.84%***</b>	<b>12.76%***</b>	<b>3.44%<sup>b</sup> (2.80)</b>
ROA <sub>t+2</sub>	<b>14.39%***</b>	<b>10.06%***</b>	<b>2.56%<sup>a</sup> (1.88)</b>
ROA <sub>t+3</sub>	<b>15.12%***</b>	<b>10.30%***</b>	<b>2.54%<sup>a</sup> (1.75)</b>
Indperf_adj ROA <sub>t-1</sub>	-0.11%	0.21%	-0.32% (-1.60)
Change in indperf_adj ROA <sub>t+1</sub>	2.75%**	4.50%*	-1.77% (-0.68)
Change in indperf_adj ROA <sub>t+2</sub>	<b>3.97%**</b>	<b>-1.09%</b>	<b>5.08%<sup>a</sup> (1.97)</b>
Change in indperf_adj ROA <sub>t+3</sub>	<b>4.70%*</b>	<b>-1.26%</b>	<b>5.97%<sup>a</sup> (1.69)</b>

*Panel C. Big bath hypothesis*

	(1) <u>Non-CEO Inside</u> <u>Directors &gt;0</u> (N=73)	(2) <u>Non-CEO Inside</u> <u>Directors =0</u> (N=46)	Mean diff. between (1) and (2) (t-stat)
% Firms Taking Big bath <sub>t-1</sub>	2.63%	8.69%	-6.06% (-1.50)
% Firms Taking Big bath <sub>t+1</sub>	<b>2.94%</b>	<b>13.63%</b>	<b>-10.70%<sup>a</sup> (-2.17)</b>

**Table 18 continued**

	(1) <u>Non-CEO Inside</u> <u>Directors &gt;0</u> (N=73)	(2) <u>Non-CEO Inside</u> <u>Directors =0</u> (N=46)	Mean diff. between (1) and (2) (t-stat)
% Firms Taking Big bath <sub>t+2</sub>	<b>1.52%</b>	<b>15.00%</b>	<b>-13.50%<sup>b</sup> (-2.78)</b>
% Firms Taking Big bath <sub>t+3</sub>	1.61%	2.63%	-1.02% (-0.35)

**Table 19 Multivariate analysis: Change in firm performance around unexpected CEO departures**

This table shows the estimate of OLS regressions of changes in firm operating performance from one year before to three years after the unexpected CEO departure announcement. It only contains firms with at least three consecutive years of operation after the incumbent CEO departure. The dependent variables are changes in industry-and-performance adjusted ROAs. \*\*\*, \*\*, and \* indicate statistical significance at the 1%, 5%, and 10% level, respectively. *p*-values are reported in the parentheses. Definitions of all variables are in the Appendix. Changes in performance are winsorized at 1%.

Independent variables	<i>Change in performance one year before to up to three years after the unexpected departure</i>					
	(1)	(2)	(3)	(4)	(5)	(6)
	Change in indperf adjusted ROA <sub>t+1</sub>	Change in indperf adjusted ROA <sub>t+1</sub>	Change in indperf adjusted ROA <sub>t+2</sub>	Change in indperf adjusted ROA <sub>t+2</sub>	Change in indperf adjusted ROA <sub>t+3</sub>	Change in indperf adjusted ROA <sub>t+3</sub>
Log (Market cap)	-0.007 (0.64)	-0.011 (0.46)	-0.000 (0.98)	-0.007 (0.68)	0.015 (0.24)	0.010 (0.36)
Log (Firm age)	-0.001 (0.95)	-0.013 (0.50)	-0.003 (0.87)	-0.022 (0.35)	0.013 (0.48)	0.001 (0.97)
Log (board size)	0.030 (0.68)	0.041 (0.59)	0.001 (0.99)	0.022 (0.81)	-0.059 (0.37)	-0.028 (0.58)
Founder CEO	0.129 (0.37)	0.105 (0.39)	0.071 (0.61)	0.036 (0.76)	0.066 (0.36)	0.043 (0.52)
Post 2001 period	-0.026 (0.49)	-0.042 (0.26)	-0.003 (0.95)	-0.028 (0.54)	-0.010 (0.78)	-0.025 (0.39)
Firm risk	1.534 (0.48)	1.823 (0.41)	-0.086 (0.96)	0.491 (0.80)	1.234 (0.54)	1.116 (0.58)
Log (New CEO age)	-0.133 (0.11)	<b>-0.179**</b> (0.05)	-0.161 (0.11)	<b>-0.230*</b> (0.03)	-0.080 (0.27)	<b>-0.141**</b> (0.04)
Log (Delay)	-0.001 (0.93)	0.003 (0.57)	-0.014 (0.14)	-0.007 (0.25)	-0.006 (0.31)	-0.002 (0.75)

**Table 19 continued**

Independent variables	(1) Change in indperf adjusted ROA <sub>t+1</sub>	(2) Change in indperf adjusted ROA <sub>t+1</sub>	(3) Change in indperf adjusted ROA <sub>t+2</sub>	(4) Change in indperf adjusted ROA <sub>t+2</sub>	(5) Change in indperf adjusted ROA <sub>t+3</sub>	(6) Change in indperf adjusted ROA <sub>t+3</sub>
>=1 non-CEO inside directors	0.036 (0.27)	0.027 (0.99)	<b>0.077*</b> (0.10)	<b>0.082*</b> (0.09)	<b>0.097***</b> (0.01)	<b>0.089*</b> (0.06)
Outside director connections	0.001 (0.80)	<b>0.009**</b> (0.01)	-0.000 (0.93)	<b>0.014***</b> (0.00)	0.001 (0.45)	<b>0.011***</b> (0.00)
R&D intensity	-0.414 (0.56)	0.002 (0.99)	-0.870 (0.42)	1.418 (0.14)	<b>-1.175*</b> (0.06)	-0.321 (0.52)
R&D intensity * >=1 non-CEO inside directors		<b>1.339*</b> (0.05)		<b>1.857**</b> (0.03)		<b>1.068**</b> (0.05)
R&D intensity * Outside director connections		<b>-0.132**</b> (0.02)		<b>-0.200**</b> (0.04)		<b>-0.191***</b> (0.00)
Constant and industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Other control variables <sup>a</sup>	Yes	Yes	Yes	Yes	Yes	Yes
Number of observations	98	98	98	98	89	89
R-sq	0.138	0.251	0.122	0.286	0.345	0.547

## CONCLUSION

While CEO succession planning has received a lot of attention recently—particularly in social media, there has been a dearth of studies evaluating its necessity. Moreover, the succession planning process itself has not been clearly described, possibly because this process is difficult to observe and evaluate. In this dissertation, I determine whether CEO succession planning matters and I examine which actions board of directors take to prepare for a succession in the company's top executive leadership. I also investigate whether certain board composition help firms weather the storm better when their CEO suddenly departs. I find that when the CEO departure is planned, firms tend to experience less negative excess stock returns, more favorable change in firm performance, as well as continued capital expenditures. In addition, firms with both inside directors other than the CEO and well-connected outside directors are most resilient, whereas firms with neither non-CEO inside directors nor connected outside directors are least resilient and suffer the most. In addition, firms with greater inside director presence are less likely to engage in big bath accounting, i.e., taking advantage of the departure to largely write off assets. This paper contributes to the CEO succession planning literature by showing that longer lead time in CEO succession planning is critical to lower disruption costs and ensure a smoother transition. Thus, the new SEC requirement that CEO succession planning be fully elevated to the status of core board responsibility is empirically supported.

## **VITA**

Mia L. Rivolta is a Visiting Assistant Professor in the Finance Division. Prior to coming to Babson College, Dr. Rivolta received a Ph.D. in Finance from the University of Tennessee Knoxville, and a M.S. in Finance from Sam Houston State University. She has taught Financial Management and Integrated Process Management at the University of Tennessee, and will be teaching undergraduate Investment classes at Babson College. Dr. Rivolta's research expertise lies in CEO succession planning and Corporate Governance. Specifically, she examines whether succession planning matters and the roles boards play in the succession planning process. Dr. Rivolta has presented her research at major Finance conferences. Her other areas of research interests include CEO compensation, Corporate Finance and Financial Intermediaries.