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**CEO Champions: What drives their Success?
Can they be Effectively Replaced?**

by

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Declaration of Original Authorship

I confirm that this is my own work and the use of all material from other sources has been properly and fully acknowledged.

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Abstract

This thesis constructs unique CEO performance measurements and rankings, which focus on long-term firm performance from different dimensions.

The first empirical analysis of this thesis defines CEO Champions and examines whether CEO Champions can be successfully replaced by their successors. Two CEO Champion Leagues are constructed, and performance of these CEOs and their successors are tested. The documented results show that CEO Champions' successors outperform the successors of Non-Champions' on average. Although Champions' successors cannot sustain their predecessors' performance in the univariate framework due to luck reversion, growth cyclicity and priorities diversion, they tend to generate as superior operating performance as their predecessors did after controlling for growth cyclicity in the multivariate framework. These robust findings suggest that corporate boards can effectively replace CEO Champions on average by hiring better successors. Also, predecessors' legacies left within the firms after stepping down substantially affect their successors' performance in voluntary turnover events.

The second analysis of the thesis explores under what circumstances the successors tend to outperform their champion predecessors. It examines corporate governance, successor origin, predecessor influence and controls for changes in CEO and firm characteristics. It documents a robust and negative relation between insider dummy and successful replacement, indicating that outsiders are more likely to replace champion predecessors successfully. In line with the reputational capital view of directorships, a busy board is found to have better capability to replace CEO Champions effectively. Champion predecessors tend to be reappointed to the board, and their successors tend to sustain their success. Champion founders' successors are demonstrated to have greater performance improvement after turnover events, which suggest that champion founders are less likely to be entrenched.

The final empirical analysis focuses on constructing two effective CEO performance measurement indices to build CEO rankings and reveal Top 100 CEOs in each CEO list. Results show that the weighted performance CEO ranking is negatively and significantly associated with the forced turnover dummy, suggesting that higher ranked CEOs are less likely to be forced out. Also, the weighted performance CEO ranking in this study has better prediction power than other forced turnover prediction models with single performance measure.

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Part I Introduction to the Thesis

"There are so many reasons for leaders to focus on the short term: slow growth, shareholder activism, political turmoil—to name just a few. Yet some CEOs still manage to train their sights on the long-term and deliver strong performance over many years."

The Best-Performing CEOs in the World 2016, Harvard Business Review

1. Overview

Harvard Business Review highlights the issue of some CEOs' short-sighted financial goals at the expense of shareholders' long-run interest. The main objective of this thesis is to construct efficient long-term performance-based CEO ranks and to reveal who the top performers are. After defining the CEO Champions¹, I aim at examining whether, and under what circumstance these champions can be replaced effectively. Also, the CEO rankings are tested for forced turnover predictions.

1.1 Motivation

As key corporate decision makers, Chief Executive Officers (CEOs) are critical for their organisations' success (**Beatty and Zajac, 1987; Bertrand and Schoar, 2003; Crossland and Hambrick, 2007; Mackey, 2008**) and their performance tends to be in the spotlight. CEO succession events constitute strategic junctures in the lifetime of a firm and corporate boards are often faced with the challenging task of having to replace their chief executives. Although the CEO turnover literature has offered extensive evidence that changes at the c-suite's helm tend to enhance corporate performance, more notably following corporate failures resulting in CEO dismissals (**Denis and Denis, 1995; Huson, Matalesta and Parino, 2004 and Alexandridis, Doukas and Mavis, 2016**), much less is known about the outcomes of replacing successful top executives. During the tenure of leading exemplars such as Steve Jobs, Jack Welch, Bill Gates, Warren Buffet, Jeff Bezos and Mark Zuckerberg, among many others, their businesses have fostered ingenious innovation and delivered near continuous growth, solid financial performance, and long-term shareholder gains. Given the value of such CEO Champions to their organisations, shareholders and the economy as a whole, the question of whether they can be replaced successfully becomes central. With the vast majority (around 90%) of CEO turnovers being voluntary, having to replace successful CEOs due to retirement, illness, or other voluntary departures are not unusual. Replacing such corporate leaders with new CEOs that will successfully step into their shoes is anything but straightforward.

The first aim of this thesis is to define CEO Champions based on their long-term performance of various dimensions. By examining the voluntary turnover sample of CEO Champions, my

¹ In this study, CEO Champions are defined as successful performers (in terms of operating, stock, EPS surprise and investment performance measures), who have created value for shareholders over their tenure (maximum 10 years). As initial screening criteria, CEOs' firms should be S&P1500 firms and their tenure should be no less than 5 years.

objective is to investigate whether CEO Champions can be replaced successfully. Defining CEO Champions and measuring CEO success has been the subject of extensive debate. Potential approaches to defining champions include but not limited to media award-winning status, CEO ability, prior firm performance, and CEO or firm-specific characteristics. I compare, select and modify prior firm performance measures from four different dimensions to define CEO Champions. Moreover, top executives are more likely to have the incentives to focus on short-term financial goals at the expense of long-run performance. This short-term perspective has been criticised widely and regarded as the prime culprit of the most recent financial crisis. Increasingly, shareholders and corporate boards are more interested in how CEOs handle the ups and downs of managing companies over the long run. In 2010, Harvard Business Review introduced a scorecard that evaluated chief executives over their entire tenure in office. They built a ranking system based on three different measures of corporate performance during CEOs' tenure and aim at identifying the top 100 best-performing CEOs in the world². Their methodology is improved, and eight performance metrics are innovatively used to create two sets of CEO rankings on firms' operating, stock, investment performance and Earnings per Share (EPS) surprise, to capture more dimensions of firm performance. By introducing long-term performance measures of various dimensions, this thesis aims at improving the traditional approach that investors, analysts, and board of directors used to assess CEOs and providing a new judgemental standard for CEOs who have created long-term value for their shareholders. Given CEOs should be evaluated over the long run; their compensation is also expected to be associated with long-term performance.

This study provides new evidence on CEO turnover and CEO succession literature. To my knowledge, no existing literature studied the consequence of value-boosting CEO Champions' departure and whether corporate boards can successfully replace these champions. Chapter Three contributes to the CEO literature in the following aspects. Given performance changes after forced turnover events have been studied extensively, this study is the first to examine the performance comparisons of top performed CEOs and their successors. It provides consistent results that although champions' successors cannot outperform their predecessors due to luck reversion, priority diversion or growth cyclicality, they can outperform other successors of non-champions. From the univariate test results, the superior performance over predecessors' tenure of newly hired CEOs' is because that they

² Harvard Business Review 2010 CEO list available at <https://hbr.org/2010/01/the-best-performing-ceos-in-the-world>

took office at an earlier stage in firms' life and enjoyed a higher growth rate. Moreover, there is continuous superior performance and no significant performance reversion when successors take offices from their champion predecessors. In contrast, the multivariate test results show that CEO Champions and their successors have similar superior operating performance (AROA) than their peers after controlling for firm cyclical variables, year and industry fixed effects. The similar coefficients for champions and their successors compared to their peers (0.0688 and 0.0602) indicate that CEO Champions' successors can beat their peers as much as their champion predecessors did before the turnovers. Thus, corporate boards can successfully replace CEO Champions by hiring better successors available, i.e., corporate boards are able to hire new successors who can outperform other non-champions' successors. Moreover, the predecessor legacy hypothesis is tested in both univariate and multivariate frame. Predecessors' performance ranking is found to be the most significant element in explaining successors' rankings performance in the voluntary turnover events. There is continuous superior performance and no significant performance reversion when successors take offices from champions.

Regarding CEO and firm characteristics, CEO Champions are more likely to be (co) founders, earned higher compensation during their tenure and still served on the board after stepped down as CEOs than bottom-performed CEOs. Despite less experience in terms of age, champion's successors usually earn higher compensation than bottom-performed CEOs' successors. The characteristics differentials between champions and bottom-performed CEOs before and after the turnovers are similar. Firms tend to have the larger size and lower growth rate during successors' tenure. Also, Chapter Three contributes to the CEO success literature by examining success measures, i.e., stock performance, operating performance, investment performance and EPS Surprise, respectively, and building the CEO ranking indices to test whether the successors can inherit CEO Champions' superior performance.

To facilitate smooth CEO succession, especially for CEO Champions' voluntary turnover, the board of directors tends to make succession plans beforehand, and corporate governance may also be crucial in leading successful CEO turnover. Existing literature on forced turnover has documented that firms with better board quality tend to terminate poorly-performed CEOs. The sensitivity of turnover to performance increases with higher quality boards (**Brickley, 2003**). Regarding successor origin, however, there is a divergence of views on the relations between firm performance and insider/outsider succession since replacement by insiders can either suggest good succession plans or increased managerial entrenchment. There is a

controversy for the relation between CEO succession origin and firm performance. While some scholars highlight the benefits of outside succession, others consider outsider CEO succession as a disruptive and disadvantageous event for the firm. Organisational Adaptation view of succession implies that outsider CEOs possess the more external knowledge and information compared to insiders (**Helmich and Brown, 1972**). Thus, outsiders are better equipped to expand the resource base of the firm and promote innovation, learning, and high performance (**Menon and Pfeffer, 2003**). On the other hand, organisational disruption view of succession regards outside succession as a disruptive event related to costs for the firm (**Vancil, 1987**). Firm unfamiliarity and the difficulty of integrating into the incumbent top management team causes disruption to internal processes and leads to low performance (**Friedman and Saul, 1991; Zhang and Rajagopalan, 2004**). **Georgakakis and Ruigrok (2017)** reconcile the two opposing theoretical perspectives, and document that outside CEO succession outweighs the costs when the new CEOs socio-demographically resembles incumbent executives, or possesses rich experience, or is hired by a well-performing firm operating in a munificent industry. The expected sign of the coefficient of the insider/outsider replacement choice is ambiguous for a forced turnover. For CEO Champions' voluntary turnover, to my knowledge has not been examined by previous literature. Given the conflicting predictions regarding the association between the effect of insider/outsider choices and firm performance after turnovers, the successor origin decision on a successful replacement is investigated thoroughly in Chapter Four.

Previous studies examining CEO succession events mainly focus on forced turnovers, while this study fills the research gap by examining successful CEOs' departure. There is criticism of outsiders who did not perform well when the firms were in trouble while outsiders tend to require higher compensations. Accordingly, the second aim of this thesis is to further explore under what circumstances successors can successfully replace their champion predecessors and intend to provide new evidence to succession literature. In detail, whether corporate governance, successor origin, predecessor influence play a vital role in successful replacement for CEO Champions are examined. I provide new evidence to management succession literature which is consistent with Georgakakis and Ruigrok (2017)'s conclusion that outsiders tend to be the better choices for the board of directors when replacing well-performing CEOs. In specific, the results of this study present a negative relation between insider dummy and successful replacement around turnover events, indicating that CEO Champions are more likely to be successfully replaced by outsiders, rather than insiders. The

results of this chapter suggest that outsiders tend to replace CEO Champions better when the firm performance is above average, which provides new evidence to succession literature and substantially contributes to existing literature on CEO turnover.

Regarding the relation between corporate governance and firm performance, the results suggest that busy board tend to have better capability to replace CEO Champions efficiently, which is in contrary to previous findings for forced turnovers that busy boards are less likely to dismiss underperformed CEOs (Core, Holthausen, and Larcker, 1999; Fich and Shivdasani, 2006). Directors serving on multiple boards are more likely to provide champions with broader experience, more visibility and commercial contacts rather than overpaying CEOs or under-monitoring. For predecessors' influence variables, successful former CEOs are more likely to be reappointed to the board after stepping down, and successors tend to sustain success, which is in line with Fahlenbrach, Minton and Pan's (2011). In terms of Champions' founder status in affecting successful replacement, successors of champion founders' are demonstrated to have greater performance improvement than non-founders' successors, which suggests that champion founders are less likely to be entrenched as Schwert (1985) documented.

The final aim of this thesis is to develop the universal long-term performance-based ranking methodologies which can be applied to rank CEOs involved with a turnover or still in office. Ranking measures provide corporate boards with valuable reference, which can prompt directors to restore poor performance proactively by hiring new CEOs and reward CEO Champions. Harvard Business Review used shareholder returns and changes in market capitalisation to build a scorecard for CEOs. I extend and improve their method by incorporating more dimensions and imposing more restrictions when defining top CEOs. Existing studies have examined the relations between firm performance and CEO turnover, and suggest that each single performance measure, i.e., stock, operating, investment performance and EPS surprise have explanatory power in forced turnover events. Along with this line, I also aim at testing CEO rankings in forecasting forced turnover events, and the relation between CEO rankings and the probability of dismissals. From the Univariate Test results, forced out CEOs do have significantly worse rankings, in terms of Weighted INDEX Rank I and Rank II and Un-weighted INDEX Rank I and Rank II, than voluntarily left CEOs and CEOs still serving at firms. This finding suggests that the combined CEO rankings with more dimensions in this study provide more stable performance measure and are effective in forced turnover predictions. Better-ranked CEOs are less likely to be forced out. Also, CEO

Rankings capture more dimensions and tend to be more consistent in measuring performance. Consistent with the findings from univariate analysis, Weighted INDEX Rank I Z-scores is negatively and, both statistically and economically, significantly associated with the forced turnover dummy. The specifications with INDEX Rank I Z-scores have higher Pseudo R and ROC curve Area than other single performance measures, i.e., Weighted AROA, ABHAR, EPS Surprise Indices and M&A CARs, suggesting that the combined CEO rankings have better prediction power in explaining forced turnover than any single performance measures in the multivariate analysis.

1.2 Structure of the Thesis and Original Contribution

This thesis falls into three sections. The first section reviews the general literature on CEO turnover, succession plans and CEO Championship measurements, focusing primarily on existing findings for forced turnover and the key factors influencing successful replacement. The summary of literature provides the foundation for the following empirical studies specific to the topic of the individual chapters. Notably, the literature provides valuable implication for champions' voluntary turnovers.

The second part of this thesis provides three in-depth analyses of CEO successions. Chapter three first improve HBR's method of defining CEO Champions by incorporating more dimensions and restrict CEO Champions to have at least five years tenure. Prior research has demonstrated the high sensitivity of firm performance and forced turnovers (Warner et al., 1988; Huson et al., 2004; Lehn and Zhao, 2006; Jenter and Lewellen, 2014), and corporate boards manage to find better successors to replace outgoing value-destroying CEOs. Although previous literature has documented that corporate boards can replace value-destroying CEOs successfully, no one examined the consequence of value-boosting CEO Champions' departure. To fill in the research gap, I extend the CEO turnover and managerial succession research area by examining under both univariate and multivariate framework whether CEO Champions can be successfully replaced.

Given the current research on factors in determining successful replacement focus mainly on forced CEO turnover only, chapter four further investigate the champions' voluntary turnover sample for under what circumstance can successors better replace their champion predecessors. In chapter five, I mainly examine the forced turnover sample and compared with voluntary and none turnover sample. I compare and extend the existing studies on the forced turnover by constructing the universal performance-based ranking method, which

takes into account four metrics of firm performance measures demonstrated to be essential in explaining forced turnover events. The prediction power is compared with other single performance measurements as well.

2. General Literature Review

This thesis connects several research areas within corporate finance, including CEO turnover, succession plans, corporate governance, and CEO Championship measurements. This chapter lays down the theoretical framework relevant to this thesis. The first section presents literature on the relation between CEO turnover, including forced, voluntary turnover and predecessors' unexpected deaths, and firm performance. The second strand of the literature is on the relation between board quality, corporate governance, CEO succession, predecessors' retention on the board and firm performance. In the third section, the literature on CEO Championship measurements and the potential approaches to defining CEO Champions are reviewed extensively.

2.1 CEO Turnover and Firm Performance

CEOs play a fundamental role in organisation success. To identify the value of CEOs to their companies, prior researchers have examined the connections between stock, operating, investments, analyst forecast surprise performance and CEO turnover events.

2.1.1 Forced Turnover and Firm Performance

Existing literature has documented extensively that the likelihood of management turnover is negatively related to firm performance. **Warner, Watts, and Wruck (1988)** find that firms' CEOs, presidents, or chairmen/women are more likely to be replaced when their firms experienced stock price fall. **Weisbach (1988)** also shows that industry-adjusted earnings are negatively related to top management turnover. Along with these lines, **Denis and Denis (1995)** study top executive and top management performance changes in the U.S. from 1985 to 1988 and find that forced turnovers are preceded by significant stock, and operating performance deteriorates and followed by great performance improvements; whereas voluntary turnovers are followed by smaller performance improvements. The performance improvements after forced turnover are robust to selling underperforming assets, mean reversion, and earnings manipulation. Furthermore, the lower performance before and the higher performance proceeding the turnover events is concentrated on the top executive changes rather than the top management changes, which indicates that top executive turnover

events are economically more important. For the factors driving forced turnover, two-thirds of their forced turnover sample is driven by external monitoring factors; whereas the rest results from effective board monitoring. Their findings suggest that external monitoring plays a crucial role in replacing poorly-performed CEOs.

Kim (1996) derives a model where he relates CEO turnover to firm performance and assumes that firm performance over any time interval is the sum of managerial quality and a random component of chance. The random component of changes can be industry, firm or manager specific shocks, which are transitory. This chance-driven component of firm performance is mean-reverting, and the changes in performance are negatively related to previous shocks. Moreover, the results are consistent with the notion that stock performance has a persistent adverse effect on turnover probability. **Fee and Hadlock (2004)** report similar evidence that industry-adjusted stock performance is negatively associated with CEO turnover and the likelihood of turnover amongst the top five executives is significantly higher when the CEO is dismissed.

Similarly, **Huson, Malatesta, and Parrino (2004)** study forced and voluntary turnover events over a broader period between 1971 and 1994, and document significant deterioration in control group adjusted operating performance before CEO turnover events followed by substantial performance improvements after that, for forced but not for the voluntary turnover sample. This result is in line with their improved managerial hypothesis that forced turnover tends to increase managerial quality, and therefore expected firm performance. They also find evidence that corporate governance mechanisms penalise underperformed CEOs and the degree of performance improvement afterward is positively related to the percentage of institutional shareholdings, outsider-dominated board, and outsider successors. Moreover, CEOs are more likely to be terminated following a major financial restatement that required firms to reduce net income (**Srinivasan, 2005; Arthaud-Day, Certo, Dalton, and Dalton, 2006**).

On the other hand, some researchers hold different views that forced CEO turnover is not particularly sensitive to firm performance. **Huson, Parrino, and Starks (2001)** study CEO turnover events from 1971 to 1994 and find that both forced turnover and outsider succession frequency has increased during the period. Although they find significant relations between board composition, director stock ownership and the possibility of forced turnover, the relations between the likelihood of forced turnover and firm performance does not change

significantly during the period examined. A study by Strategy& ³ further support their argument. In detail, for lowest-tercile performed firms, the probability of forced CEO turnover increased only by 5.7 percent given their stock returns underperform their industry peers by 45% over a two-year period. This result suggests that forced CEO turnover is not sensitive to firm performance. In contrast, by employing new methodology and more prolonged period, **Jenter and Lewellen (2014)** recently provide new evidence of greater sensitivity between forced turnover and firm performance. Compared with CEO terminations in the top quintile (17%), more CEOs in the bottom quintile (59%) are forced out, and the difference is more significant for higher quality boards.

Regarding investment performance, **Mitchell and Lehn (1990)** find evidence that CEOs could be penalised for making value-decreasing acquisition decisions. They examine the relation between firm acquisition performance and the probability of being acquired at a later stage and find that firms with weak acquisition performance are more likely to receive a takeover bid. This finding suggests that poorly-performed CEOs are indeed disciplined and are more likely to be replaced. Along with this line, **Lehn and Zhao (2006)** examine the relations between acquirer returns and the probability of CEO turnover. They further support **Mitchell and Lehn's (1990)** results that stock market performance deteriorates, following poor acquisition decisions, which in turn leads to CEO dismissal. They also document that short-term acquisition performance can better explain the likelihood of CEO turnover than the firm's prior stock performance, suggesting that CEO turnover more likely results from poor acquisition rather than stock performance.

Murphy and Zimmerman (1993) and **Weisbach (1988)** document that earnings are significant predictors of CEO turnover. **Hermalin and Weisbach (1998)** provide supporting arguments that share prices reflect the market's expectations regarding the CEO's continued employment, which partially confounds the link between stock returns and CEO turnover. As a result, corporate boards tend to rely more heavily on accounting-based measures in making CEO succession decisions. With regards to analyst forecasted Earnings per Share, a proprietary survey cited by **Larcker and Tayan (2015)** suggested that more than 90 percent executives and board members would terminate a CEO after failing to meet analyst forecasted quarterly earnings for eight quarters.

³ Per-Ola Karlsson, Gary L. Neilson, and Juan Carlos Webster, "CEO Succession 2007: The Performance Paradox," Booz & Company, Inc., strategy+business 51(Summer 2007).

Overall, corporate boards have been demonstrated to monitor corporate performance and act to replace poorly performing and value-destroying CEOs successfully.

2.1.2 CEO Unexpected Deaths and Firm Performance

To mitigate the difficulty of separating other types of concurrent events and interpreting results around forced turnover events (**Warner et al., 1988; Denis and Denis, 1995**), prior researchers focus solely on abnormal returns around unexpected deaths of CEOs. The main advantage is that, unlike other types of voluntary turnovers, such as retirement or normal succession, unexpected death event is hard to anticipate. In specific, **Johnson, Magee, Nagarajan and Newman (1985)** study sudden death events and find no average effect overall; however, abnormal returns tend to be lower for firms with higher prior performance and CEO pay. **Sala (2010)** hand-collects data from 1972 to 2008 and uses stock price reaction to sudden deaths to measure managerial entrenchment. He proposes that if a highly effective CEO died unexpectedly, the stock returns reaction should be negative when the predecessor is hard to be replaced with a better successor and should be zero if the departed CEO is easier to be replaced. On the other hand, if death removed an entrenched CEO when the board would or could not, the short-term stock market reaction should be positive. While age and tenure only weakly correlate with the stock reaction to sudden death, the reaction is strongly positive at 6.8% if the executive's tenure exceeds ten years or abnormal stock returns over the past three years are negative. Moreover, he suggests that an existing succession plan⁴ is likely to make it less stressful to replace the predecessor who left the firm unexpectedly. **Bennedsen, Perez-Gonzalez, and Wolfenzon (2008)** document that sudden deaths are significantly associated with deteriorating operating performance, asset growth and sales growth. Unexpected deaths events are not excluded from the voluntary turnover sample and are considered in defining CEO Champions.

2.2 Board Quality, Corporate Governance, and CEO Succession Plans

CEO succession events constitute strategic junctures in the lifetime of a firm and corporate boards are often faced with the challenging task of replacing firm CEOs. To facilitate smooth CEO succession, the board of directors tends to make succession plans beforehand, and corporate governance also plays a crucial role in successful CEO succession.

⁴ Sala (2010) uses successor origin (insider/outsider dummy) and number of competitors in the same industry as proxies for successor plan. The argument for the second proxy is that there is a larger pool of possible replacements for deceased executives when there are more firms operating in the same industry.

2.2.1 Board Quality

Prior literature has documented that firms with better board quality tend to terminate poorly-performed CEOs. The sensitivity of turnover to performance increases with the higher quality board; whereas it decreases with the lower quality board and when the CEO belongs to the founding family of the firm (**Brickley, 2003**). **Jenter and Lewellen (2014)** defined higher quality boards as smaller boards with more independent directors and higher directors' stock ownership.

Weisbach (1988) suggests that outside directors hold an active role in monitoring CEO performance and are more likely to replace underperformed CEOs compared to insider directors. Moreover, a high percentage of outsiders on corporate board could be helpful in reducing managerial entrenchment or managerial overconfidence (**Berger, Ofek, and Yermack, 1997; Heaton, 2002**). Accordingly, **Hermalin and Weisbach (1988)** suggest that poorly-performed firms should increase the number of outside directors to monitor firm performance more effectively. **Mace (1986)** regard independent directors as valuable and reputational capital since they could bring prestige, visibility, and commercial contacts to the firms. **Shivdasani (1993)** and **Brown and Maloney (1999)** use the number of board seats independent directors held as a proxy for the director's reputation in the external labour market. Boards with a more substantial number of executive officers as directors are regarded as captured by the management of the firm; and consequently, are less likely to challenge or question CEO's decisions. Conversely, boards with more independent directors are considered as holding the incumbent CEOs more accountable for their actions and subsequent performance (**Core, Holthausen, and Larcker, 1999**). This is accounted for by the independent director's percentage, which is the number of directors not employed as officers of the firm divided by the total number of directors on the board. On the other hand, **Harris, and Raviv (2008)** argue that an insider-dominated board could be preferable since insiders have specific expertise which is beneficial in enhancing shareholder value when outsiders are the minority; thus, insider-dominated boards is preferred when insiders' expertise is more valuable than the agency costs causing by insider-dominated boards.

Given the number of directorships is perceived to be closely related to directors' reputational capital, too many directorships may lower the effectiveness of board monitoring (**Shivdasani and Yermack, 1999; Core et al., 1999**). Besides, a firm with a large percentage of institutional investors in its shareholders' composition is more likely to force underperforming CEOs out. Apart from board quality measures that have been extensively

examined, **Fich and Shivdasani (2006)** find that “busy boards” are less likely to dismiss poorly-performed CEOs. “Busy boards” are defined as boards on which a majority of independent directors serve on three or more boards, and they assume these directors will not adequately monitor. Thus, to examine whether the higher quality board can more successfully replace champion CEOs, board size, the percentage of independent directors, directors’ stock ownership and “busy boards” are examined in this thesis.

2.2.2 Successor Origins: Insiders vs. Outsiders

To select the right successors, the board of directors must understand the company's strengths, weaknesses and the main factors for success (**Petrovic, 2008**); and accordingly, identify the appropriate candidate with the skill sets and capability to manage the firm’s resources. Most prior research assumes that there is a distinctive difference between outside successors and insiders when evaluating the relationship between firm performance and CEO succession plan (**Zajac, 1990**). According to **Dalton and Kesner (1985)**, outsiders will only be appointed as CEOs when there is expected incremental improvement relative to insiders because outsiders require higher compensations and it is more costly to appoint an outsider. Given the size limitation of the CEO labour market and certain un-transferable executive skill sets among various industries, cultural fit, most companies prefer to train and promote talents within. In general, the majority of newly appointed CEOs are insiders. **Karlsson, Neilson, and Webster (2008)** report that almost 80 percent successions involve an internal promotion. Similarly, the sample of **Sala's (2010)** includes 79.1% insiders. Familiar with their companies', insiders tend to be the first choices of boards. Having witnessed and evaluated insiders' performance, leadership style, and cultural fit over time, the board of directors is more confident that insiders may perform to their expectations. Successful companies prefer insiders, who can bring continuity and smooth transition; whereas outsiders are preferable when they have unique experience the companies need or boards are dissatisfied with firm performance and intend to change operation strategy. Accordingly, Sala used the dummy variable that executive replaced by an insider as a proxy for the likelihood of having a succession plan beforehand, and suggested that an existing succession plan would make the firm easier to replace the outgoing CEO.

Furtado and Rozeff (1987) find evidence of positive abnormal returns around the announcement of internal CEO replacements. In line with their findings, **Warner et al. (1988)** and **Huson et al. (2004)** present the negative relation between stock returns and outside succession. On the other hand, **Borokhovich, Parrino, and Trapani (1996)**

document that abnormal stock returns are significantly positive for outsiders and significantly negative for insiders around the forced turnover announcement, indicating that the appointment of an outsider is perceived as more beneficial to shareholders. Similarly, **Brickley (2003)** conclude that the probability of hiring outsiders is inversely associated with prior firm performance and is highest when the predecessor was forced out. Investors regard hiring outsiders after terminating an underperformed CEO as good news, and there is significant positive abnormal returns follow such announcements (**Huson et al., 2001**). Considerable evidence has shown that internal CEOs outperform outside CEOs, which may partly because outside CEOs are more likely to be hired in worse performance condition. However, the expected sign of the coefficient of the insider/outsider replacement choice is ambiguous, since replacement by insiders can either suggest good succession programs or increased managerial entrenchment. Moreover, a recent report by Strategy &⁵ indicate that even an internal promotion can deteriorate shareholder values and successors tend to underperform predecessors. Hence, I also explore the influence of insider or outsider replacement decision on firm performance and intend to provide new evidence to succession literature.

2.2.3 CEOs' Retention on the Board

Fahlenbrach, Minton, and Pan (2011) provide evidence that more successful and powerful former CEOs tend to be reappointed to the board after stepping down and their firms tend to have better accounting performance and higher relative turnover-performance sensitivity of the successor CEO. The former CEO's retention on the board is considered to be good news, and stock market reaction to succession announcements is greater, indicating that firms should retain predecessors and not grant successors too much power to improve long-run performance (**Perry, Yao and Chandler, 2011**). **Evans, Nagarajan, and Schloetzer (2010)** document that the likelihood of retention is higher when CEO is voluntarily leaving, is a founder or member of founding family or succeeded by an insider.

2.2.4 Corporate Governance

Gompers, Ishii, and Metrick (2003), Bebchuk, Cohen and Ferrell (2009), Bebchuk and Cohen (2005) and Masulis, Wang and Xie (2007) examine extensively in an essential dimension of corporate governance, i.e., the market for corporate control. The market for corporate control plays a crucial role in discouraging corporate empire building since firms

⁵ Ken Favaro, Per-Ola Karlsson and Gary Neilson, "2014 study of CEOs, governance, and success: The value of getting CEO succession right", Strategy &, April 14, 2015

that made poor acquisitions are more likely being acquired at a later stage (**Mitchell and Lehn, 1990**). However, Antitakeover Provisions (ATPs) tend to undermine the effectiveness of the market for corporate control to perform its function properly by substantially delaying the process and reducing the probability of a successful takeover (**Bebchuk, Coates, and Subramanian, 2002⁶**). **Gompers et al. (2003)**, **Bebchuk et al. (2004)**, **Bebchuk and Cohen (2005)** find evidence of negative relations between ATPs and firm value, long-term stock performance; whereas **Masulis et al. (2007)** document evidence of negative relations between ATPs and acquisitions bidder returns. In specific, they examine the corporate governance mechanisms of acquirers and hypothesise that acquirer managers who are better protected by antitakeover provisions are more likely to destroy shareholder value. They find that acquirers with more antitakeover mechanisms tend to have significantly lower abnormal returns. On the other hand, separating the positions of CEO and chairman of the board or operating in more competitive industries can provide acquirers with higher abnormal returns.

2.2.5 Firm fixed effects and CEO style effects

Bertrand and Schoar (2003) examine whether and how CEO fixed effects matter for corporate policies and performance after controlling for firm fixed effects and other significant variation. They construct a manager-firm matched panel dataset to track the top managers across different firms over time and find that all the investment, financing, and other organizational strategy variables systematically depends on the specific executives in charge. Besides, some of the managerial differences in corporate practices are systematically related to differences in corporate performance.

The neoclassical view of the firm makes the extreme assumption that top managers do not matter for corporate decisions and firm performance. In contrast, standard agency models hold the opposite view. However, these models do not imply corporate behaviour will vary with managers. Instead, these models attribute variations in corporate behaviour to heterogeneity in corporate governance, i.e., firms' ability to control managers. The

⁶ **Bebchuk, Coates and Subramanian (2002)** document that staggered boards tend to reduce shareholder returns significantly in a hostile takeover, mainly by forcing bidders to wait for another year until the next annual meeting before gaining control. Given the elections for seats on the board occur at a different time, hostile bidders are forced to win two seats on the board. Furthermore, staggered boards can implement a poison pill to further deter hostile bidders who have won one seat. Compared to the average 43.4% price increase to shareholders of companies with non-staggered boards, shareholders in companies with staggered boards can only benefit from 31.8% increase in the nine months after a hostile takeover bid was announced.

managerial differences can translate into corporate choices through two paths. For the first path, managers can impose their styles on companies if corporate control is poor or limited. Accordingly, better-governed firms are more likely to select managers with performance-enhancing styles. For the second channel, managers do not impose their styles on firms they lead but are purposefully selected by firms because their specific attributes may benefit firms' current strategic need. Thus, manager effects in corporate practices are only expected to be identified if firms' optimal strategies change over time. Otherwise, incoming managers' style would only be the continuation of the prior manager's style. **Bertrand and Schoar (2003)** have provided some evidence suggesting that the observed managerial fixed effects cannot be reasonably explained by the second optimal matching path alone. They find that most of the changes in firm policy happen after the managers join the firms, indicating managers are not hired in response to changes in the firms. Their findings imply that CEOs' idiosyncratic style do have impacts on firms they manage and successors' management styles are not expected to be the continuation of the prior manager's style given firm strategies not altered.

Furthermore, there might be persistent differences in practices across firms due to specific unobservable factors, which might be correlated with the manager fixed effects. It implies that manager fixed effects should have been separated from firm fixed effects to study individual CEO's performance. However, this study focuses on voluntary turnovers, with 80% CEO successors are promoted within. The effect of managers on corporate practices cannot be estimated separately from their firm fixed effects for these insiders. Also, top executives are not randomly allocated to firms.

Fee, Hadlock, and Pierce (2013) propose three hypotheses regarding the causal managerial-style effects in firm policy choices. Lack of style hypothesis assumes there is no substantive causal style effect in firm policy choices. Idiosyncratic style hypothesis supports that causal managerial-style effects are idiosyncratic and not fully anticipated, observed and controlled by the board. The selected style hypothesis argues that causal managerial-style effects are deliberately selected by the board to induce the corporation to move in a particular direction.

Most top management changes are highly endogenous events. This endogeneity makes it difficult to determine whether managerial style plays a causal role in a firm's choices and performance. Board of directors is likely to make simultaneous changes, including changing top executives, along with changes in investment or financing decisions. Thus, they try to separate selection from managerial style effects by studying exogenous CEO departures using

an extensive and comprehensive sample of Compustat firms from 1990 to 2007. Exogenous CEO departures include events precipitated by death or a health problem, augmented in some cases by natural retirements, i.e., voluntary turnover events. If managerial style plays a causal role in firm policy choices, abnormally large changes in firm policies or performance are expected to be observed after exogenous leadership transitions. However, they fail to find supporting evidence, i.e., after exogenous departures, successors do not make changes that display any directional drift or abnormal variability compared with CEOs from matched firms, indicating a profound lack of style. In contrast, they find substantial evidence of abnormally large policy and performance changes after forced turnover events (endogenous CEO departure). The causal effect might be explained by either idiosyncratic style hypothesis or selected style hypothesis or unobservable elements associated with endogenous turnover events. **Bertrand and Schoar (2003)** suggest that managerial style is a fixed characteristic that can be observed by examining the policy choice biases of an executive at his or her employer. Following their methodology, **Fee et al. (2013)** also use the estimated manager effect at a new employer to regress against the estimated manager effect at the prior employer. However, they do not find any convincing evidence that managerial style can be observed by examining manager-level biases in policy choices at prior employers. It thus casts some doubt on the idea that managerial style is a fix or inherent individual characteristic. Their finding is consistent with a causal relationship between style and firm policies and with the board's anticipation of these effects in their choice of replacement (selected style hypothesis). They also find evidence that managerial styles are not transferred across employers.

2.3 CEO Championship Measurements

The third strand of literature to which this thesis is related consists of research on the CEO ability, firm performance, CEO and firm characteristics measurements used to define champion CEOs. Admittedly, since CEOs are not randomly assigned to firms, it is hard to isolate CEOs' championship attributes from firm characteristics attributes. However, CEO turnover events provide us with excellent opportunities to examine championship of CEOs. Prior researchers use various methods to identify and measure CEOs' championship and ability. I summarise, compare and modify their methodology and construct the unique definition of champion CEOs.

2.3.1 Potential Approaches to Defining CEO Champions-Media Awards

Malmendier and Tate (2009) define superstar CEOs as CEOs who experience status shift through awards from a prestigious media press, such as Business Week, Financial World or Forbes. They investigate the relationship between these award-winning CEOs and their subsequent performance and find strong evidence that superstar CEOs underperform their matched non-winning CEOs over one, two or three years following the award. Specifically, they construct the nearest-neighbour matching sample to compare the performance of award-winning superstar CEOs with non-winning CEOs. To predict CEO awards, they use firm characteristics (market capitalizations, B/M ratio, past return), CEO characteristics (CEO age, gender and tenure) and past performance. Further to their studies, **Ammann, Horsch and Oesch (2016)** analyse the effect that superstar CEOs have on their competitors and find that superstar CEOs' competitors outperform these superstar CEOs significantly. As their evidence demonstrate the deteriorating performance of superstar CEOs, this media-induced method is not selected to define Champion CEOs.

2.3.2 Potential Approaches to Defining CEO Champions-CEO Ability

Kaplan, Klebanov and Sorensen (2012) use a novel data set to study CEO abilities in firms involved in buyout and venture capital transactions. They discover a clear link between buyout CEOs' general ability and subsequent corporate performance. They find that success is highly associated with execution, resoluteness, and overconfidence-related skills. **Chang, Dasgupta and Hilary (2010)** study firm performance and market value changes around CEO turnover events (both voluntary and forced) and find that CEO ability differences exist and better CEO ability can contribute to better firm performance. They assume that short-term market reaction to turnover events, the relative pay of the CEO before the turnover and firm performance prior to CEO's departure could reflect the predecessor's managerial ability (championship). They conclude that a more negative abnormal stock return around turnover, higher prior CEO pay and better prior firm performance are associated with better CEO ability and worse post-departure firm performance. They find evidence that in support of the managerial ability hypothesis, which suggests that financial market attributes changes in performance around turnover to differences in the CEO's managerial ability. However, the relative pay of the CEO is not chosen as championship measurement in this study since whether differences in CEO pay reflect their ability is a contentious issue. CEO pay⁷ might be unrelated to either the CEO's ability or to the CEO's ability to extract rents as skimming

⁷ CEO compensation is included as control variable in the analysis.

hypothesis⁸ suggested or negatively related to firm performance due to rent extraction by entrenched CEOs (**Bebchuk, Cremers and Peyer, 2008**). Short-term market reaction to turnover is not employed since **Huson et al. (2004)** propose that financial market reactions around CEO turnover reflect investors' expectations rather than reveal true outcomes. Thus, I mainly focus on various measures of firm performance before predecessors' departure to define CEO Champions.

2.3.3 Potential Approaches to Defining CEO Champions-Prior Firm Performance

Prior firm performance might be the most direct and efficient proxy for CEO Championship since it reveals information about a CEO's ability to create firm value. Industry-adjusted stock returns and industry-adjusted ROA have been commonly used in previous literature to investigate the relationship between CEO turnover and firm performance (**Brickley, 2003; Chang et al., 2010; Dikolli, Mayew and Nanda, 2014**). In detail, **Denis and Denis (1995)** rely on unadjusted OROA, average and median industry-adjusted OROA to measure performance changes. However, the performance improvements they observe could be due to mean reversion of the accounting performance time series rather than management turnover. To mitigate mean reversion issue, I do not limit CEO measures to accounting performance, but do find similar pattern across all performance measures. **Chang et al. (2010)** examine change in industry-adjusted return on assets (ROA) from the year before to the first or the third year after the year of CEO departure. ROA is adjusted by subtracting the contemporaneous median measure of all non-CEO-turnover firms with the same 2-digit SIC code. They also calculate three-year industry-adjusted buy-and-hold stock return (BHAR) to measure firm performance under the CEO's management before the turnover. They find that more capable predecessors are associated with worse subsequent operating performance. **Masulis et al. (2007)** also use pre-acquisition operating performance to proxy for bidder CEO quality.

2.3.3.1 Operating Performance Measures

Barber and Lyon (1996) demonstrate that matching sample firms on industry, size, and pre-event performance produce better test statistics when examining operating performance around corporate events. Given accounting performance measures have the tendency to revert to their mean values, their method is especially useful for firms that have experienced

⁸ Under Bertrand and Mullainathan's (2001) skimming theory, CEOs "set their own pay" in poorly governed firms and those who with a longer tenure tend to be more entrenched, so that they can extract more monetary benefits in the form of asymmetric pay-for-luck.

abnormal operating performance before events. However, champion CEOs tend to have normal succession rather than unexpected or abnormal performance shock; thus this method is not employed. Changes in industry-adjusted return on assets (ROA) is used to measure operating performance following **Chang et al. (2010)**'s in this study.

2.3.3.2 Stock Performance Measures

To compare and select the best way to measure CEO Champions' stock performance, I review and examine different long-run return estimation methods following **Lyon, Barber and Tsai (1999)** and **Mitchell and Stafford (2000)**. Namely, Calendar Time Abnormal Return, which is the universal average of all mean monthly abnormal return observations estimated in calendar time where the benchmark return is based on 25 size- and book-to-market reference portfolios. **Lyon et al. (1999)** also estimate the long-run stock performance by using buy-and-hold model and the benchmark portfolio is the return of the corresponding 25 size- and book-to-market reference portfolios. In their BHAR approach, they estimate a benchmark from 1,000 pseudo-portfolios of randomly matched firms based on size- and book-to-market. **Barber and Lyon (1997)** use bootstrapped t-statistics, and standard errors are calculated using 1,000 replications to draw consistent inferences since buy-and-hold returns are shown not normally distributed. The performance of this study mainly is examined over CEO's tenure, which is unique for each CEO and not transferable. Thus, the CTAR and pseudo-portfolios measures are not used due to the nature of the random match. In contrast, industry-adjusted returns are utilised to both reflect CEO-specific performance and control for industry variation. Changes in industry-adjusted Buy-and-Hold Abnormal Return (BHAR) is employed in this thesis to measure stock performance following **Chang et al. (2010)**'s.

2.3.3.3 Analyst forecast Surprise Measures

Farrell and Whidbee (2003) find evidence that board of directors put more emphasis on deviations from earnings performance expectations (analyst forecasts) rather than the performance itself when making CEO turnover decisions, i.e. CEO turnover is more negatively related to analyst forecast errors rather than earnings or stock returns. **Grahama, Harveya and Rajgopal (2005)** conduct surveys and in-depth interviews with executives and find that analyst forecast earnings surprise and seasonally adjusted earnings changes are key metrics used in measuring CEOs performance. The executives have strong preferences for smooth earnings, which are perceived by shareholders as less risky; thus, they view earnings,

especially EPS (Earnings per Share), as the most critical metric reported to shareholders and investors. They focus more on quarterly earnings and analyst consensus estimates since failure to hit earnings benchmarks creates uncertainty about a firm's prospects and raises the possibility of hidden problems in the firm. **Dikolli et al. (2014)** document evidence that CEO turnover events are more likely to be triggered when firms have more negative stock returns and return on assets, and a greater number of negative quarterly performance surprises. Of particular relevance to this study, they use the consensus analyst forecast error and the number of quarterly earnings surprise relative to median consensus analysts' forecast to measure CEO performance in addition to industry-adjusted returns.

However, all the performance measurements in their study are constructed only over the preceding four quarters before the turnover. In contrast, CEOs' long-term performance is measured over their tenure (maximum ten years) in this study. To enhance the power of the tests, they also allow for asymmetric effects and employ separate measurements of positive and negative components of stock returns and return on assets. I adopt the similar methodology and apply the positive or negative components method (beat percentage performance measures) to all four measures.

2.3.3.4 Investment Performance Measures

Mergers and Acquisitions (M&A) are amongst the largest and most readily visible forms of corporate investment and has been extensively studied by researchers. These investments also tend to intensify the inherent conflicts of interest between managers and shareholders in the large public corporations (**Jensen and Meckling, 1976**). CEOs may make value-destroying acquisitions and extract private benefits at the expense of their shareholders when firms have abundant cash flows but seldom profitable investment (Free Cash Flow Hypothesis by **Jensen, 1986**⁹; **Lang, Stulz, and Walkling, 1991**). **Morck, Shleifer, and Vishny (1989; 1990)** also identify several types of acquisitions, e.g., aiming at diversification or high growth targets, where CEOs fulfill their personal objectives rather than maximise shareholder value.

⁹ Agency theory analyses the conflicts between shareholders and managers, while free cash flow is the excess cash flow after funding all positive net present value projects in a firm (Jensen, 1986). With regards to the agency problems when firms have free cash flow, conflicts of interest over payout policies are induced. Free cash flow theory of Jensen (1986) proposed that the conflicts between shareholders and managers lead to acquisitions since managers would rather employ free cash flows to make acquisitions than distribute them to shareholders through dividend pay-out or share repurchases. Also, Jensen (1986) implied that excessive free cash flows are typically used to make low benefit or even value destruction acquisitions. The theory was supported by Harford (1999), who found evidence that cash-rich firms tend to make more acquisitions than other firms. Harford (1999) demonstrated that cash-rich bidders tend to acquire less-attracted targets in different industries and these deals typically destroy their corporates' cash reserve by almost 7% on average.

Specifically, they are willing to make diversifying deals since their human capital risks can be diversified and their jobs can be secured. Also, they have incentives to entrench management through diversifying deals since their compensation and bonuses can be increased, and their comparative managerial advantage can be enhanced. Consequently, CEO who try to entrench management through making diversifying deals are more likely to be overpaid (**Shleifer and Vishny, 1989**). **Goel and Thankor (2010)** build a model to demonstrate that CEO envy could cause a merger wave even if the economic shock, which started the wave, were idiosyncratic. They suppose that CEOs are envious of other CEOs' compensation. Envious CEOs are induced to make size enlarging but not necessarily value-boosting deals to increase their compensation since CEOs' compensation is increasing with the firm size and firm value, and therefore, envy among CEOs could trigger a merger wave. Based on the premise that envious CEOs are more likely to initiate M&A deals and are more willing to pay a higher premium, they also predict that the earlier mergers in a wave tend to have the characteristics of creating higher synergies. These earlier mergers tend to involve smaller targets, generate higher acquirer returns and produce more significant increases in top management compensation than the later ones in the wave.

CEO Champions should not realise substantial personal gains from empire building, and damage shareholders returns, which is measured in this study by sum CARs of all M&A deals initiated, if any, during CEOs' tenure (maximum ten years). The long-term window is selected to leave enough time to examine CEO investment performance following the justification in **Pan, Wang, and Weisbach (2013)**'s, where CEOs are demonstrated to invest less at the beginning of their tenure. Not surprisingly, poor acquisition performance has been identified as one of the key drivers of forced CEO turnover. **Lehn and Zhao (2006)** demonstrate a strong inverse relation between mergers and acquisitions (M&A) announcement returns and the likelihood of subsequent CEO turnover. They provide evidence that investment performance is instrumental in the board of directors' assessment of CEOs' success. Corporate boards tend to restore poor investment decisions by replacing incumbent CEOs. Given that negative Cumulative Abnormal Returns (CARs) in firms' Mergers and Acquisitions performance tend to ousted CEOs, investment performance is also a valuable measure for CEO Championship. While **Lehn and Zhao (2006)** show that forced CEO turnovers arise from poor past investment decisions, **Alexandridis, Doukas, and Mavis (2016)** find evidence that poor investment outcomes would further lead to CEO successions events, with superior subsequent investment performance.

Golubov, Yawson, and Zhang (2015) document that acquirer returns are persistent among top-performed acquirers. Specifically, top-performed acquirers are more likely to make better M&A deals than bottom-performed acquirers. In this sense, CEO Champions with superior investment performance are expected to continue to outperform their peers. CEOs are not necessary to initiate takeover deals to be qualified as CEO Champions, but investment performance does provide a critical judgemental dimension for who have initiated deals during their tenure. Thus, investment performance is included as one of the four dimensions to measure CEO Championship.

In sum, I mainly focus on various measures of firm performance, i.e. operating performance, stock performance, earnings surprise performance and investment performance, over predecessors' tenure (maximum ten years) before departure to define CEO Champions.

2.3.4 CEO Characteristics and Firm Performance

Mackey (2008) studies a sample of 92 CEOs at 51 companies from 1992 to 2002 and measures the contribution of the CEOs to overall firm performance. By including firms with CEOs worked for more than one firm, he finds that CEOs account for 29.2% of the unexplained variance in ROA and 12.7% in business segment profitability. Similarly, **Hambrick and Quigley (2014)** study a sample of 830 CEOs of 315 companies from 1992 to 2011 and apply more detailed control mechanisms to measure the contribution of CEOs to their firms' performance. They adjust the industry and firm-specific controls across each CEO's tenure and find that CEOs account for 35.5% of ROA. Thus, CEOs have a significant impact on firms' overall performance. Given CEOs have the capacity to affect firm values, the specific CEO characteristics which play the key roles in determining firm performance are thus further examined by researchers. Differences in CEO characteristics before and after CEO turnover are also expected to affect the outcome of CEO replacement.

2.3.4.1 CEO Tenure, Age, Gender and Compensation

Wang, Holmes, Oh, and Zhu (2016) provide a comprehensive review of the literature on CEO attributes and firm performance. Based on 308 studies as of March 2015, they conclude that CEO characteristics (CEO age, tenure, formal education, and prior career experience) are positively related to future firm performance. On the other hand, CEO personality is related to strategic choices rather than firm performance. **Murphy and Zimmerman (1993)** and **Weisbach (1988)** document a strong relation between CEO turnover and CEO age. In **Murphy and Zimmerman (1993)**'s model, the likelihood of CEO turnover is higher as CEO

age increases and when the CEO age is 64 or 65. **Bertrand and Schoar (2003)** test 500 CEOs' age, education and conclude that CEO age is positively correlated with lower risk business practices and CEOs with MBAs tend to generate higher stock and operating performance. As CEO tenure increase, continuously revealed firm performance reduces the uncertainty about a CEO's ability and the demand for monitoring; hence, their firms tend to choose less costly and weaker governance structures. **Dikolli et al. (2014)** suggest that CEO tenure is associated with superior past performance, although longer CEO tenure might also reflect their entrenched power and thereby reducing the probability of performance-related dismissal. **Jenter and Lewellen (2014)**¹⁰ creatively drop the classification between forced and voluntary turnover and introduce performance-induced CEO turnover. They indicate that poorly-performed CEOs are more likely to be dismissed in their early eight years of tenure. In detail, around 50% of turnovers in the first eight tenure years are estimated to be performance induced, which is substantially higher than the percentage of forced turnover in previous literature. The probability of performance induced turnover slowly increases with CEO tenure and peaks at around tenure year 8, which suggested that the learning process about a CEO's ability is quite slow and the costs of dismissing a CEO are quite high, or the incumbent CEOs are expected to have better ability than potential successors. Following their justifications, no less than five years tenure for predecessors is imposed since the board of directors would need enough time to learn whether a CEO have good ability to create value for the firm. Furthermore, it ensures that performance measures capture CEO skill rather than luck (see improved managerial hypothesis in **Huson et al. 2004**). This tends to marginally reduce performance-induced turnover from my sample, and consequently slightly increase predecessors' performance relative to the successors' performance (as shown in stock and operating performance comparisons in chapter three). **Martin, Nishikawa and Williams (2009)** study a sample of 70 female CEOs appointed between 1985 and 2007 and matched with 70 male CEOs. They find that market have no bias towards gender, as indicated by the positive abnormal returns for both male and female announcements. **Core, Holthausen, and Larcker (1999)** document that CEO compensations are positively associated with companies' risk. Firms with more operational or financial problems tend to award CEOs higher salaries.

¹⁰ Jenter and Lewellen (2014) do not distinguish between forced and voluntary turnovers as prior literature did. This tends to avoid biases due to misclassifications. Moreover, CEOs can be forced out for reasons unrelated to their performance, such as conflicts with firm culture or policy, and departures can result from bad performance without being forced out, such as poorly-performed CEOs might voluntarily retire earlier.

2.3.4.2 CEO Prior Experience and Founder Status

Falato, Li, and Milbourn (2015) study 2,195 CEOs of S&P 1500 companies from 1993 to 2005 to examine the associations between CEO prior experience, compensation, and firm performance. They demonstrate that companies pay a premium for CEOs based on industry credentials, reputation in the press, and educational background, which are justified based on subsequent ROA. Thus, experienced CEOs tend to have higher compensation and perform better. **Cai, Sevilir, and Yang (2015)** identify 36 companies from 2,335 CEOs in S&P 1500 from 1992 to 2010 which train the most future CEOs¹¹. They compare the performance of 471 “factory CEOs” and 1,864 “non-factory CEOs” and document that market reacts positively to the appointment of CEOs from these companies and the years they spent at these companies. These CEOs deliver superior 3-year post-performance (in terms of ROA and Tobin’s Q), suggesting that high-quality managerial training is associated with positive future performance.

Firm founders are more likely to have specific knowledge which is valuable to the firms, and they tend to perform better (**Morck, Shleifer, and Vishny, 1988; Anderson and Reeb, 2003; Palia, Ravid and Wang, 2008; Adam, Almeida and Ferreira, 2009; Fahlenbrach, 2009**). Some founders are uniquely talented and hard to replace; however, others might also become entrenched and are reluctant to step down once their performance deteriorates (**Schwert, 1985**). Thus, I do not limit champion CEOs to founder CEOs, but examine their founder status in successful replacement since they seem hard to be replaced in either case.

2.4 Conclusion

This chapter has provided the theoretical framework within which this thesis is formulated. This review of the literature has focused mainly on firm performance around CEO turnover, the key drivers of successful replacement and potential measures in defining successful CEOs. Section 2.1 describes the relations between CEO turnover and firm performance, especially for forced turnover events, which have been examined extensively in the previous literature. Having identified the research gap for successful CEOs’ voluntary turnover, I review the key drivers of a successful replacement for forced turnover in Section 2.2, which might also play a fundamental role in explaining voluntary turnover replacement. Finally, Section 2.3 highlights that potential measures to define successful CEOs. Measures are summarised, compared and modified to construct the unique definition for CEO Champions.

¹¹ e.g., General Electric, IBM, Procter & Gamble, and Pepsico

Part II Empirical Analyses

3. The day after CEO Champions: Can they be successfully replaced?

3.1 Introduction

CEO succession events are often critical junctures for organisations, and corporate boards are often faced with the difficult task of replacing their CEOs (Grusky, 1960; Khurana, 2002), notwithstanding a successful one¹². Steve Jobs, the former co-founder and long-time CEO of Apple Inc., was successfully replaced by the insider successor Tim Cook, who spent more than 14 years working along with Jobs as his right hand. Similarly, when Burberry's former CEO Angela Ahrendts decided to leave, Christopher Bailey, who had helped Ahrendts building Burberry into the famous luxury fashion houses worldwide, was chosen as her successor since “no one else knows the business better”, according to Ahrendts. Both cases suggest that, as CEOs, apart from managing firms, cultivating internal talent and paving the way for their successors is also an important task. While maintaining consistency is desirable, even the strongest performing companies are not always successful in identifying the right internal candidates. Having managed Nike for over 30 years, its long-term founder and CEO Champion Phil Knight was finally successfully replaced by the long-time insider Mark Parker. However, before that, Knight had already tried to step away from daily management twice, promoted insider Thomas Clarke in 1994 and later appointed outsider William Perez in 2004, but both failed, and Knight had to resume CEO jobs.

On the other hand, champion CEOs' successors might not as successful as their predecessors due to luck reversion¹³, growth cyclicalities, and diverted priorities, but are likely to outperform their peers. Steve Ballmer, the previous CEO of Microsoft, had been blamed by clients, industry analysts, company insiders, and investors for not as successful as his champion predecessor Bill Gates. Admittedly, Microsoft's stock price did not perform as

¹² Failure to replace the outgoing CEOs may lead to unnecessary operation disruption (Barron, Chulkov, & Waddell, 2011), strategic misalignment (Hambrick & Gregory, 1991) and deteriorated firm performance (Huson, Malatesta, & Parrino, 2004; Karaevli, 2007).

¹³ The improved management hypothesis of Huson et al.'s (2004) suggests that reduced firm performance could result from either poor manager quality or bad luck. Thus, successors' performance after the turnover is expected to increase due to either the projected increase in manager quality or the reversion of bad luck. On the other hand, based on the agency models of Holmstrom (1979), Shavell (1979) and Mirrlees (1976), the scapegoat hypothesis argues that managers not different regarding quality and only unlucky ones, viewed as scapegoats, are fired. Turnover will not increase manager quality or firm performance since successors have the same quality as their predecessors. However, the expected change in performance following turnover is positive since bad luck triggered turnover and subsequent performance should revert to mean levels, i.e., turnover is triggered by bad luck, and firm performance tends to recover after the turnover events due to the reversion of bad luck of predecessors. In line with Huson et al. (2004)'s theory, I conjecture that manager quality varies across CEOs. CEO Champions' superior performance could due to either superior manager quality or good luck. Thus, their successors are highly likely to underperform their champion predecessors due to luck reversion.

great while Ballmer was at the helm; however, he took over at the height of internet bubble when Microsoft was massively overvalued and with fewer growth opportunities. During his tenure, Microsoft's annual revenue surged from \$25 billion to \$70 billion, and gross profit was double that of Google or International Business Machines Corporation (IBM)¹⁴. When Ballmer handed the reins over to his successor Satya Nadella, Microsoft was the third most valuable company in the world. With fewer growth opportunities, Ballmer was not as successful as Bill Gates, but to some extent, he outperformed his peers.

CEO succession is demonstrated to be a difficult task, even for the top-performed firm with a succession plan in place beforehand. Having succession plans in place, some CEO Champions seem hard to be replaced, and their departure brings uncertainty to companies' shareholders. Investors and customers were nervous about Apple's future when Steve Jobs announced his poor health condition and decision to step down as CEO. Similarly, analysts and employees were shocked by Peter Voser's unexpected retirement; while shareholders and investors are anxious about Warren Buffett's departure some day in future. These CEO Champions have made their companies, even the world, immeasurably better and have left behind companies that only they could have built. Their unavoidable departures bring shocks and uncertainties, and consequently, investors show great concerns over these companies' future. To my knowledge, no prior research investigates the replacement of these successful top executives, though CEO turnover literature has examined value-destroying CEOs' departure.

Recent evidence suggests that corporate boards can replace value-destroying CEOs successfully. CEO turnover literature has documented performance reversals around the replacement of dismissed CEOs, i.e., worse stock, operating or investing performance tend to increase the likelihood of forced CEO turnover and the incoming CEOs tend to perform better when predecessors were forced out than voluntarily left (**Denis and Denis, 1995, Huson et al., 2004 and Alexandridis et al. 2016**). There is high sensitivity between firm performance and forced turnover, but no significant changes around voluntary turnover events which tend to occur much more frequently. In **Huson et al.'s (2004)** sample, voluntary turnover events account for 84% of their sample of 1,344 CEO turnover events during the

¹⁴ Annual profit growth over Ballmer's tenure at Microsoft (16.4%) surpassed that of General Electric's Jack Welch (11.2%) and IBM's Louis V. Gerstner, Jr. (2%). Ovide, Shira (August 25, 2013). "Next CEO's Biggest Job: Fixing Microsoft's Culture". Wall Street Journal. Vance, Ashlee (January 12, 2012). "Steve Ballmer Reboots". Businessweek.

period from 1971 to 1994. While previous studies focus on cases that typically involve failed predecessors or full voluntary departures sample, no study investigates the replacement of successful CEOs. Replacing champion CEOs is undoubtedly a more challenging task, and its ultimate success or failure can provide insights into the effectiveness of CEO replacement decisions in their entirety. Examining successful CEOs adds more value since they attract more public attention than bottom performed CEOs. Shareholders and investors are more anxious about their departure and curious about whether their successors can sustain their superior performance. Previous studies examining CEO succession events did not focus particularly on successful predecessors, which might present an incomplete picture. For underperformed companies, better successors who successfully replace their predecessors may not as good as other successors who took office from top-performed predecessors. These successors outperform their poorly-performed predecessors might because it is easier to exceed relatively low performance as a starting point. On the other hand, it not necessary means these successors are unsuccessful if they could not outperform, given these firms have trapped in the poor financial situations already and involved with higher risks which make them harder to turn around. This, in turn, explains why outsider executives usually require higher compensation (**Jongjaroenkamol and Laux¹⁵, 2016**), regarded as risk premium mitigating the higher chance of failure. By examining CEO Champions' voluntary turnover sample, I try to avoid this issue and evaluate whether successors outperform their champion predecessors, and outperform other successors of non-champions.

CEO Champions are defined as strong performers, in terms of industry-adjusted operating, industry-adjusted stock, EPS surprise and investment performance measures, who have created value for shareholders over their tenure (maximum ten years). All predecessors are ranked based on eight performance measures mutually exclusively. Two measure indices are then constructed based on each of the four measures, respectively. Champion League I consists of the top tercile (458) performed CEOs from Measures Index One, which is ranked base on the average rank of AROA, ABHAR, EPS Surprise and M&A CARs. Champion League II are the top tercile (458) performed CEOs from Measure Index Two, ranked base on the average rank of the four beat percentage performance measures AROA2, ABHAR2, EPS Surprise2 and M&A CARs2. The ranking methodology contributes to the CEO performance

¹⁵ They conclude that boards tend to recruit CEOs from outside when firms' performance measures are harder to manipulate. Outsider CEOs engage in greater accounting manipulation, receive steeper incentive pay, and obtain higher expected compensation than CEOs promoted from within. Furthermore, outside CEOs are expected to have a shorter (longer) tenure when performance measures are hard (easy) to manipulate.

measurement literature since each measure captures a different dimension of corporate/CEO success. Moreover, by using innovative long-term performance measures, I intend to provide supporting justifications that the board of directors' examination and CEOs' self-evaluation should take into account the long-term performance rather than merely meet the short-term goals.

CEO Champions build thriving organisations that create massive value for their shareholders and other stakeholders. Although expected, their departures typically give rise to uncertainty about the companies' future. Investors seem nervous about Champion CEOs' departure regarding the negative Cumulated Abnormal Returns (CARs) around champions' turnover announcement. For Champion League I, all 458 events generate value-weighted mean VAR at -0.14% and equally weighted mean CAR at -0.22% over the (-1, +1) window using market model¹⁶. For Champion League II, all 458 events generate value-weighted mean VAR at -0.24% and equally weighted mean CAR at -0.34%. The need to replace them when the time comes poses a significant challenge for their organisations. This chapter investigates whether CEO Champions manage to build strong legacies over long tenure by cultivating core strengths within the organisation and whether they can pave the way for their successor to step into their shoes. Moreover, I investigate the common characteristics these role-models have. Aiming at easing shareholders' concerns over CEO Champions' unavoidable departure, I investigate CEO Champions' succession events and intend to solve the following research questions: Will these companies still perform well after CEO Champions' departure? Do CEO Champions' spirits and legacies still play key roles after their successors take office? Driven by the CEO Champions' effective replacement conjecture, legacy conjecture, and remaining influence conjecture, CEO Champions are expected to be successfully replaced, i.e., better predecessors tend to be replaced by better successors. Results of this chapter show that CEO Champions' successors outperform other successors on average. Moreover, new CEO's performance depends on their champion predecessors' performance.

Performance differentials between predecessors and successors are assessed by examining actual performance differentials and ranking differentials to tackle the problem that firms are subject to various growth rate across the firm lifecycle. On average, the top tercile CEOs in both champion leagues performed exceptionally well for each measure. CEOs in the

¹⁶ Following Brown & Warner (1985), Cumulative Abnormal Returns (CARs) are calculated over (-1, +1) window using CRSP value-weighted/ equally weighted index (the value-weighted/ equally weighted return on all NYSE, AMEX and NASDAQ stocks). Market model parameters were estimated over (-250,-15) window relative to the succession announcement day.

champion league I deliver an industry-adjusted return on assets (AROA) of 19.79% over their tenures (maximum ten years). They also produce 126.36% industry-adjusted buy-and-hold returns (ABHAR) and generate the average EPS 14.32% beyond analyst forecasted EPS. For deals initiated by CEO Champions during their tenure, they produce the sum of Cumulative Abnormal Returns (CARs) at 13.22%. Although successors of top tercile-performed CEOs' underperform their predecessors due to luck reversion, growth cyclicity or diverted priorities, they outperform other bottom CEOs' successors. Corporate boards seem to have replaced CEO Champions effectively. Moreover, in the cross-sectional regressions in Tables 3.6-3.8, I compare and contrast in a regression framework the same issue in the difference tests and find evidence supporting hypothesis one. After controlling for firm cyclical variables, year and industry fixed effects, CEO Champions and their successors have superior operating performance (AROA) than their peers. The similar coefficients for champions and their successors compared to their peers (0.0688 and 0.0602) indicate that CEO Champions' successors can beat their peers as much as their champion predecessors did. Thus, hypothesis one that corporate boards can successfully replace Champion CEOs by hiring better successors available, i.e., corporate boards are able to hire new successors who can outperform other non-Champion CEOs' successors is supported. Moreover, the legacy hypothesis is tested in both univariate and multivariate frame, and supporting evidence are provided. I find evidence in the regression analysis of successors against predecessors' ranking z-scores that predecessors' performance ranking is the most significant element in explaining successors' rankings. There are continuous superior performance and no significant performance reversion when successors take offices from champions. Thus, hypothesis 2 that predecessors' legacy significantly affect successors' performance in voluntary turnover events is supported.

Differentials between predecessors and successors' CEO and firm characteristics are also examined. Compared with bottom performed CEOs, CEO Champions are more likely to be (co) founders, earned higher compensation during their tenure and still served on the board after they stepped down as CEOs¹⁷. Despite less experience in terms of age, champion's successors normally earn higher compensation than bottom performed CEOs' successors. The differences in the Top-Bottom CEO characteristics differentials between predecessors and successors are significant only for chairman duality, suggesting that the characteristics

¹⁷ In line with this, successors of champion CEOs are less likely to be chairman of the board simultaneously because champion CEOs tend to remain on the board as chairman after their successors took offices.

differentials between champions and bottom CEOs before and after the turnovers are similar. Firms tend to have larger sizes (regarding total assets) and the lower growth rates (regarding Market to Book ratio, Q, and growth in sales) during successors' tenure¹⁸. The differences of Top-Bottom firm characteristics differentials between predecessors and successors are all significant, suggesting that champions' successors do not have much higher growth rate than their peers as their predecessors beat their peers before the turnovers. Also, compared with that during their predecessors' tenure, firm size in champion successors' hands are even smaller than their peers.

This study provides new evidence on CEO turnover and CEO succession literature. To my knowledge, no existing literature studied the consequence of value-boosting CEO Champions' departure and whether corporate boards can successfully replace these champions. This chapter contributes to the CEO literature in the following aspects. Given performance changes after forced turnover events have been studied extensively, this study is the first to examine the performance comparisons of top performed CEOs and their successors. It provides consistent results that although champions' successors cannot outperform their predecessors due to either luck reversion, priority diversion or growth cyclicity, they can outperform other successors of non-champions. From the univariate test results, the superior performance over predecessors' tenure is because that they took office at an earlier stage in firms' life and enjoyed a higher growth rate. In contrast, the multivariate test results show that CEO Champions and their successors have similar superior operating performance (AROA) than their peers after controlling for firm cyclical variables, year and industry fixed effects. Thus, corporate boards can successfully replace CEO Champions by hiring better successors available, i.e., corporate boards are able to hire new successors who can outperform other non-champions' successors. On the other hand, this chapter contributes to the CEO success literature by examining success measures and building the CEO ranking indices to test whether the successors can inherit CEO Champions' superior performance.

The remainder of this chapter is organised as follows. In Section 2, hypotheses are built, and champion CEOs are defined, followed by Data and Sample in Section 3, where descriptive statistics and the performance measures distributions are presented. I also present the vertical analysis of the performance measures distribution over time. In Section 4, I explain the

¹⁸ Although firms are growing slower in successors' hand, the median growth rate of champion CEOs' firms is significantly higher than that of bottom performed CEOs' firms, which is 7.58% higher for champion predecessors and 2.78% higher for their successors in terms of growth in sales.

difference tests results of univariate analysis. Section 5 investigates the CEO and firm characteristics. I perform multivariate analysis on the performance of champions and their Successors and present results in section 6. Section 7 describes more univariate test results in decile performance tables which aim at further testing the legacy hypothesis. Section 8 concludes.

3.2 Research Design

3.2.1 Research Questions and Successful Replacement Conjectures

This chapter is mainly guided by the following research questions: After CEO Champions' voluntary leave, can corporate boards successfully replace them by hiring better successors available? Will predecessors' legacy still play a vital role in firms' operations and affect their successors' performance after they step down? To solve the above questions, I make the following conjectures.

3.2.1.1 CEO Champions Effective Replacement Conjecture

The first force behind the potential successful replacement could be the good corporate governance lies in a firm's success. **Huson et al. (2004)** propose improved management hypothesis, which holds that forced turnover tends to increase management quality, and therefore firm performance. They find evidence that corporate governance mechanisms penalise underperformed CEOs and the degree of performance improvement afterwards is positively related to the percentage of institutional shareholdings, outsider-dominated board, and outsider successors. In line with **Huson et al. (2004)**'s theory, I conjecture that corporate governance mechanisms play a key part in successful replacement. Directors sitting on a higher quality board, in terms of the traditional board quality measures (i.e. board size, independent directors percentage, stock ownership), and directors who made succession plans beforehand are more likely to hire equally talented and successful successors. As part of this structure, CEO Champions might also involve in the succession plans as mentors.

3.2.1.2 CEO Champions Remaining Influence Conjecture

The second potential force is CEO Champions themselves. Successful CEOs tend to be reappointed to the board as directors or as chairmen/chairwomen. Their firms tend to have better accounting performance after the turnovers (**Fahlenbrach, Minton and Pan, 2011**). The likelihood of retention is higher when the CEO voluntarily left, is a founder or a member of the founding family, or succeeded by an insider (**Evans, Nagarajan, and Schloetzer, 2010**). Champion predecessors play a crucial role in training their successors and guiding the

new management team so that performance remains robust irrespective of new successors' quality.

3.2.1.3 CEO Champions Legacy Conjecture

The third conjecture is the continuous good firm quality. Champion CEOs are assumed to have left legacies to their successors, and their spirits are still the foundation of these companies so that it is easier for new CEOs to become successful. These CEO Champions have built strong firms and have a long-run strategic plan in place; thus, whoever the incoming CEOs are, these firms will still perform well in the medium term under the guidance of the new CEOs since they are managing stronger and more successful firms built by CEO Champions. The better the predecessors and the firms they have built, the luckier the new incoming CEOs.

Driven by the above three conjectures, CEO Champions are expected to be successfully replaced by incoming CEOs, i.e., better predecessors tend to be replaced by better successors. Their successors are expected to be able to sustain the above average performance, and new CEOs' performance depends on their champion predecessors' performance. To test the research questions, I develop two hypotheses.

3.2.2 Hypotheses Development

Based on the above conjectures, I expect CEO Champions can be successfully replaced. However, due to luck reversion, growth cyclicity and divert priorities, successors' performance is not always comparable to their predecessors, which makes the comparisons between champions' successors and successors of non-champions a better approach in examining the research questions.

3.2.2.1 Luck Reversion

Huson et al. (2004)'s improved management hypothesis suggests that forced turnover tends to increase management quality and firm performance. Under this hypothesis, manager quality is not observable and varies across managers. The board of directors attempts to utilise realised firm performance as a proxy for manager quality and tends to replace poorly-performed incumbent managers given the implied low quality. Furthermore, poor firm performance could result from either poor manager quality or bad luck. Thus, successors' performance after the turnover is expected to increase due to either the projected increase in manager quality or the reversion of bad luck. They also find evidence that corporate governance mechanisms penalise underperformed CEOs and the degree of performance

improvement afterward is positively related to the percentage of institutional shareholdings, outsider-dominated board, and outsider successors.

In contrast, the scapegoat hypothesis (**Holmstrom, 1979; Shavell, 1979; Mirrlees, 1976**) argues that manager quality does not vary across managers since poor performance arises from bad luck alone, but not from poor management. Under this hypothesis, managers are not different in terms of quality and only unlucky ones, viewed as scapegoats, are fired. The board of director fires poorly performed manager to induce other managers to offer desirable effort. Unlike improved management hypothesis, turnover will not increase manager quality or firm performance since successors have the same quality as their predecessors. However, the expected change in performance following turnover is positive since turnover was triggered by bad luck and subsequent performance should revert to mean levels.

In line with **Huson et al. (2004)**'s theory, I conjecture that manager quality varies across CEOs. CEO Champions' superior performance could due to either superior manager quality or good luck. Thus, their successors are highly likely to underperform their champion predecessors due to luck reversion.

3.2.2.2 Growth Cyclicity and Divert Priorities

CEO turnover events, either voluntary or forced turnover, tend to divert corporate priorities and result in an inward focus (**Favaro, Karlsson and Neilson, 2015**). Also, predecessors manage firms at the earlier stages in their firms' life cycles, which involve with more growth opportunities and inevitably manifested performance, particularly for stock returns which reflect more growth expectations than other measures. Firms tend to have higher growth rates during predecessors' tenure. These lead to my conjecture that predecessors generally outperform successors due to cyclicity, and successors can perform as well as their predecessors after controlling for cyclicity. Consequently, I cannot simply claim that performance differences between successors and their predecessors are indicators of actual differences in CEO skills. Instead, two unique measures indices are constructed to indicate and compare CEO ability. Based on CEO Champions effective replacement and remaining influence conjectures, although the incomparable growth opportunities, divert corporate priorities and luck reversion might precipitate successors underperform their champion predecessors, these champions should be successfully replaced by better successors available, i.e., champion CEOs' successors are expected to outperform other non-Champions' successors. This leads to the first hypothesis.

Hypothesis 1: Corporate Boards can successfully replace CEO Champions by hiring better successors available (Corporate boards can hire new successors who can outperform other non-Champions' successors)

Support: Champions' successors outperform Non-Champions' successors

Reject: Champions' successors cannot outperform Non-Champion CEOs' successors

An additional question is whether the successors' performance is driven by their predecessors' (legacy hypothesis). These champion predecessors have set solid foundations for their firms; and thus, I expect that their legacy would still play a vital part in firms' management and their spirit would still guide their successors in making strategic plans. According to this hypothesis, the Champion CEO has built a great company and the successor then simply steps into his/her shoes and rides on the coat-tails. If there is a positive relation, it would suggest that replacing Champion CEOs is not that much of a challenging task given their legacy. Based on this conjecture, incoming CEOs' performance is supposed to correlate with their champion predecessors' performance. This leads to the second hypothesis, i.e., predecessor legacy hypothesis.

Hypothesis 2 (Predecessor Legacy Hypothesis): Predecessors' legacy significantly affects successors' performance in voluntary turnover events. (i.e., Successors' performance depends on their predecessors' performance in general)

Support: Performance of successors is related to performance of their Champion CEOs

Reject: Performance of successors is not related to that of their Champion CEOs

3.2.3 The definition of the CEO Champions

Malmendier and Tate (2009) define superstar CEOs as CEOs who experience status shift through awards from a prestigious media press. This media-induced method is not chosen in this study since they find evidence of deteriorating performance of these award-winning superstar CEOs, compared to their matched non-award-winning CEOs. **Chang, Dasgupta, and Hilary (2010)** assume that short-term market reaction to turnover events, the relative pay of the CEO prior turnover and firm performance before the CEO departure could reflect predecessors' championship. However, the relative pay of the CEO is not selected as championship measurement since CEO pay might be unrelated to either the CEO's ability or the CEO's ability to extract rents or even negatively related to firm performance due to rent extraction by entrenched CEOs (**Bebchuk, Cremers, and Peyer, 2008**). Short-term market reaction to turnover is also not utilised since **Huson et al. (2004)** propose that financial

market reactions around CEO turnover reflect investors' expectations rather than reveal true outcomes. Thus, I mainly focus on various measures of firm performance before predecessors' departure to define CEO Champions.

Firm founders are more likely to have specific knowledge which is valuable to the firms, and they tend to perform better. Some founders are uniquely talented and hard to replace; however, others might also become entrenched and are reluctant to step down once their performance deteriorates (**Schwert, 1985**). I do not limit CEO Champions to founders, but test founder status since they seem hard to be replaced in either case. Prior firm performance might be the most direct and efficient proxy for CEO's championship since it reveals information about a CEO's ability to create firm value. Industry-adjusted stock returns and industry-adjusted ROA have been commonly used in previous literature to investigate the relationship between CEO turnover and firm performance. **Farrell and Whidbee (2003)** find evidence that board of directors puts more emphasis on deviations from earnings performance expectations (analyst forecasts) rather than the performance itself when making CEO turnover decisions. **Lehn and Zhao (2006)** document that negative Cumulative Abnormal Returns (CARs) in firms' Mergers and Acquisitions performance tend to ousted CEOs, which implies that investment performance is also a valuable measure in defining champions. In sum, operating, stock, investment and EPS surprise are selected in defining CEO Champions.

Harvard Business Review ranked CEOs based on corporate performance during CEOs' tenure, which meant to be a measure of enduring success, and aims to identify the top 100 best-performing CEOs in the world. For each CEO's tenure, they evaluate three long-term financial performance metrics, i.e., the country-adjusted total shareholder return, the industry-adjusted total shareholder return and change in market capitalization. These CEOs are then ranked from best to worst for each financial metric. The three rankings are finally averaged to obtain the CEO's overall ranking. Similarly, ten years' time window is employed (or CEO tenure) to assess CEOs' performance in this chapter. One downside of their methodology is that their rankings only take into account objective measures (total shareholder returns and change in market capitalization)¹⁹, which may accidentally include CEOs who have disappointed shareholders on other dimensions. To cope with this, I employ eight performance metrics and create two sets of CEO rankings on firms' operating, stock,

¹⁹ In the November 2015 issue of the best -performing CEOs in the world, they further included a measurement of each company's environmental, social, and governance (ESG) performance. They gave 80% weight to long-term financial results (total shareholder return and change in each company's market capitalization) and 20% to ESG performance.

investment performance and Earnings per Share (EPS) surprise performance to capture more dimensions of CEOs' performance. By introducing the long-term performance measures, I aim at altering the traditional approach that investors, analysts, and directors assessing CEOs and providing a new judgemental standard for CEOs who have created long-term value for their shareholders.

To define CEO Champions, I investigate 1786 turnover events amongst S&P 1500 firms, including all S&P 500, S&P MidCap and S&P SmallCap firms, between 1992 and 2009 and examine these firms' performance elaborately from 1982 to 2012. Across Harvard Business Review's five issues on top 100 performed CEOs lists since 2010, more than half of the best-performing CEOs run firms with U.S.-based operational headquarters. Accordingly, this study focuses only on the U.S. public companies. S&P 1500 firms are selected since these firms have public history so that I can access the data for performance measures. Also, they cover 90% of U.S. firms' market capitalization. Jenter and Lewellen (2014) suggest that the learning process about a CEO's ability is quite slow and the costs of dismissing a CEO are quite high, or the incumbent CEOs are expected to have better ability than potential successors. As CEO tenure increase, continuously revealed firm performance reduces the uncertainty about a CEO's capacity and the demand for monitoring. Thus, I impose no less than five years tenure for predecessors since the board of directors would need enough time to learn whether a CEO has good ability to create value for the firm. Also, it is to ensure CEOs performance measurements capture skill rather than luck, whereas successors' minimal tenure requirement is set to 1 year to avoid survivorship bias.

In this study, CEO Champions are defined as successful performers (in terms of operating, stock, EPS surprise and investment performance measures), who have created value for shareholders over their tenure (maximum ten years). As initial screening criteria, CEOs' firms should be S&P1500 firms and their tenure should be no less than five years. Then, I compare the performance of these CEOs with that of their corresponding successors using eight distinct measurements, i.e., AROA, ABHAR, EPS Surprise, M&A CARs, AROA2, ABHAR2, EPS Surprise2 and M&A CARs2. For AROA, ABHAR, EPS Surprise measurements, I require at least five years data available before and at least one-year data available after the turnover events to ensure continuity. I also impose the requirement that each CEO should have data for at least any three of the four measures. By doing this, champion CEOs are not limited to those who have to initiate M&A deals during their tenure. I rank each CEO—from 1 (best) to 1371 (worst)—for each metric and average the four (three

if anyone is missing) performance measures' rankings (AROA, ABHAR, EPS Surprise and M&A CARs) to obtain the AVG RANKING 1. AVG RANKING 1 is then re-ranked from one to bottom to define Measures Index One. **Champion League I** consists the top tercile performed CEOs from Measures Index One. Measure Index Two is constructed in the same way, by which I re-rank the average ranking of the four (three if anyone is missing) beat percentage performance measures (AROA2, ABHAR2, EPS Surprise2 and M&A CARs2). **Champion League II** consists the top tercile performed CEOs from Measure Index Two. Accordingly, I construct two sets of CEO Champion sample (458 CEOs each) ranked by either to what extent or how many times they beat their peers or market expectations. Incorporating two sets of four metrics is a balanced and robust approach. While Measures Index One's risk, including industry-adjusted operating and stock performance's, being skewed toward smaller companies (it is easier to achieve high returns for small firms), measure index two takes into account only how many times CEOs beat their peers and thus free from firm size skewness bias.

3.3 Data and Sample

3.3.1 Data Selection and Sample Construction

To define CEO Champions and to test the two hypotheses, I study 1786 turnover events amongst S&P 1500 firms, including all S&P 500, S&P MidCap and S&P SmallCap firms, between 1992 and 2009 and examine these firms' performance elaborately from 1982 to 2012. Turnover events, CEO characteristics and executive compensation are derived from ExecuComp. When former CEOs re-joined the same company, Execucomp treats them as new CEOs and fills the previous date became CEO as the recently joined date. Thus, I manually collect date became CEOs if it is missing or incorrect in ExecuComp. Reasons for the turnover events, step down announcement for predecessors, hire announcement for successors and more CEO characteristics are hand-collected from LexisNexis, Businessweek website and firm proxy statement. I calculate performance measurements for predecessors (successors) over their tenure (maximum ten years) before (after) the turnover event (or until 2012). Specifically, annual industry and firm financial data are from Compustat, and monthly stock market data is gathered from Centre for Research in Security Prices (CRSP). Quarterly actual Earnings Per Share (EPS) and the corresponding consensus median analysts' forecasted EPS immediately preceding the quarterly earnings announcement date is collected

from the Institutional Brokers' Estimate System (IBES) unadjusted detail history database²⁰ and board of director related information are achieved from ISS Governance Services RiskMetrics database.

The turnover sample is first derived from ExecuComp between 1992 and 2012 and covers 3593 turnover cases. 3455 cases remained after excluding firms not covered in CRSP. Since I aim at studying Champion CEOs who are permanent and sole CEOs with a long run perspective in the firms, interim CEOs who succeed on temporary base and Co-CEOs who served in the firms during the same period are identified from LexisNexis and eliminated. For interim CEOs, they are deleted as both successors in prior turnover cases, and predecessors in the later cases and the next permanent CEOs who succeed the interim CEOs are then taken as the valid successors in the previous turnover cases and leave the turnover sample with 3286 cases. Apart from interim CEOs, I also exclude 307 cases for which successors have less than one year's tenure²¹ to ensure operational continuity and avoid survivorship constraint, and the sample is further reduced to 2979 cases. I also require departed chief executives have no less than five years tenure in the firm since the board of directors would need enough time to evaluate CEO's ability²². This reduces the sample substantially to 1953 cases but ensures that CEOs performance measures capture CEO skill rather than luck. I further exclude 88 cases when imposing the restriction that successors need to take office before the end of 2009 to assess their performance after the turnovers²³. 27 more cases without turnover information from LexisNexis are also excluded. Finally, I require at least five continuous years' Industry-adjusted Return on Asset (AROA) data available before the turnover and at least one year's AROA data available on Compustat after turnover events to ensure firms are not delisted after turnover events and to ensure continuity. The final turnover sample consists of 1786 turnover cases from 1992 to 2009. I examine the full turnover sample in descriptive statistics

²⁰ To make proper comparisons between IBES and Compustat, unadjusted (for splits and stock dividends) IBES forecasts and actual earnings are employed. After extracting the estimates from the IBES Unadjusted file based on the ibes tickers, actuals are linked to the estimates. They are on the same basis by adjusting for stock splits using CRSP adjustment factor. The median of analyst forecasts made in the 90 days prior to the earnings announcement date are calculated accordingly. Earnings definition (primary or diluted EPS) is indicated in IBES

²¹ Successors' tenure is estimated from the date they became CEO to 2012.12.31 for those who have not left office yet until the sample end since my sample only covers CEO information until 2012.

²² Restriction that predecessors should have no less than 5 years tenure is imposed so as to leave enough time for CEOs to implement business strategies. Including CEOs with less than 5 years tenure would not allow me to realistically assess the CEOs performance. However, I did not impose the same restriction for successors since excluding successors with less than 5 years tenure is likely to remove cases where the successors were actually unsuccessful and thus introduces the survivorship bias. In untabulated tests, I also examined a subsample with predecessors and successors both have no less than 5 years tenure.

²³ I leave three years space for successors before sample end since I require sufficient data range for successors follow the turnover events in order to measure their performance and compare with their predecessors' performance.

and performance distribution tests, and voluntary turnover sample in univariate and multivariate analyses.

Turnover events are classified as forced or voluntary based on the news from LexisNexis around turnover announcement date. Similar to **Parrino (1997)**, I classify the turnover as forced when a CEO is fired, forced out of the position, or leave due to policy differences or conflict; whereas retirement, resignation, normal succession, accept other position or pursue other interests, deceased or poor health are categorised as voluntary turnover. Accordingly, the 1786 turnover cases are divided into 1641 voluntary, and 145 forced turnover cases. For the 1641 voluntary turnover cases, around half predecessors stepped down due to retirement²⁴ (761). 210 voluntary turnovers are associated with CEO resignation; whereas 135 turnovers are triggered by their acceptance of other position or pursuit of other interests. Death or poor health causes 60 CEOs left. The remaining voluntary turnover reasons include mergers (25), the spinoff (23), separation of chairman and CEO position (11), restructuring (5) and buy out (1)²⁵. With regards to forced turnovers, the majority predecessors are forced out (86) or fired (17). 33 CEOs left due to poor performance. The rest are dismissed due to policy differences (5) or conflict (4). Take into account the destination of departed CEOs', most of the CEOs that left voluntarily are typically retained within the firm either as (Vice) chairman, (vice) president (937), the board of directors (189) or other employees (46). In contrast, the vast majority of CEOs in forced turnover left firm eventually. Voluntary (unexpected death events included) and forced turnover events are included in this thesis. Only voluntary turnovers are included to define champion CEOs and test champions' successors to ensure that performance improvement after the turnovers for predecessors at the bottom terciles are not resulted from including more forced turnover cases than top-tercile performed predecessors.

Finally, merger and acquisition announcements and deal characteristics are collected from Thomson Financial SDC and deals are announced between 1980 and 2012. Acquirers are U.S. public firms and targets are either U.S. or non-U.S. public, private or subsidiary firms. Spin-offs, recapitalizations, self-tenders, repurchases, minority stake purchases, acquisitions of remaining interest, exchange offers and privatisations are excluded from the M&As sample. After limiting the deal transaction value at no less than 1 million dollars and

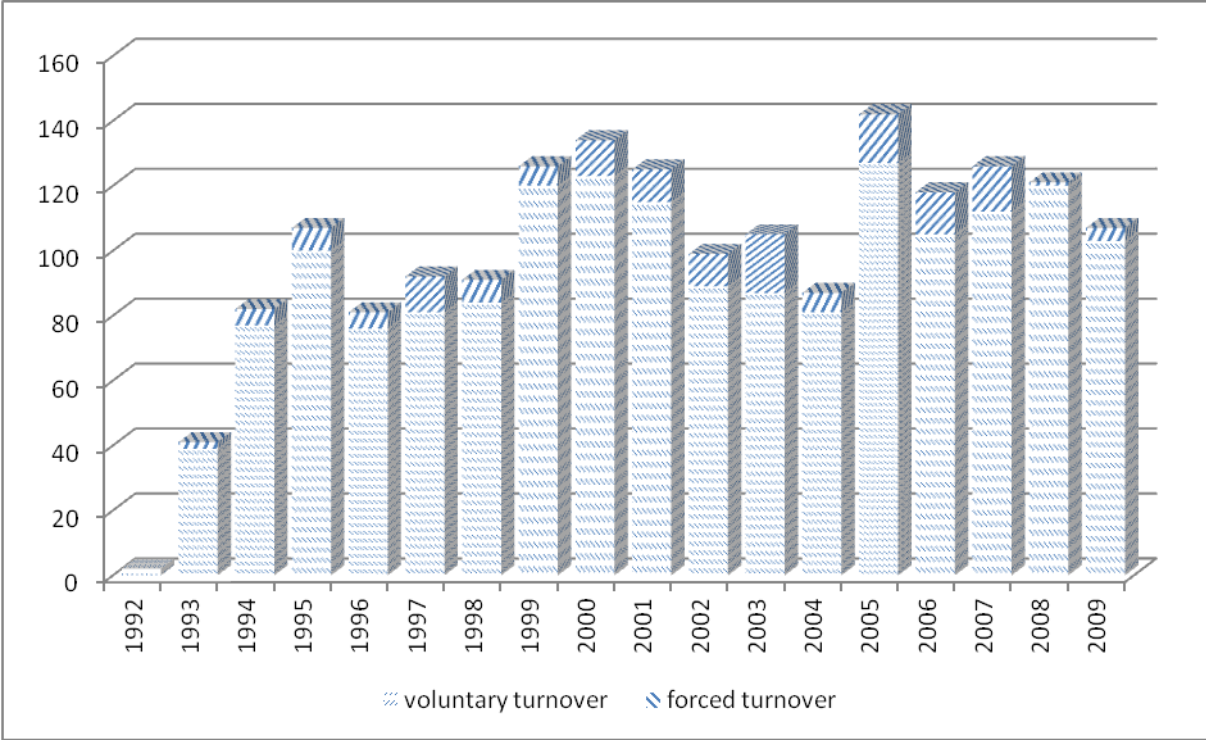
²⁴ Some firms promote a potential candidate to chief operating officer (COO) or president position, where they can be groomed for eventual succession. Firms in 269 turnover events nominated their next successors, normally the COO or president in the news announcement which implies that succession plans are made beforehand, and the turnovers are normal succession events.

²⁵ 141 cases have voluntary turnover information available on LexisNexis, but no further unambiguous turnover reasons are given.

including only completed deals, the sample is reduced to 42809 deals. Moreover, Acquirer's ownership of the target is required to be less than 10% before acquisition announcement and more than 50% following the deal completion. Target to acquirer relative size should be no less than 1%, and the targets and the bidders are different companies (their parent companies should have different CUSIP). The initial M&A deals sample consists of 39939 deals. Then the 39939 M&As deals sample from SDC are matched with the 1786 turnover sample using 6-digit CUSIP to get 3996 predecessors initiated, and 2191 successors initiated deals over their tenure (maximum ten years).

Annual turnover events over time for the 145 forced and 1641 voluntary turnover cases are presented in Figure 1. The number of voluntary turnover cases fluctuates around an overall upward trend; while the distribution of forced turnover cases seems quite stable and boards tend to dismiss CEOs at a slightly higher rate in the 2000s than in the 1990s. The increase in forced turnover cases since 2000 can be attributed to the regulatory and legislative reaction to corporate scandals, institutional shareholders' involvement, and corporate governance improvement. As can be seen from the figure, there is high turnover events concentration in the end of 1990s, when the Internet bubble occurred, and in the middle of 2000s, which is similar to the pattern of **Karlsson, Neilson and Webster's (2008)** finding.

Figure 3.1: Annual Forced and Voluntary Turnover Events



This figure presents the annual turnover events for the 145 forced vs.1641 voluntary turnover cases.

3.3.2 Methods

3.3.2.1 Measurements of CEO Champions

Measure of operating performance- industry Adjusted Return on Assets (AROA)

Annual median industry-adjusted ROA $AROA_{i,t}$ is calculated as the average of median industry-adjusted ROA over CEO tenure (maximum ten years). 2-digit Compustat SIC code is used (1-digit Compustat SIC code is used if the 2-digit code is missing) and firms in the sample are excluded from calculating the industry median ROA for the same 2-digit (1-digit) Compustat SIC code and same year as sample firms. Following **Barber and Lyon (1996)**, ROA is calculated as Operating Income after Depreciation divided by the average of the Beginning period and Ending period Total Assets. AROA is winsorised at the 1 and 99 percentile. The requirement that at least five consecutive years' AROA before the turnover and at least one year's AROA after the turnover is imposed to ensure continuity. Annual median industry-adjusted ROA for firm i over CEO's tenure, $AROA_{i,t}$ is calculated as below.

$$AROA_{i,t} = \frac{1}{N} \prod_{t=s}^{s+T} (\text{winsorised } ROA_{i,t} - \text{median } ROA_{ind\ i,t}) \quad (1)$$

Where s is the date became CEO, and $s+T$ represents the date CEO stepped down. N is the total number of years over CEO's tenure (maximum ten years).

Measure of operating performance- AROA2

AROA2 is calculated as the number of years where AROA is positive over CEOs' tenure (maximum ten years) divided by the corresponding total number of years, N .

$$AROA2_{i,t} = \frac{\text{Total Number of Years with Positive } AROA_{i,t}}{N} \quad (2)$$

Measure of stock performance-industry Adjusted Buy and Hold Abnormal Return (ABHAR)

To capture the stock performance dimension and compare those before and after turnover events, I follow **Chang, Dasgupta, and Hilary (2010)** to calculate annual median Industry-

Adjusted Buy and Hold Abnormal Return (ABHAR). The monthly abnormal return over CEO's tenure $BHAR_{i,t}$ is calculated as the firm BHAR over CEO tenure less the median BHARs of firms in the same industry over the same period. $BHAR_{i,t}$ is annualised to get annual median industry-adjusted BHAR, $ABHAR_{i,t}$, as shown in Eq. (3).

$$ABHAR_{i,t} = \frac{1}{N} \left[\prod_{t=s}^{s+T} (1 + R_{i,t}) - \prod_{t=s}^{s+T} (1 + R_{m,t}) \right] \quad (3)$$

Where s is the date became CEO, and $s+T$ represents the date CEO stepped down. $\prod_{t=s}^{s+T} (1 + R_{i,t})$ is the buy and hold return of firm i over CEO's tenure (maximum 10 years) from s to $s+T$, and $\prod_{t=s}^{s+T} (1 + R_{m,t})$ is the median buy and hold return of all firms in the same industry (same 2-digit Compustat SIC code or 1-digit if 2-digit code is missing) for the same period. To ensure continuity, I impose the requirement that at least five consecutive years' stock return before the turnover and at least one year's stock return afterwards. Compustat SIC code is used across all databases to do industry-adjusted analysis since more than 36% of the classifications between Compustat and CRSP disagree at the 2-digit level and Compustat matched samples are more powerful than CRSP matched samples in detecting abnormal performance (**Kahle and Walkling, 1996**). N is the total number of years over CEO's tenure (maximum ten years).

Measure of stock performance-ABHAR2

ABHAR2 is calculated as the number of years where $ABHAR_{i,t}$ is positive over CEOs' tenure (maximum ten years) divided by the corresponding total number of years, N .

$$ABHAR2_{i,t} = \frac{\text{Total Number of Years with Positive } ABHAR_{i,t}}{N} \quad (4)$$

Measure of analyst forecast surprise - Earnings Per Share (EPS) Surprise

I follow **Dikolli et al. (2014)** to use consensus analyst forecast error and the number of quarterly earnings surprise relative to median consensus analysts' forecast to measure CEO performance.

$$EPS\ Surprise\%_{t,k} = \frac{e_{t,k} - \hat{e}_{t,k}}{|\hat{e}_{t,k}|} \quad (5)$$

In specific, $e_{t,k}$ is the actual EPS announcement for company k in quarter t, and $\hat{e}_{t,k}$ is the corresponding analyst forecasted EPS for company k in quarter t. $|\hat{e}_{t,k}|$ is the absolute value of analyst forecasted EPS for company k in quarter t. Analyst forecasted EPS is the median forecast from all analysts those made a forecast in the last 90 days before firms' earning announcement. If an analyst made multiple forecasts during this period, the most recent one is taken. The requirement that at least five consecutive years' EPS Surprise before the turnover and at least one year's EPS Surprise after a turnover is imposed to ensure continuity. EPS Surprise is winsorised at the 1 and 99 percentile. For each firm k over CEO's tenure (maximum ten years), the average $EPS\ Surprise_{t,k}$ is calculated as follows:

$$EPS\ Surprise_{t,k} = \frac{1}{N} \prod_{t=s}^{s+T} EPS\ Surprise\%_{t,k} \quad (6)$$

Where $EPS\ Surprise_{t,k}$ is the average EPS Surprise of each firm k, over CEO's tenure (maximum ten years). S is the date became CEO, and s+T is the date CEO stepped down. N is the total number of years during CEOs' tenure (maximum ten years).

Measure of analyst forecast surprise - EPS Surprise2

EPS Surprise2 is calculated as the number of years where $EPS\ Surprise_{t,k}$ is positive over CEOs' tenure (maximum ten years) divided by the corresponding total number of years, N.

$$EPS\ Surprise2_{t,k} = \frac{Total\ Number\ of\ Years\ with\ Positive\ EPS\ Surprise_{t,k}}{N} \quad (7)$$

Measurement of Cumulative Abnormal Returns (CARs)

I use the standard market model proposed by **Brown and Warner (1985)** to calculate the Cumulative Abnormal Returns (CARs). The benchmark against which I test the main sample's returns is calculated from the Centre for Research in Security Prices (CRSP). In detail, CARs are calculated over the (-1, +1) event window using CRSP value-weighted

index. The market model parameters are estimated over the period from the day -250 to day -15 before the acquisition announcement day. The securities included in the index are traded in the NYSE, AMEX or NASDAQ, and have available shares outstanding and valid stock prices in the current and previous periods. The return that each security contributes to the index is based on its relative market capitalisation at the end of the previous period.

CARs are calculated by subtracting the market model cumulative returns from the cumulative returns of the firm as follows:

$$CAR_i = \sum_{t=-1}^{t+1} [R_{i,t} - (\hat{\alpha}_i + \hat{\beta}_i R_{m,t})] \quad (8)$$

where CAR_i is the cumulative abnormal return of firm i over the 3-day period, $R_{i,t}$ is the return of the bidder over the same period, $\hat{\alpha}_i$ and $\hat{\beta}_i$ are the OLS predicted values from the estimation period, and $R_{m,t}$ is the value-weighted return of the CRSP index. The short-run cumulative abnormal return is the sum of the excess returns of the 3-days ($t-1$ to $t+1$) surrounding the day of the announcement of the acquisition, t , which is day 0. The 3 days event windows is one of the most widely used for merger and acquisition studies, including **Morck, Shleifer, and Vishny (1990)** and **Moeller, Schlingemann, and Stulz (2004, 2005)**.

Measure of investment performance-M&A CARs

$M\&A\ CAR_{s,t}$ is the sum of CARs of all deals made by the CEO predecessor (or successor) in firm i , if any, over CEO's tenure (maximum ten years). $M\&A\ CAR_{s,t}$ over the CEOs' tenure from date became CEO, s , to date stepped down as CEO, $s+T$, are calculated as follows:

$$M\&A\ CAR_{s,t} = \sum_{t=s}^{s+T} CAR_{i,t} \quad (9)$$

Measure of investment performance-M&A CARs2

$M\&A\ CAR_2$ is calculated as the number of deals made by predecessors (successors) over their tenure (maximum ten years) which have positive CARs divided by the corresponding total number of deals, N .

$$M\&A\ CARs_{i,t} = \frac{\text{Total Number of Deals with Positive M\&A CARs}_{i,t}}{N} \quad (10)$$

3.3.2.2 Multiple regression cross-sectional analysis

I further examine the impact of championship succession on firm performance using multiple regression analysis, where the effects of other factors are analysed simultaneously. These factors include firm growth, size, age, and cyclicity. The AROA(2) is regressed against a set of explanatory variables, Champion I(II) dummy, Champion I(II)'s successor dummy, successor dummy, Log (Firm Age), Log (Firm Assets), GSALES, MTB, industry and year fixed effects.

The estimable models are:

$$AROA(2)_i = \alpha + \sum_{j=1}^k \beta_j X_{ij} + \varepsilon_i \quad i = 1 \dots N \quad (11)$$

Where: $AROA(2)_i$ denotes average of median industry-adjusted ROA over CEO tenure (maximum ten years), as estimated in Equations. (1) or (2): α measures the long-run excess operating returns after controlling for the effects of all the covariates entering the matrix of explanatory variables, X_{ij} , that have been used in previous literature, in addition to the ones that are specific to this study, the impact of which is recorded in the vector of estimated parameters β_j .

The EPS Surprise(2) is regressed against the same set of explanatory variables, Champion I(II) dummy, Champion I(II)'s successor dummy, successor dummy, Log (Firm Age), Log (Firm Assets), GSALES, MTB, industry and year fixed effects.

$$EPS\ Surprise(2)_i = \alpha + \sum_{j=1}^k \beta_j X_{ij} + \varepsilon_i \quad i = 1 \dots N \quad (12)$$

Where $EPS\ Surprise_i$ and $EPS\ Surprise_{i2}$ are defined and estimated in Equations (6) and (7): α measures the long-run excess $EPS\ Surprise$ after controlling for the effects of all the covariates entering the matrix of explanatory variables, X_{ij} the impact of which is recorded in the vector of estimated parameters, β_j .

To assess the effect of predecessors' legacy (PRE) and effective replacement on successors' performance (POST) after controlling for the effects of other factors, I estimate equation (13). In particular, equation (13) is estimated in a nested regression form with various combinations of explanatory variables. In equation (13) the dependent variable, POST is the post-turnover successors' Measures Index One z-scores. The intercept (α) measures the excess performance after accounting for the effects of a set of explanatory variables (X_{ij}). β_j is a vector of the estimated coefficients of explanatory variables (X_{ij}). The variables that represent the variables of interest are: PRE, the pre-turnover predecessor's Measures Index One z-scores, SIZE, the total number of directors sitting on the board, INDEP, the percentage of independent directors sitting on the board relative to the firm's total directors, BUSY, is an indicator variable equal to 1 if more than 50% independent directors serve on three or more boards, GINDEX, the sum of 24 anti-takeover provisions following **Gompers, Ishii and Metrick (2003)**, EINDEP, the sum of six anti-takeover provisions following **Bebchuk, Cohen, and Ferrell (2005)**, SERVEYEAR, the number of years that insider successors hold other managerial positions in the firms, INSIDER dummy, SAMEDATE dummy, REMAIN_BOARD dummy, FOUNDER dummy, interaction variables, industry and year fixed effects.

$$POST_i = \alpha + \sum_{j=1}^k \beta_j X_{ij} + \varepsilon_i \quad i = 1 \dots N \quad (13)$$

3.3.3 Descriptive Statistics

Table 3.1 reports statistics on predecessors, successors' characteristics and their firms' characteristics for both voluntary and forced turnover sample. Panel A provides statistics comparisons between predecessors and successors. Newly appointed CEOs in the full sample tend to be younger than departed CEOs and they have shorter estimated tenure than their predecessors, which are both statistically significant²⁶. When it comes to compensation, on average, successors are paid with the lower salary, bonus, but slightly higher total compensation. After scaled by firm's total assets, new CEOs earned significantly higher relative total compensation. The vast majority CEOs are male before and after turnover, with female percentage considerably higher for successors. Most departed CEOs have been

²⁶ Successors' tenure is estimated from the date they became CEO to 2012.12.31 for those who have not left office yet until the sample end since my sample only covers CEO information until 2012.

chairman/chairwoman of board simultaneously, whereas the percentage is significantly lower for their successors during their tenure. This mainly results from that most predecessors tend to be retained on the board (64.78%) as chairman (43.23%) after turnovers. Regarding the background of the successors, the vast majority of them are promoted internally (70.8%) with around ten years average service in the firms, which is consistent with **Karlsson et al. (2008)** and **Sala's (2010)** findings.

Panel B compares firm characteristics at the beginning and over predecessors' tenure, at turnover, and at the beginning, the end and over successors' tenure. In detail, column (1) reports characteristics for the fiscal year one year before predecessors took office (Maximal 10 years). Column (2) shows those over predecessors' tenure (maximum ten years). Column (3) shows the results one fiscal year prior to predecessors stepped down (maximum ten years). Column (4) is the fiscal year one year before successors take office. Column (5) presents characteristics over successors' tenure (maximum ten years). Column (6) shows characteristics of successors one fiscal year before (estimated) tenure ends. There are material differences in firm size and growth opportunities over predecessors' and their successors' tenure. Regarding assets, sales and market capitalization, the size of firms have increased substantially during both predecessors and successors tenure (difference tests (3)-(1) and (6)-(3)). As can be seen from the difference tests in column (4)-(1), predecessors tend to manage firms at the earlier stages in their firms' life cycles, with significantly smaller size. Managing firms in the earlier stage also involved with more growth opportunities. In line with the size difference, firms have significantly higher growth rate (higher Market-to-Book ratio and Tobin's Q) when predecessors were in charge (difference tests (3)-(1)). However, in the difference test (6)-(3), both measures decline dramatically during successors' tenure, which even drop back to initial level when successors leave (or estimated tenure ends), as shown in the difference tests (4)-(1) and (6)-(1).

More evidence is provided in the five annual average growth measures in assets, sales, market capitalization, Market-to-Book ratio and Tobin's Q. For all five growth opportunity measures, firms are growing more rapidly during predecessors' tenure than their successors' (difference tests (5)-(2)). GASSETS surges at the beginning of predecessors' tenure and drops before the turnover, suggesting that predecessors took office at the earlier stage in firms' lifecycle. Compared with their predecessors, successors took offices with significantly lower GASSETS and GSALES (difference tests (4)-(1)). The relative lower GSALES and GMARKETCAP do not change much during successors' tenure, indicating that firms in

successors' hands tend to be mature firms with fewer growth opportunities. When it comes to the G_{MARKET-TO-BOOK} and G_Q, they start quite high at 4.92% and 5.19% (see column (1)) and decrease to 1.77% and 1.16% before turnover events (see column (3)). The growth rates in these two measures significantly increase after successors came, but not as high as over their predecessors' tenure. In sum, on average, firms are managed in the earlier stage of lifecycles over predecessors' tenure and grow more rapidly in the predecessors' hands. Thus, I cannot simply compare firms' performance over predecessors and successors tenure since firms have changed substantially in terms of age (maturity), size and growth opportunities. To solve the growth cyclical issue, I construct and compare the rankings of predecessors with that of successors. Also, I control for firm growth in the multivariate analysis.

Table 3.1: Comparisons of CEO and Firm Characteristics around the Turnovers

This table presents CEO, firm characteristics for predecessors and their successors for the full turnover sample. Panel A compares predecessor and successors characteristics at the fiscal years of their departure (appointment). AGE (YEARS) is the age of the CEO in the year of hiring (successors) or leaving (predecessor). TENURE (YEARS) is the tenure of the CEO served as CEO in the firm²⁷. SALARY and BONUS are items from ExecuComp. TOTAL COMPENSATION is the TDC1 item from ExecuComp, which comprises of salary, bonus, other annual compensation, the total value of restricted stock granted, the total value of stock options granted (using black-scholes), long-term incentive payouts, and all other total compensation. COMPENSATION (%) is the ratio of total compensation to the firm's total assets at the fiscal years of their departure (appointment). FEMALE (%) is an indicator variable equal to 1 if the CEO is female and zero if is male. CHAIRMAN DUALITY (%) is an indicator variable equal to 1 if the CEO is also chairman of the Board and zero otherwise. FOUNDER (%) is an indicator variable equal to 1 if the predecessor is the (co-) founder of the firm and zero otherwise. REMAIN_BOARD (%) is an indicator variable equal to 1 if the predecessor still served on the board after departure. REMAIN_CHAIR (%) is an indicator variable equal to 1 if the predecessor still served as chairman after departure. INSIDER (%) is an indicator variable equal to 1 if the successor holds other managerial position(s) in the firm for no less than one years before becoming CEO. SERVEYEAR is the number of years that insider successors hold other managerial positions in the firms before becoming CEOs. In Panel B, ASSET and SALES are total assets and sales (in millions) from Compustat. MARKET CAPITALIZATION (in millions) is the common shares outstanding multiplied by fiscal year-end stock price. MARKET-TO-BOOK is the market value of equity over book value of equity. Q is calculated as the market value of equity plus book value of current liabilities and long-term debt divided by book value of equity plus book value of current liabilities and long-term debt. The market-to-book ratio and Q have been winsorized at 1% and 99% level. The five growth items are annual average growth in assets, sales, market capitalization, market-to-book, and Q. Firm characteristics at the beginning of predecessors' tenure (First1)²⁸, over predecessors' tenure (Tenure1), at turnover events (Turnover), at the beginning of successors' tenure (First2), over successors' tenure (Tenure2) and at the end of successors' tenure (Last) are presented, respectively. Difference tests are based on t-tests for means and Wilcoxon-tests for medians. ***, ** and * represent significance at the 1%, 5% and 10% level, respectively.

²⁷ TENURE (YEAR) for successors is estimated from the date they became CEO until the last day in the dataset for those who have not left office until 2012.12.31.

²⁸ First1 is one year prior to the first fiscal year when predecessors take office (maximum 10 years before turnover). Tenure1 is over predecessors' tenure (maximum 10 years). Turnover is one year prior to the last fiscal year before predecessors stepped down. First2 is one year prior to the first fiscal year when successors take office (maximal 10 years before turnover). Tenure2 is over successors' tenure (maximum 10 years). Last is one year prior to successors' (estimated) tenure end year (maximal 10 years after turnover).

		(1)	(2)	(2) - (1)	
		Predecessor	Successor	Difference	
<i>Panel A: CEO characteristics</i>					
AGE (YEARS)	<i>mean</i>	60.74	51.86	-8.88	***
	<i>median</i>	62.00	52.00	-10.00	***
	<i>n</i>	1638	1757		
TENURE (YEARS)	<i>mean</i>	12.62	5.50	-7.11	***
	<i>median</i>	10.01	4.84	-5.17	***
	<i>n</i>	1786	1786		
SALARY	<i>mean</i>	699.27	611.51	-87.76	***
	<i>median</i>	625.50	562.45	-63.05	***
	<i>n</i>	1786	1786		
BONUS	<i>mean</i>	648.72	562.86	-85.86	*
	<i>median</i>	194.49	248.68	54.19	*
	<i>n</i>	1786	1786		
TOTAL COMPENSATION	<i>mean</i>	4652.02	5074.94	422.92	
	<i>median</i>	2129.16	2721.82	592.66	***
	<i>n</i>	1777	1773		
COMPENSATION (%)	<i>mean</i>	2.65	3.21	0.57	**
	<i>median</i>	1.14	1.30	0.16	***
	<i>n</i>	1777	1773		
FEMALE (%)	<i>mean</i>	0.78	2.63	1.85	***
	<i>n</i>	1786	1786		
CHAIRMAN DUALITY (%)	<i>mean</i>	85.44	61.03	-24.41	***
	<i>n</i>	1786	1786		
FOUNDER (%)	<i>mean</i>	16.29	—	—	
	<i>n</i>	1786			
REMAIN_BOARD (%)	<i>mean</i>	64.78	—	—	
	<i>n</i>	1786			
REMAIN_CHAIR (%)	<i>mean</i>	43.23	—	—	
	<i>n</i>	1786			
INSIDER (%)	<i>mean</i>	—	70.80	—	
	<i>n</i>		1767		
SERVEYEAR	<i>mean</i>	—	10.08	—	
	<i>median</i>		6.25		
	<i>n</i>		1767		

Panel B: Firm characteristics and growth ten years before, after turnover and during CEO's tenure

		Predecessor		Successor			Difference					
		(1)	(2)	(3)	(4)	(5)	(6)	(3)-(1)	(4)-(1)	(6)-(3)	(6)-(1)	(5)-(2)
		First1	Tenure1	Turnover	First2	Tenure2	Last	Turnover-First1	First2-First1	Last-Turnover	Last-First1	Tenure2-tenure1
ASSETS	<i>mean</i>	6690.90	10310.91	13621.33	16295.69	19372.06	21454.50	6930.43 ***	9604.79 ***	7833.17 ***	14763.60 ***	9061.15 ***
	<i>median</i>	888.60	1367.75	1838.52	2043.23	2464.57	2621.19	949.92 ***	1154.63 ***	782.67 ***	1732.59 ***	1096.82 ***
	<i>n</i>	1568	1786	1786	1786	1786	1772					
SALES	<i>mean</i>	3352.40	4495.56	5575.71	6239.74	7137.95	7760.48	2223.31 ***	2887.34 ***	2184.77 ***	4408.08 ***	2642.39 ***
	<i>median</i>	803.17	1163.80	1461.25	1573.40	1856.37	1958.05	658.08 ***	770.23 ***	496.80 ***	1154.88 ***	692.57 ***
	<i>n</i>	1562	1786	1786	1786	1786	1772					
MARKET CAPITALIZATION	<i>mean</i>	4019.54	6172.91	7937.50	8328.74	9045.20	9566.12	3917.96 ***	4309.20 ***	1628.62 *	5546.58 ***	2872.29 ***
	<i>median</i>	739.65	1328.91	1644.85	1646.86	1916.35	2050.80	905.20 ***	907.21 ***	405.95 ***	1311.15 ***	587.44 ***
	<i>n</i>	1434	1786	1782	1778	1781	1763					
MARKET-TO-BOOK	<i>mean</i>	2.75	3.15	3.07	2.84	2.74	2.70	0.32 ***	0.09	-0.37 ***	-0.05	-0.41 ***
	<i>median</i>	1.94	2.42	2.20	2.04	2.05	1.98	0.26 ***	0.10	-0.22 ***	0.04	-0.37 ***
	<i>n</i>	1430	1786	1782	1778	1781	1763					
Q	<i>mean</i>	2.23	2.53	2.47	2.26	2.15	2.10	0.24 ***	0.03	-0.36 ***	-0.12 **	-0.39 ***
	<i>median</i>	1.58	1.89	1.72	1.65	1.66	1.60	0.14 ***	0.07	-0.11 ***	0.03	-0.23 ***
	<i>n</i>	1424	1786	1773	1772	1778	1757					
GASSETS	<i>mean</i>	26.89%	25.23%	17.51%	7.59%	7.56%	8.74%	-9.38% **	-19.30% ***	-8.76% ***	-18.15% ***	-17.67% ***
	<i>median</i>	7.70%	12.91%	7.35%	4.26%	6.05%	4.70%	-0.35%	-3.43% ***	-2.65% ***	-3.00% ***	-6.86% ***
	<i>n</i>	1477	1786	1786	1786	1786	1772					
GSALES	<i>mean</i>	17.71%	26.16%	14.71%	7.75%	9.61%	15.50%	-3.00%	-9.97% ***	0.78%	-2.22%	-16.55% ***
	<i>median</i>	8.67%	11.45%	8.50%	5.54%	5.92%	6.10%	-0.18%	-3.13% ***	-2.40% ***	-2.57% ***	-5.53% ***
	<i>n</i>	1471	1786	1785	1783	1783	1769					
GMARKETCAP	<i>mean</i>	20.60%	26.78%	17.32%	18.66%	18.57%	22.56%	-3.28%	-1.94%	5.24%	1.96%	-8.21% ***
	<i>median</i>	9.78%	19.23%	5.63%	4.53%	9.21%	9.84%	-4.15% **	-5.25% ***	4.21% *	0.06%	-10.02% ***
	<i>n</i>	1379	1786	1780	1778	1780	1763					
GMARKET-TO-BOOK	<i>mean</i>	4.92%	6.29%	1.77%	4.72%	3.42%	7.32%	-3.15% *	-0.21%	5.55% ***	2.40%	-2.87% ***
	<i>median</i>	0.10%	5.33%	-2.89%	-0.27%	1.83%	1.11%	-2.99% ***	-0.37%	4.00% ***	1.01%	-3.50% ***
	<i>n</i>	1375	1786	1780	1778	1780	1763					
GQ	<i>mean</i>	5.19%	5.25%	1.16%	4.81%	3.73%	5.52%	-4.03% ***	-0.38%	4.36% ***	0.33%	-1.52% **
	<i>median</i>	0.00%	3.17%	-1.37%	0.37%	1.11%	1.78%	-1.37% ***	0.37%	3.15% ***	1.78% **	-2.06% ***
	<i>n</i>	1366	1784	1766	1769	1777	1752					

3.3.4 Vertical Analysis

To examine the performance trends over time, I carry out vertical analysis based on CEOs' four performance measures ten years prior and ten years after turnover. Figure 3.2-3.5 plot median industry-adjusted ROA, median industry-adjusted BHAR, EPS surprise and M&A sum CARs changes around CEO turnover events. I do not distinguish between forced and voluntary turnovers as previous literature did. This tends to avoid biases due to misclassifications. Moreover, CEOs can be forced out for reasons unrelated to their performance, such as conflicts with firm culture or policy, and departures can result from bad performance without being forced out, such as poorly-performed CEOs might voluntarily retire earlier. Figure 3.2 presents sample median industry-adjusted ROA over the period from ten years before to ten years after the top management turnover. Separate plots are shown for the 145 forced and 1641 voluntary turnover cases, and for the combined sample. The patterns suggest that CEO turnover follows a period (3 years) of deteriorating operating performance and the operating performance tends to improve subsequently post turnover, which is consistent with **Huson et al. (2004)**'s findings. This pattern is most apparent for the forced turnover sample.

Figure 3.2: Median industry-adjusted Return on Assets around CEO turnover events

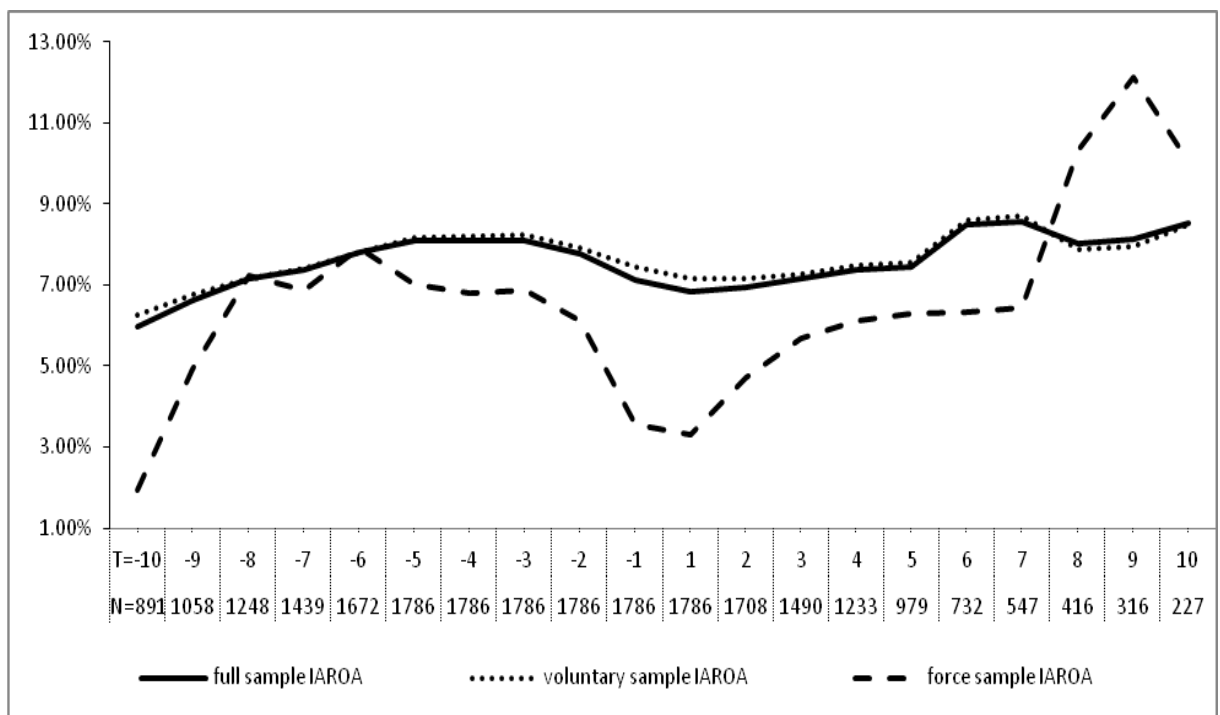
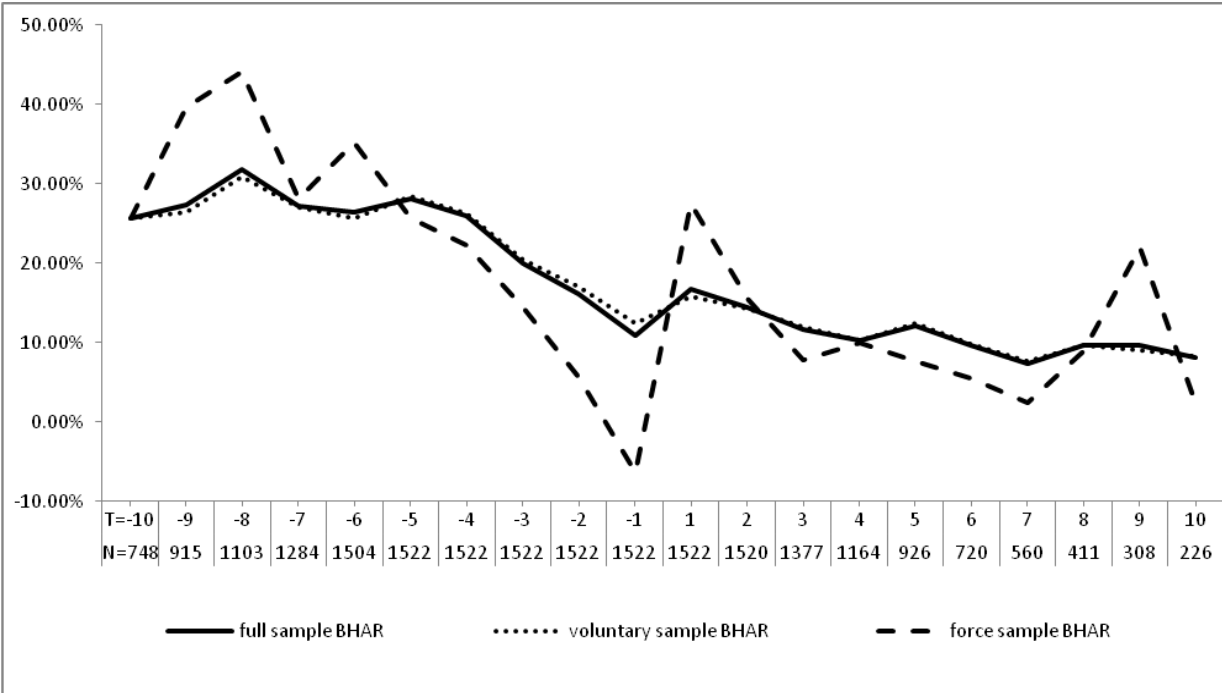


Figure 3.3 presents the plots of median industry adjusted BHAR changes around CEO turnovers. There is a general downward trend before and after the top management turnover

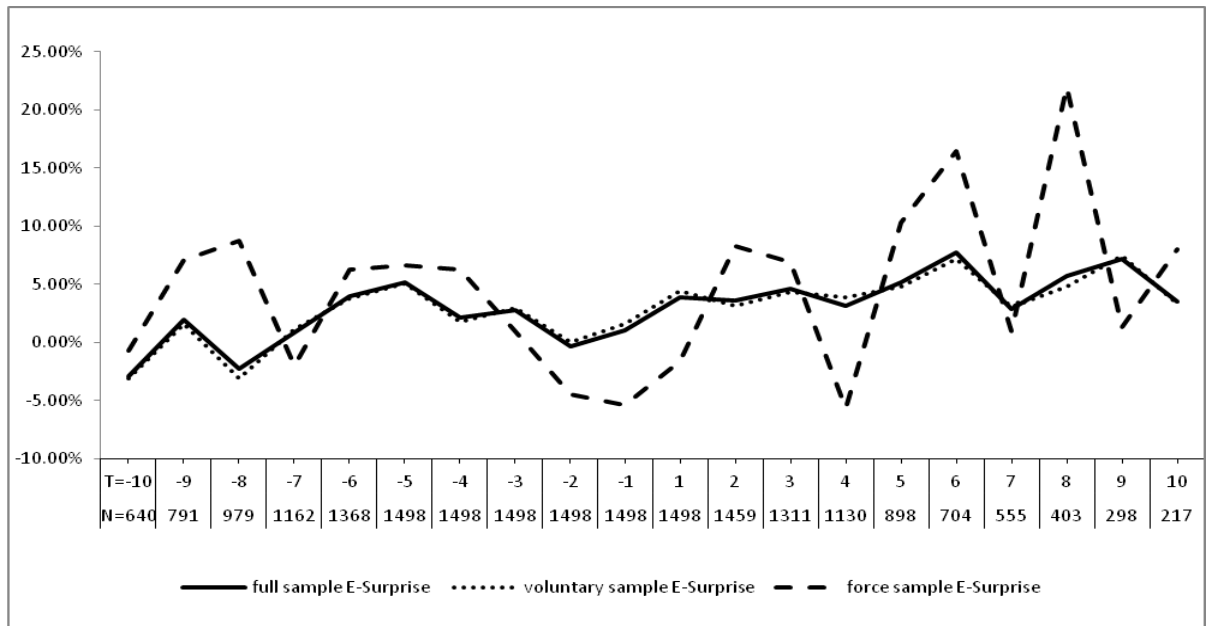
events. Firms in the sample tend to have higher growth rates and superior stock performance in the earlier stage during predecessors' tenure. As firms become mature, the superior stock performance cannot be sustained even five years before the top management turnover. The plot of industry-adjusted BHAR display the similar pattern as operating performance, with performance deterioration five years before and performance improvement after turnover events. However, the performance improvement will not last long given the firms are mature. As soon as incoming CEOs take offices, the stock performance continues to deteriorate. The performance deteriorations and improvements are more distinct for forced turnover events.

Figure 3.3: Median industry-adjusted buy-and-hold Abnormal Return around turnover



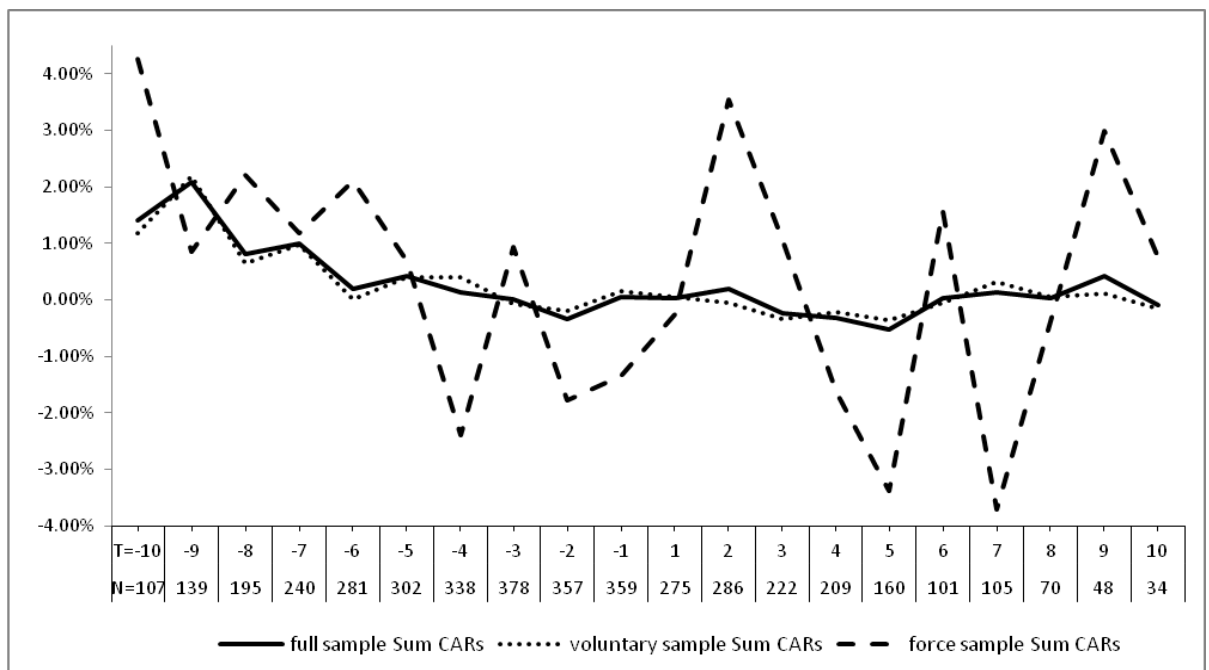
In contrast, the EPS surprise changes around turnover events in figure 3.4 show different picture from stock performance. The EPS surprise for the full sample fluctuates around an overall upward trend for post turnover events, suggesting that firms tend to beat analyst forecast more after successors took offices. Surprisingly, EPS surprises increase before turnover for the voluntary and full sample, and the pattern seems not affected by the managerial changes. For forced turnover, EPS surprise followings the same pattern as operating and stock performance which deteriorates before the turnover and tends to improve thereafter. It fluctuates across years and does not follow any patterns for forced turnovers.

Figure 3.4: Earnings Per Share Surprise change around CEO turnover events



In figure 3.5, the M&A sum CARs of voluntary turnover sample witnesses a slight decrease during predecessors' tenure and it starts to level off around turnover events. Similarly, for the forced turnover sample, investment performance is enhanced after new CEOs taking offices. As seen from the pattern of performance changes, the forced turnover sample is disturbing but does not affect the full sample. I find similar results after excluding forced turnover events. I rule out the forced turnover events when defining champion CEOs, and perform the remaining univariate and multivariate tests using the voluntary turnover sample only.

Figure 3.5: M&A Sum CARs around CEO turnover events



3.4 Univariate Analysis-Difference Tests

In this section, I further compare predecessors and successors' performance in terciles based on the voluntary turnover sample. While the forced turnover sample displays different pattern from the voluntary turnover sample (as shown in figure 3.2-3.5), it only stands for less than 10% of the whole sample and does not affect the entire sample pattern much. Also, the CEO Champions' definition is based on the voluntary turnover sample. Moreover, existing literature has documented that firm performance tends to decrease before and increase after forced turnover events; whereas voluntary turnover has opposite pattern. By including forced turnover in the analysis may offset the performance trends for voluntary cases. Thus, forced turnover sample are excluded from the following analyses.

To compare the performance of top-tercile, bottom-terciles performed predecessors and their corresponding successors, I use four performance measures. In Table 3.2, AROA is the annualised median industry-adjusted ROA over CEO tenure (maximum ten years²⁹), following **Chang, Dasgupta, and Hilary (2010)**. ABHAR is the average of median industry-adjusted BHAR calculated over CEO tenure (maximum ten years) to mitigate possible luck involved with CEO performance within the short term³⁰. EPS Surprise is also regarded as an essential measure in this study since the board of directors put more emphasis on deviations from earnings performance expectations (analyst forecasts) rather than the performance itself when making CEO turnover decisions (**Farrell and Whidbee, 2003**). Also, EPS Surprise is the only indirect firm performance measurement that represents how CEOs beat market expectations, which evaluates CEO Championship from an innovative dimension. I follow the similar methodology in **Dikolli, Mayew, and Nanda (2014)**'s study and use the consensus analyst forecast error and the number of quarterly earnings surprise relative to median consensus analysts' forecast to measure CEO performance. Different from their study where measures are constructed over the preceding four quarters before the turnover, I measure CEOs over their tenure (maximum ten years). To enhance the power of tests, they also allowed for asymmetric effects and employed separate measurements of positive and negative components of stock returns and return on assets. I adopt the similar methodology and apply the positive or negative components method (beat %) to the four measures (AROA2, ABHAR2, EPS Surprise2 and M&A CARs2) and present the test results in Table

²⁹ I also calculate the performance measures over 5 years prior to CEO turnover and over CEOs' whole tenure, and get similar results. I select 10 years to avoid CEO luck in short term and CEO hubris over too long period.

³⁰ In Chang, et al (2010)'s study, they used three-year industry-adjusted buy-and-hold stock return (BHAR) prior to turnover.

3.3. I finally include M&A sum CARs over CEOs' tenure (maximum ten years) before and after turnover events.

Table 3.2 compares the top and bottom tercile performed predecessors and their corresponding successors using the four measures (AROA, ABHAR, EPS Surprise and M&A CARs). In columns 1 to 4, all predecessors in the voluntary turnover sample are ranked based on each of the four measures mutually exclusively and grouped by tercile. Column 5 to 8 show tercile performance of their corresponding successors'. The top tercile performed CEOs perform exceptionally well in terms of the four measures, respectively. They deliver an industry-adjusted return on assets (AROA) of 19.79% in the past ten years (or during their tenures) before departure. They produce 126.36% industry-adjusted buy-and-hold returns (ABHAR) and generate the average actual EPS which is 14.32% beyond analyst forecasted EPS, respectively. For all the deals made by the top tercile performed CEOs during their tenure (maximum past ten years), they contribute total Cumulative Abnormal Returns (CARs) of 13.22%. The contrast between their achievements and performance of the bottom terciles performed predecessors is striking. On average, the lower tercile CEOs produce average AROA at 1.7% and average ABHAR at 11.35% over their tenures. They deliver the average actual EPS 3.66% below analyst forecasted and a total M&A sum CARs at -5.17%.

For each measure (as seen from the difference tests between successors and predecessors (5)-(1), (6)-(2), (7)-(3), (8)-(4)), top tercile performed predecessors significantly outperform their corresponding successors. Luck reversion, growth cyclicity, and diverted priorities of management (as discussed in section 3.3.2) after turnover make predecessors and successors' performance incomparable. This issue is also apparent when testing the differences of the Top-Bottom differentials between successors and predecessors. On average, top predecessors beat bottom predecessors' AROA by 18.09%, while successors of top predecessors beat their peers by 15.31%. The difference between the degrees of beaten is significant at 2.78%, suggesting that top successors cannot outperform as much as their predecessors in the univariate framework. I find similar results for all the measures across Table 3.2, Table 3.3 and Table B.1. To avoid this issue, I compare the top tercile performed predecessors' successors with other successors of bottom tercile performed predecessors'. From the difference tests between successors of the top and bottom predecessors (see Top-Bottom difference tests for successors), champions' successors generate average AROA at 16.71%; whereas successors of bottom predecessors provide significantly lower average AROA at 1.4%. Similar results are identified for EPS Surprise and M&A sum CARs, with the only

exception for ABHAR. This may be due to the over (under) valuation involved with stock returns, or the uncorrelated noise contained. Notably, for M&A sum CARs, I find the similar result that successors of top-performed predecessors are more likely to make better acquisitions than successors of bottom-performed predecessors, which is consistent with **Golubov, Yawson, and Zhang (2015)**'s findings that acquirer returns are persistent among top-performed acquirers. Specifically, top-performed acquirers are more likely to make better M&A deals than bottom-performed acquirers.

In sum, although successors of top tercile-performed CEOs' underperform their predecessors due to luck reversion, growth cyclicalities and diverted priorities, they outperform other bottom CEO' successors, with only ABHAR insignificant³¹. Corporate boards seem to be doing a good job in replacing CEO Champions. Thus, hypothesis one that corporate boards can successfully replace Champion CEOs by hiring better successors available, i.e., corporate boards can hire new successors who can outperform other non-Champion CEOs' successors is supported.

In Table 3.3, top and bottom tercile performed predecessors, and their corresponding successors' four beat percentage performance measures (AROA2, ABHAR2, EPS Surprise2 and M&A CARs2) are shown. Similar to Table 3.2, top tercile performed predecessors significantly outperform their successors for each measure. On average, at 97.29% during their tenures, they deliver positive AROAs. Among 8.7 out of 10 years, they generate positive ABHARs. They beat analyst forecast EPS 7.5 years out of 10 years on average. For all the deals made during their tenures, at 94.71% they produce positive sum CARs for that year. The contrast between top and bottom predecessors is also substantial. On average, bottom predecessors produce positive AROA and positive ABHAR around half of the time (51.03% and 59.73%, respectively) over their tenure. They are more likely to deliver negative M&A CARs (68%) and less apt to beat analyst forecasted EPS (48.44%). Notably, compared with the previous finding in Table 3.2, I find even more distinct and consistent pattern, especially for ABHAR2, where successors of top predecessors significantly outperform those of bottom predecessors. Thus, hypothesis one that corporate boards can successfully replace Champion CEOs by hiring better successors available is further supported.

³¹ In an unreported table, I also compare the top vs. bottom tercile performed successors irrespective of their predecessors' performance based on the 4 performance measures i.e. I rank successors based on their respective performance measures. For AROA, 71.3% of top tercile performed champion predecessor's corresponding successors are actually top tercile performed champion successors themselves based on Successors' CEO ranking. For the rest measures, around 50% of champions' successors are actually the champion successors. This also suggests that the majority of champion's successors are actually among the best successors.

Table 3.2: Performance Comparisons for Top and Bottom Terciles performed CEOs

This table compares the performance of predecessors in 1641 voluntary turnover cases with that of their corresponding successors using four distinct measurements, i.e., AROA, ABHAR, EPS Surprise and M&A CARs. All predecessors are ranked based on these four performance measures mutually exclusively. Top tercile and bottom terciles performed CEOs are compared accordingly. AROA is the average of median industry-adjusted ROA over ten years or the tenure if CEO tenure is less than ten years. ABHAR is the Annual median industry-adjusted Buy and Hold Abnormal Return. The requirement that at least five continuous years' stock return before the turnover and at least 1 year's stock return after the turnover is imposed to ensure continuity and the final stock performance sample is 1399 cases. Earnings Per Share Surprise (EPS Surprise) = $(e_{t,k} - \hat{e}_{t,k}) / \text{absolute}(\hat{e}_{t,k})$, where $e_{t,k}$ is the actual Earnings Per Share (EPS) announcement for company k in quarter t, and $\hat{e}_{t,k}$ is the corresponding analyst forecasted EPS in quarter t. I imposed the requirement that at least five continuous years' EPS Surprise before the turnover and at least 1 year's EPS Surprise after the turnover, to ensure continuity and the final EPS Surprise sample is 1373 cases. M&A CARs are the SUM CARs of all deals made by predecessors (successors) over their tenure or 10 years before (after) the turnover if their tenure exceeds ten years. I report results where AROA and EPS Surprise are winsorized at the 1 and 99 percentile. Mean difference tests are based on t-test, and median difference tests are based on Wilcoxon-test ***, ** and * represent significance at the 1%, 5%, and 10% level, respectively.

		Predecessor				Successor				Successor-Predecessor			
		AROA	ABHAR	EPS Surprise	M&A CARs	AROA	ABHAR	EPS Surprise	M&A CARs	AROA	ABHAR	EPS Surprise	M&A CARs
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(5)-(1)	(6)-(2)	(7)-(3)	(8)-(4)
Top	mean	19.79%	126.36%	14.32%	13.22%	16.71%	12.33%	7.23%	0.94%	-3.08%***	-114.03%***	-7.09%***	-12.28%***
Tercile	median	16.62%	55.01%	10.99%	8.77%	13.03%	7.16%	7.32%	1.36%	-3.59%***	-47.85%***	-3.67%***	-7.41%***
	n	547	466	458	319	547	466	458	206				
		(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(13)-(9)	(14)-(10)	(15)-(11)	(16)-(12)
Bottom	mean	1.70%	11.35%	-3.66%	-5.17%	1.40%	10.61%	1.84%	-0.77%	-0.30%	-0.74%	5.51%***	4.40%***
Terciles	median	1.81%	11.60%	0.17%	-1.95%	1.01%	6.39%	2.63%	-0.01%	-0.80%***	-5.22%***	2.47%***	1.94%***
	n	1094	933	915	637	1094	933	915	424				
		(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(21)-(17)	(22)-(18)	(23)-(19)	(24)-(20)
All	mean	7.73%	49.66%	2.33%	0.97%	6.50%	11.18%	3.64%	-0.21%	-1.23%***	-38.47%***	1.31%*	-1.18%*
Terciles	median	5.13%	20.07%	2.32%	0.27%	3.61%	6.59%	3.69%	0.38%	-1.53%***	-13.48%***	1.37%***	0.11%
	n	1641	1399	1373	956	1641	1399	1373	630				
Top-	mean	18.09%***	115.01%***	17.98%***	18.39%***	15.31%***	1.72%	5.38%***	1.70%**	-2.78%***	-113.29%***	-12.60%***	-16.69%***
Bottom	median	14.82%***	43.41%***	10.83%***	10.73%***	12.02%***	0.78%*	4.69%***	1.37%***	-2.80%***	-42.63%***	-6.14%***	-9.36%***

Table 3.3: Beat Performance Comparisons for Top and Bottom Terciles performed CEOs

This table compares the performance of predecessors in 1641 voluntary turnover cases with that of their corresponding successors using another four beat performance measurements related to table 2, i.e., AROA2, ABHAR2, EPS Surprise2 and M&A CARs2. Measurements in Table 3.2 capture the extent to which predecessors and successors performed while measurements in this table value how many times the returns or surprises are positive. All predecessors are ranked based on these four performance measures mutually exclusively. Top tercile and bottom terciles performed CEOs are compared accordingly. AROA Beat% (AROA2) is the number of years where AROA is positive divided by the corresponding total number of years. ABHAR Beat% (ABHAR2) is the number of years where ABHAR is positive divided by the corresponding total number of years. EPS Surprise Beat% (EPS Surprise2) is the number of years where EPS Surprise is positive divided by the corresponding total number of years. M&A CARs Beat% (M&A CARs2) is the number of deals made by predecessors (successors) over their tenure or 10 years before (after) the turnover if their tenure exceeds ten years which have positive CARs divided by the corresponding total number of deals. Mean difference tests are based on t-test, and median difference tests are based on Wilcoxon-test ***, ** and * represent significance at the 1%, 5%, and 10% level, respectively.

		Predecessor				Successor				Successor-Predecessor			
		AROA2	ABHAR2	EPS Surprise2	M&A CARs2	AROA2	ABHAR2	EPS Surprise2	M&A CARs2	AROA2	ABHAR2	EPS Surprise2	M&A CARs2
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(5)-(1)	(6)-(2)	(7)-(3)	(8)-(4)
Top Tercile	mean	97.29%	86.57%	75.84%	94.71%	50.40%	64.19%	65.80%	57.67%	-46.89%***	-22.38%***	-10.05%***	-37.04%***
	median	100.00%	85.71%	74.36%	100.00%	50.00%	66.67%	67.87%	50.00%	-50.00%***	-19.05%***	-6.49%***	-50.00%***
	n	553	465	456	290	553	465	456	173				
		(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(13)-(9)	(14)-(10)	(15)-(11)	(16)-(12)
Bottom Terciles	mean	51.03%	59.73%	48.44%	32.17%	34.34%	56.55%	57.59%	50.47%	-16.69%***	-3.18%***	9.15%***	18.30%***
	median	60.00%	60.00%	50.00%	33.33%	30.00%	60.00%	59.09%	50.00%	-30.00%***	0.00%***	9.09%***	16.67%***
	n	1088	934	917	666	1088	934	917	457				
		(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(21)-(17)	(22)-(18)	(23)-(19)	(24)-(20)
All Terciles	mean	66.62%	68.65%	57.54%	51.14%	39.75%	59.09%	60.32%	52.45%	-26.87%***	-9.56%***	2.77%***	1.31%
	median	70.00%	70.00%	58.33%	50.00%	30.00%	60.00%	62.50%	50.00%	-40.00%***	-10.00%***	4.17%***	0.00%
	n	1641	1399	1373	956	1641	1399	1373	630				
Top-Bottom	mean	46.26%***	26.84%***	27.40%***	62.54%***	16.06%***	7.64%***	8.21%***	7.20%**	-30.20%***	-19.20%***	-19.19%***	-55.34%***
	median	40.00%***	25.71%***	24.36%***	66.67%***	20.00%***	6.67%***	8.78%***	0.00%**	-20.00%***	-19.05%***	-15.58%***	-66.67%***

In Table B.1, I construct two Measure Indices for Champion CEOs, and bottom terciles performed CEOs. All predecessors in the voluntary turnover sample are first ranked based on the eight performance measures mutually exclusively. I require that each CEO should have data for at least any three of the four measures. By doing this, I do not limit champion CEOs to those who have to initiate M&A deals during their tenure, and this leaves 1371 turnover cases. Top-tercile champion CEOs are then compared with bottom-terciles performed CEOs and their successors.

Column (1) shows the average rankings of the first four (three if any is missing) measures (AROA, ABHAR, EPS Surprise and M&A CARs) and grouped by terciles. I re-rank the AVG RANKING1 to create Champion CEOs Measures Index One, which is shown in (2). The top tercile performed CEOs in column (1) and (2) are defined as champion CEOs in Champion League I. In column (3), all predecessors in the voluntary turnover sample are ranked based on the average ranking (AVG RANKING2) of the four (three if any is missing) beat percentage measures (AROA2, ABHAR2, EPS Surprise2 and M&A CARs2) and grouped by terciles. Champion CEOs Measure Index Two is shown in column (4). The top tercile performed CEOs in column (3) and (4) are CEOs in Champion League II. Column (5) to (8) show tercile performance of their corresponding successors’.

Consistent with the findings in Table 3.2 and 3.3, CEOs in both champion leagues have superior average rankings than bottom CEOs. On average, CEOs in champion league I (II)’s average rankings is 392 (378) ahead of bottom performed CEOs’. I employ average rankings to try to control for cyclicity and growth rates difference between predecessors and successors; and thus predecessors' average rankings for the whole sample are not significantly different from those of their successors, as seen in (17)-(21) and (19)-(23). However, I find similar results as in Table 3.2 and 3.3 that champions significantly outperform their successors (as seen in (1)-(5) and (3)-(7)) and champions' successors cannot beat their peers as much as their predecessors (as seen in top-bottom difference tests between predecessors-successors). Champions' successors outperform non-champions' successors (as seen in top-bottom difference tests between successors). Apart from providing evidence supporting hypothesis one, I also conclude growth cyclicity is not the sole reason behind Champions superior performance, suggesting that luck reversion and diverted priority also play a vital role in explaining performance deterioration after turnovers in general.

3.5 CEO and Firm Characteristics

3.5.1 Characteristics of CEOs in Champion League I

As seen from Table 3.4 and 3.5, compared with bottom performed CEOs, CEOs in both champion leagues have certain distinct CEO and firm characteristics. Table 3.4 Panel A presents characteristics of Champion CEOs' (their successors'), and those of bottom terciles performed CEOs' from Measures Index One at the fiscal years of their departure (appointment). In general, successors are nine years younger and have significantly shorter estimated tenure (around seven years) than their predecessors for both champion and bottom tercile performed CEOs. Despite less experience, successors earned higher median total compensation scaled by firm's total assets after the turnover events. The probability that successors sit on the board as chairman and act as CEO simultaneously is substantially lower than that of their predecessors', both for champions' (at 29%) and bottom performed CEOs' successors (at 20%). Compared with bottom performed CEOs, champion CEOs are more likely to be (co)founders, earn higher compensation during their tenure and still serve on the board after they stepped down as CEOs. Although there is no significant difference between champion CEOs and poorly performed CEOs in terms of chairman duality, the difference in their corresponding successors is substantial. In specific, successors of champion CEOs are less likely to be chairman of the board at the same time because champion CEOs tend to remain on the board as chairman after their successors took offices. Despite less experience regarding age, Champion CEO's successors normally earn higher compensation than bottom performed CEOs' successors. When it comes to service years in the firms before becoming CEOs, there is no distinct difference between top and bottom performed CEOs' successors.

The differences in the Top-Bottom CEO characteristics differentials between predecessors and successors are significant only for chairman duality, suggesting that the characteristics differentials between champion and bottom performed CEOs before and after turnover are similar. The only exception is that champion's successors are less likely to be chairman simultaneously.

3.5.2 Characteristics of CEOs in Champion League II

Table 3.4 Panel B presents CEO characteristics of champions and bottom CEOs' from champion league II and their successors' at the fiscal years of departure or appointment. Similarly, successors from Measures Index Two tend to be (around nine years) younger and have significantly shorter estimated tenure for both champion and bottom CEOs samples.

Champion CEOs' successors have similar compensation level as their predecessors on average whereas bottom performed CEOs' successors tend to earn substantially higher compensation scaled by firm's total assets. The probability that successors sit on the board as chairman and act as CEO simultaneously is considerably lower than that of their predecessors', 24% lower for champion CEOs' successors and 22% lower for bottom performed CEOs' successors, respectively.

Champion CEOs from Measures Index Two are more likely to serve as chairman than bottom performed CEOs during their tenure, but there is no significant difference for their successors after stepping down. Similar to champions from Measures Index One, champion CEOs defined in Measure Index Two are more likely to be (co) founders of the firms, earned higher median compensation during their tenure and are highly possible to be retained on the board after stepping down. In contrast, they tend to have more experience in terms of age and tenure compared to bottom performed CEOs. Also, champion CEOs are more likely to be replaced by insiders, which suggest these firms tend to have better succession plan beforehand. For champion CEOs' successors, they are more liable to have more years work experience in the same firms before becoming CEOs and tend to have longer tenures after taking offices. The differences of the Top-Bottom CEO characteristics differentials between predecessors and successors are significant for tenure and chairman duality, suggesting that champions' successors do not have much longer tenure than other successors as their predecessors did before the turnover. Regarding compensation, champion's successors fail to beat their peers as their champion predecessors did before turnover since the differentials in champions and bottom performed CEOs' compensation differentials are significantly negative. Successors of champions from champion league two have worked longer within the firms before promoting to CEOs.

In sum, CEO Champions are more likely to be (co) founders, earned higher compensation and still served on the board after they stepped down as CEOs. In line with this, successors of champion CEOs are less likely to be chairman of the board simultaneously because champion CEOs tend to remain on the board as chair after their successors took offices. Apart from CHAIRMAN_DUALITY, CEO characteristics differentials between champion and bottom CEOs before and after turnover are similar for champion league one. On the other hand, successors in champion league two cannot beat their peers as much as their predecessors did for tenure and compensation.

Table 3.4: CEO Characteristics Comparisons for Champions and Bottom-performed CEOs

This table compares CEO characteristics at the fiscal years of departure (appointment) for Champion CEOs (successors) from Measures Index One (in Panel A) and Measures Index Two (in Panel B), and corresponding bottom-terciles performed CEOs (successors). TENURE is CEO tenure calculated based on date become CEO and date left firm in Execucomp and hand-collected turnover date. Tenure for current successors still in office is estimated from the date they became CEO until the last day in the dataset for those who have not left office until 2012.12.31. AGE is the age of the CEO in the year of hiring (for successors) or leaving (for predecessor). COMPENSATION is the ratio of Total Compensation to the firm's total assets at the fiscal years of their departure (appointment). CHAIRMAN DUALITY (%) is an indicator variable equal to 1 if the CEO is also chairman of the BoD and zero otherwise. REMAIN_BOARD (%) is an indicator variable equal to 1 if the predecessor still served on the board after departure. FOUNDER (%) is an indicator variable equal to 1 if the predecessor is (co-) founders of the firm and zero otherwise. SERVEYEAR is the number of years that insider successors hold other managerial positions in the firms before becoming CEOs. INSIDER (%) is an indicator variable equal to 1 if the successor holds other managerial position(s) in the company for no less than one years before becoming CEOs. Mean difference tests are based on t-test, and median difference tests are based on Wilcoxon-test ***, ** and * represent significance at the 1%, 5%, and 10% level, respectively.

Panel A		Predecessor						Successor						Successor-Predecessor			
		TENURE	AGE	COMPEN SATION	CHAIRMAN DUALITY	REMAIN_ BOARD	FOUNDER	TENURE	AGE	COMPENSA TION	CHAIRMA N DUALITY	SERVE YEAR	INSIDER	TENURE	AGE	COMPENSA TION	CHAIRMAN DUALITY
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(7)-(1)	(8)-(2)	(9)-(3)	(10)-(4)
Champion	mean	13.40	60.49	3.33	85%	75%	21%	5.70	51.26	3.48	56%	11.10	77%	-7.70***	-9.23***	0.15	-29.04%***
	median	11.14	62.00	1.74	--	--	--	5.00	52.00	1.96	--	8.14	--	-6.14***	-10.00***	0.22**	--
	n	458	425	457	458	458	458	458	451	455	458	456	456				
		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(19)-(13)	(20)-(14)	(21)-(15)	(22)-(16)
Bottom	mean	12.81	61.56	2.06	87%	66%	13%	5.60	52.27	2.60	67%	10.94	74%	-7.21***	-9.29***	0.54*	-19.61%***
	median	10.09	62.00	0.87	--	--	--	4.89	52.00	0.95	--	7.27	--	-5.20***	-10.00***	0.07**	--
	n	913	849	908	913	913	913	913	902	908	913	900	900				
		(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(31)-(25)	(32)-(26)	(33)-(27)	(34)-(28)
All	mean	13.01	61.20	2.49	86%	69%	16%	5.63	51.93	2.90	63%	10.99	75%	-7.37***	-9.27***	0.41	-22.76%***
	median	10.35	62.00	1.11	--	--	--	4.93	52.00	1.27	--	7.55	--	-5.42***	-10.00***	0.16***	--
	n	1371	1274	1365	1371	1371	1371	1371	1353	1363	1371	1356	1356				
Champion- Bottom	mean	0.59	-1.06**	1.27***	-1%	9%***	8%***	0.10	-1.01***	0.88***	-11%***	0.16	4%	-0.49	0.05	-0.39	-10%***
	median	1.05***	0.00*	0.87***	--	--	--	0.11	0.00**	1.02***	--	0.87	--	-0.94*	0	0.15	--

		Panel B															
		Predecessor						Successor						Successor-Predecessor			
		TENURE	AGE	COMPEN SATION	CHAIRMAN DUALITY	REMAIN _BOARD	FOUNDER	TENURE	AGE	COMPEN SATION	CHAIRMAN DUALITY	SERVE YEAR	INSIDER	TENURE	AGE	COMPEN SATION	CHAIRMAN DUALITY
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(7)-(1)	(8)-(2)	(9)-(3)	(10)-(4)
Champion	mean	14.72	61.86	2.68	89%	76%	18%	5.89	52.06	2.51	65%	13.10	81%	-8.83***	-9.81***	-0.17	-24.24%***
	median	12.16	63.00	1.31	100%	--	0%	5.07	52.00	1.35	100%	11.09	--	-7.09***	-11.00***	0.04	--
	n	458	441	457	458	458	458	458	452	454	458	454	454	454			
		(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(19)-(13)	(20)-(14)	(21)-(15)	(22)-(16)
Bottom	mean	12.15	60.85	2.39	85%	65%	14%	5.51	51.87	3.09	63%	9.93	72%	-6.64***	-8.98***	0.70**	-22.02%***
	median	9.22	62.00	1.03	100%	--	0%	4.84	52.00	1.13	100%	6.21	--	-4.38***	-10.00***	0.09**	--
	n	913	833	908	913	913	913	913	901	909	913	902	902				
		(25)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(35)	(36)	(31)-(25)	(32)-(26)	(33)-(27)	(34)-(28)
All	mean	13.01	61.20	2.49	86%	69%	16%	5.63	51.93	2.90	63%	10.99	75%	-7.37***	-9.27***	0.41	-22.76%***
	median	10.35	62.00	1.11	--	--	--	4.93	52.00	1.27	--	7.55	--	-5.42***	-10.00***	0.16***	--
	n	1371	1274	1365	1371	1371	1371	1371	1353	1363	1371	1356	1356				
Champion- Bottom	mean	2.57***	1.01**	0.30	4%**	11%***	4%*	0.38**	0.18	-0.57*	2%	3.17***	9%***	-2.19***	-0.83	-0.87***	-2%
	median	2.94***	1.00***	0.28***	--	--	--	0.23***	0.00	0.22***	--	4.88***	--	-2.71***	-1*	-0.06**	--

3.5.3 Firm Characteristics of CEOs in Champion League I

Table 3.5 Panel A compares firm characteristics over the tenure (maximal 10 years) of champion CEOs', bottom performed CEOs' and their successors' from Measures Index One. Firms tend to have the larger size (in terms of total assets), and the lower growth rate (in terms of Market to Book ratio, Q, and growth in sales) during successors' tenure for both champion CEOs and bottom performed CEOs' sample. In specific, total assets of champion CEOs' firms on average grow 3,585 million in successors' hands, whereas those of bottom performed CEOs' firms on average grow 12,891 million in successors' hands. Compared with firms of bottom performed CEOs', champion CEOs' firms on average are substantially smaller in size in terms of total assets (10,973 million less for champion predecessors and 20,279 less for their successors). On the other hand, they have significantly higher growth rate (1.59 higher for champion predecessors and 1.05 higher for their successors in Market to Book ratio) and significantly greater firm value (1.44 higher for champion predecessors and 0.94 higher for their successors in terms of Q), especially during champion CEOs' tenure, both of which decline after their successors take offices. Although champions' firms were growing slower in successors' hand, the average growth rate of champions' firms is always significantly higher than that of bottom CEOs' firms (as seen from champion-bottom difference tests for both predecessors and successors). The difference tests of champion minus bottom for successor minus predecessor are all significant (the only exception is average Growth in sales). Compared with their predecessors' tenure, firm size (in terms of total assets) in champion successors' hands are smaller than their peers'. Champions' successors do not have as much higher growth rate than other successors as their predecessors beat their peers before the turnover.

Previous M&A literature document that one of the critical determinants of negative bidder return is the size effect of the acquirer³² (**Asquith, Bruner, and Mullins, 1983; Eckbo and Thorburn, 2000; Moeller, Schlingeman and Stulz 2004, 2005**). The size effect can be explained by **Roll³³ (1986)**'s hubris hypothesis since larger firms tend to suffer more from

³² Size effect is the abnormal returns differences between small acquirers and large acquirers. According to Moeller, Schlingeman and Stulz (2004), acquirers' returns are negatively correlated with their sizes and this negative size effect exists irrespective of the targets' organizational forms and the form of financing. Also it is robust to deal and firm characteristics, which is not reversed in the long run.

³³ By assuming strong-form market efficiency, Roll (1986) developed managerial hubris hypothesis to explain the effect of winner's curse. He supposed that, indeed, managers are willing to overpay for the targets since they believe that they can create better synergy gains than market expectations rather than the intense competitions. When it comes to the wealth effect, he predicted that the value of bidders' would probably fall and that of targets' would definitely increase, while the combined value of them might fall slightly.

managerial hubris and are more likely to overpay to their targets. Alternatively, they suggest that the adverse size effect might also be attributed to arbitrageur hypothesis proposed by **Mitchell, Pulvino, and Stafford (2004)** since merger arbitrageurs' short selling can put pressure on the stock price of the bidders paid with equity. Another possible explanation for size effect is that large firms tend to acquire public firms, the target status that typically generates negative returns for acquirers (**Fuller, Netter and Stegemoller, 2002**). In line with **Roll (1986)**'s hubris hypothesis, I find firms of top performed CEOs, who are less likely to suffer from managerial hubris and have generated better acquirer returns, tend to be significantly smaller in size, as seen from the difference tests in Assets of champion-bottom predecessors.

3.5.4 Firm Characteristics of CEOs in Champion League II

I find similar results for firms from Measures Index Two in Table 3.5 Panel B. In detail, firms are larger in size and grow slower in terms of Market to Book ratio, Q and growth in sales in successors' hand. Firms under champion predecessors' management tend to be smaller in size and grow faster, except for average growth in sales. Compared with bottom performed CEOs' successors, champion CEOs' successors manage smaller firms with higher growth rate. The differences in the Top-Bottom firm characteristics differentials between predecessors and successors only significant for total assets and mean growth in sales, suggesting that champions' successors have as higher growth rate (in terms of Market to Book ratio, Q and median growth in sales) than other successors as their predecessors beat their peers before turnover. Also, compared with that during their predecessors' tenure, firm size (in terms of total assets) in champion successors' hands are smaller than their peers.

These findings further prove that predecessors tend to manage firms at the earlier stages in their firms' life cycles, which involve more growth opportunities. Furthermore, the high growth rate tends to inevitably manifest stock returns, which reflect the growth expectations more than other measures, i.e., predecessors, in general, tend to outperform owing to the higher growth rate during predecessors' tenure. Champions and their successors have smaller size and higher growth rate than their peers before and after turnover, respectively.

Table 3.5: Firm Characteristics Comparisons for Champions and bottom-performed CEOs

This table compares firm characteristics over the tenure (maximal ten years) of CEO Champions from Measures Index One (Panel A) and Measures Index Two (Panel B), and bottom two terciles performed CEOs and their successors. ASSETS is total assets (in millions) from Compustat. Market capitalization (in millions) is the common shares outstanding multiplied by fiscal year-end stock price. The market-to-book ratio is the market value of equity over book value of equity. Q is calculated as the market value of equity plus book value of current liabilities and long-term debt divided by book value of equity plus book value of current liabilities and long-term debt. The market-to-book ratio and Q have been winsorized at 1% and 99% level. Growth in sales is the annual average growth in sales over CEOs' tenure. Difference tests are based on t-tests for means and Wilcoxon-tests for medians. ***, ** and * represent significance at the 1%, 5% and 10% level, respectively.

Panel A		Predecessor				Successor				Successor-Predecessor			
		ASSETS	MARKET TO BOOK	Q	GSALES	ASSETS	MARKET TO BOOK	Q	GSALES	ASSETS	MARKET TO BOOK	Q	GSALES
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(5)-(1)	(6)-(2)	(7)-(3)	(8)-(4)
Champion	mean	3192.23	4.22	3.49	21.77%	6777.24	3.50	2.78	11.73%	3585.01***	-0.72***	-0.71***	-10.04%***
	median	817.55	3.51	2.80	16.49%	1869.46	2.74	2.18	7.97%	1051.91***	-0.77***	-0.62***	-8.52%***
	n	458	458	458	458	458	458	458	458				
		(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(13)-(9)	(14)- (10)	(15)- (11)	(16)-(12)
Bottom	mean	14165.14	2.63	2.04	20.36%	27055.84	2.45	1.84	7.38%	12890.70***	-0.18*	-0.20***	-12.98%***
	median	1977.97	2.01	1.59	8.91%	3111.00	1.88	1.49	5.19%	1133.03***	-0.12***	-0.10***	-3.72%***
	n	913	913	913	913	913	912	911	913				
		(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(21)-(17)	(22)- (18)	(23)- (19)	(24)-(20)
all	mean	10499.50	3.16	2.52	20.83%	20281.51	2.80	2.16	8.83%	9782.01***	-0.36***	-0.37***	-0.12***
	median	1358.81	2.45	1.92	11.25%	2566.02	2.09	1.68	6.28%	1207.21***	-0.36***	-0.24***	-0.05***
	n	1371	1371	1371	1371	1371	1370	1369	1371				
Champion- Bottom	mean	-10972.91***	1.59***	1.44***	1.40%	-20278.60***	1.05***	0.94***	4.34%	-9305.69***	-0.54***	-0.5***	2.94%
	median	-1160.42***	1.51***	1.21***	7.58%***	-1241.54***	0.86***	0.69***	2.78%***	-81.12*	-0.65***	-0.52***	-4.80%***

Panel B		Predecessor				Successor				Successor-Predecessor			
		ASSETS	MARKET TO BOOK	Q	GSALES	ASSETS	MARKET TO BOOK	Q	GSALES	ASSETS	MARKET TO BOOK	Q	GSALES
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(5)-(1)	(6)-(2)	(7)-(3)	(8)-(4)
Champion	mean	5084.60	3.75	3.03	17.22%	10747.18	3.43	2.66	10.89%	5662.58***	-0.32*	-0.37***	-6.33%**
	median	1234.34	2.95	2.38	12.97%	2909.58	2.64	2.08	7.05%	1675.24***	-0.31***	-0.30***	-5.92%***
	n	458	458	458	458	458	458	458	458				
		(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(13)-(9)	(14)-(10)	(15)-(11)	(16)-(12)
Bottom	mean	13215.85	2.87	2.27	22.64%	25064.35	2.49	1.91	7.80%	11848.50**	-0.38***	-0.37***	14.84%***
	median	1516.15	2.21	1.69	10.25%	2325.35	1.89	1.51	5.48%	809.20***	-0.32***	-0.18***	-4.77%***
	n	913	913	913	913	913	912	911	913				
		(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(21)-(17)	(22)-(18)	(23)-(19)	(24)-(20)
all	mean	10499.50	3.16	2.52	20.83%	20281.51	2.80	2.16	8.83%	9782.01***	-0.36***	-0.37***	-0.12***
	median	1358.81	2.45	1.92	11.25%	2566.02	2.09	1.68	6.28%	1207.21***	-0.36***	-0.24***	-0.05***
	n	1371	1371	1371	1371	1371	1370	1369	1371				
Champion- Bottom	mean	-8131.25***	0.88***	0.75***	-5.42%*	-14317.17***	0.94***	0.75***	3.09%	-6185.92*	0.06	0	8.51%*
	median	-281.81	0.74***	0.69***	2.73%***	584.23***	0.75***	0.58***	1.57%***	866.04***	0.01	-0.11	-1.16%

3.6 Multivariate Analysis

3.6.1 Cross-sectional regressions of Operating Performance on Champions and Successors

In section 4, hypothesis one is tested in the univariate framework. In this section, the relation between firm performance and championship succession is further analysed in a multivariate framework to control for growth and cyclicity. To test hypothesis one, i.e., do successors underperform champion predecessors, and whether CEO Champions' successors generally outperform their peers, cross-sectional regressions are performed on operating performance and EPS surprise over CEO tenure (maximum ten years) around turnovers.

The tests involve four firm performance dependent variables: AROA, AROA2, EPS Surprise and EPS Surprise2. Table 3.6 reports estimates from OLS regressions where the dependent variable is AROA, and the primary explanatory variables are Champion League I dummy, successor dummy, and champion I's successor dummy. Champion League I is the 458 top tercile performed CEOs ranked by Measures Index One. Firm characteristics that have been shown in the prior literature to impact firm performance are included. The annual average natural log of inflation-adjusted³⁴ total assets (Log (Firm Assets)) over CEOs' tenure (maximum ten years) are added to control for the size effect (**Moeller, Schlingemann, and Stulz, 2004**). The natural log of years firms in operations (Log (Firm Age)), the annual average inflation-adjusted growth in sales over tenure (GSALES) and the annual average Market-to-Book ratio (MTB) are included to control for growth and cyclicity. Industry and year fixed effects are included in all regressions.

Both predecessors and successors around turnover are included in the specification (1), which is taken to the next step by adding four additional specifications. In detail, in regression (2) all predecessors before turnovers are included; whereas in regression (3), all successors after turnovers are included. CEO Champions' successors and top successors, who are defined in the same way as champion predecessors, are further included in the specification (4). Finally, champion CEOs and their corresponding successors are included in the specification (5). The dummy variables of interest are Champions and their successors in the specification (1), CEO Champions in the specification (2) and CEO Champions' successors in specifications (1) and

³⁴ In specific, proportionate increase in total assets between 1980 and 2012 is calculated as CPI_{2012}/CPI_{1980} . Real Total Assets in 2012 million dollar equal to nominal total assets in 1980 multiple by CPI_{2012}/CPI_{1980} . The annual CPI Data are from Bob Shiller's Web site (www.irrationalexuberance.com/index.htm). Across all specifications, control variables reported in dollars have been adjusted for inflation. 1982-2011 dollars were rebased to 2012 dollars to ensure they reflect the same value. There is no need to adjust for market to book ratio since the denominator's and nominator's dollar value can cancel off.

(3), and successors in specifications (1), (4) and (5), respectively. Firm characteristics are included in all specifications. All specifications of the regression model include the year and industry dummies to control for associated fixed effects on championship and succession related to the industry- and time-clustering firm performance. All CEOs in the voluntary turnover sample are included in the specification (1). It reports that successor dummy is significantly and negatively related to AROA, which indicates that successors, in general, underperform predecessors after controlling for firm cyclical and growth. This result shows that growth cyclicality is not the only reason for declining successor performance after voluntary turnover. Luck reversion and priority diversion may also contribute to the deterioration.

In the univariate framework, successors are not successful in beating their peers, compared to their predecessors. In contrast, I find strong results supporting successful replacement in the regression frame. In specific, after controlling for firm cyclicality and growth (Firm Age, Growth in Sales and MTB), the coefficient for champions in the specification (2) and the coefficient for champions' successors in the specification (3) in explaining the AROA over their tenure are very close. Champions' successors outperform the rest of the post-turnover CEOs (as seen from the 0.0602 coefficient in specification 3) by almost as much CEO Champions outperform the rest of the pre-turnover CEOs (as seen from the 0.0688 coefficient in specification 3). In that sense, champions' successors tend to be as successful as their predecessors and CEO replacements seem to be to some extent at least successful. Thus hypothesis 1 is supported. Top 458 performed successors outperformed top 458 performed predecessor in the specification (4), which may result from luck reversion of the bottom performed predecessors; whereas successors underperform predecessors in general, suggesting that successors' performance distribution has heavy tails and frequent deviations. In specification (5), champions did not significantly outperform their corresponding successors in terms of operating performance. Thus, hypothesis 1 is further supported.

Table 3.7 includes the same variables and test the same hypothesis for CEOs in Champion League II. Specification (1) shows similar results that successors tend to underperform in general as the coefficient estimate is statistically negative, but top successors outperform champion CEOs in the specification (4). As shown from the specification (5), there is no significant performance difference between champions and their successors after controlling for firm growth and cycle, suggesting that champions' successors from Champion League II are as successful in terms of operating performance. Champions' successors in Champion

League II outperform the rest of the post-turnover CEOs (as seen from the 0.0437 coefficient in specification 2) by almost as much Champions outperform the rest of the pre-turnover CEOs (as seen from the 0.0397 coefficient in specification 3). Thus hypothesis 1 is further supported for CEO sample in Champion League II. The hypothesis is further tested using AROA2 for Champion League I, and II and results are presented in Table 3.8. The main explanatory variables in specifications (1)-(5) are Successor dummy, Champion League I and their successors' dummy; whereas specifications (6)-(10) employed the same main explanatory variables for Champion League II. The corresponding coefficient estimates in specifications (2) and (3), (7) and (8) are all positive and statistically significant at the 1% level, suggesting that champions and their successors outperform their peers in general. Consistent with the results from the difference tests, champions' successors seem not as successful as their champion predecessors in beating their peers because the coefficient estimates in (3) and (8) are lower than those in (2) and (7). Besides, the coefficient estimates of successor dummy in specifications (5) and (10) are negative and statistically significant, which also indicates champions' successors are not as high as champion predecessors. Furthermore, champions significantly outperform top successors after controlling for firm cyclical variables, year and industry fixed effects as the coefficients in specifications (4) and (9) are negative and significant at 1% level. The multivariate test results for AROA2 is consistent with its univariate test results. AROA2 measures how many times CEOs generate positive returns over their tenure thus is uncorrelated to growth cyclicity. Although champions' successors cannot beat their peers as much as their predecessors, they still outperform other successors. Hypothesis one is thus partially supported.

Table 3.6: Regressions of AROA on Champions and Successors for Champion League I

This table reports coefficients from cross-sectional regressions of AROA on Champion League I dummy, successor dummy, and champion I's successor dummy. AROA is the average of median industry-adjusted ROA over ten years or tenure if CEO tenure is less than ten years. Champion League I is the 458 top tercile performed CEOs ranked by Measures Index One. Champion I dummy in the specification (1) is a dummy variable equals to 1 if the CEO is one of the Champions or their successors ranked by Measures Index One, 0 otherwise. Champion I in the specification (2) is a dummy variable equals to 1 if the predecessor is one of the top-tercile performed CEOs ranked by Measures Index One, 0 otherwise. Champion I's successor is a dummy variable equals to 1 if the incoming CEO is champion CEO's successor, 0 otherwise. Successor dummy is a dummy variable equals to 1 if the CEO is a successor, 0 otherwise. For the control variables, Log (Firm Age) is the natural log of the number of year's firms in operations from Compustat. Log (Firm Assets) is the annual average natural log of inflation-adjusted Total Assets over predecessors' and successors' tenure (max ten years) around turnover from Compustat. GSALES is the annual average inflation-adjusted growth in sales over predecessors' and successors' tenure (max ten years) around turnover from Compustat. MTB is the annual average market value of equity over book value of equity over predecessors' and successors' tenure (max ten years) around turnover from Compustat. Industry and year fixed effects are included in all regressions. N is the number of observations and Adj. R² is the adjusted R-square. P-values are reported below regression estimates and are calculated using heteroscedasticity- and clustered-consistent standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Y=AROA	(1)		(2)		(3)		(4)		(5)		All CEOs Pre+Post			
	All CEOs		Pre		Post		Champions & Top		Champions & Their		min	mean	median	max
	Pre+Post						successors		successors					
Intercept	-0.0341		0.0238		-0.1246	***	0.1144	***	0.0628	*				
	0.1700		0.2770		0.0010		0.0010		0.0780					
Successor=1	-0.0087	**					0.0144	***	-0.0011		0	0.5	0.5	1
	0.0160						0.0050		0.8410					
Champion I=1	0.0687	***	0.0688	***							0	0.33	0	1
	0.0000		0.0000											
Champion I's Successor	-0.0070				0.0602	***					0	0.17	0	1
	0.2140				0.0000									
Log (Firm Age)	0.0072		0.0073		0.0092		0.0037		0.0193	**	2.08	3.52	3.61	4.16
	0.1800		0.2050		0.1650		0.6470		0.0220					
Log (Firm Assets)	0.0051	**	-0.0014		0.0108	***	-0.0049	*	-0.0082	***	1.52	7.89	7.76	14.53
	0.0500		0.4960		0.0060		0.0810		0.0050					
GSALES	-0.0224	***	-0.0256	***	-0.0197		-0.0428	**	-0.0064	*	-0.94	0.12	0.06	18.71
	0.0000		0.0000		0.2380		0.0420		0.0550					
MTB	0.0150	***	0.0153	***	0.0140	***	0.0161	***	0.0189	***	0.00	2.99	2.28	17.36
	0.0000		0.0000		0.0000		0.0000		0.0000					
Industry & Year FE	Y		Y		Y		Y		Y					
N	2741		1371		1370		916		916					
Adj R ²	49%		55%		48%		51%		52%					

Table 3.7: Regressions of AROA on Champions and Successors for Champion League II

This table reports the coefficients from cross-sectional regressions of AROA on Champion League II dummy, successor dummy and champion II's successor dummy. AROA is the average of median industry-adjusted ROA over ten years or the tenure if CEO tenure is less than ten years. Champion League II is the 458 top tercile performed CEOs ranked by Measure Index Two. Champion II dummy in the specification (1) is a dummy variable equals to 1 if the CEO is one of the Champions or their successors ranked by Measures Index Two, 0 otherwise. Champion II in the specification (2) is a dummy variable equals to 1 if the predecessor is one of the top-tercile performed CEOs ranked by Measures Index Two, 0 otherwise. Champion II's successor is a dummy variable equals to 1 if the incoming CEO is champion CEO's successor, 0 otherwise. Successor dummy is a dummy variable equals to 1 if the CEO is a successor, 0 otherwise. Log (Firm Age) is the natural log of the number of year's firms in operations from Compustat. Log (Firm Assets) is the annual average natural log of inflation-adjusted Total Assets over predecessors' and successors' tenure (max ten years) around turnover from Compustat. GSALES is the annual average inflation-adjusted growth in sales over predecessors' and successors' tenure (max ten years) around turnover from Compustat. MTB is the annual average market value of equity over book value of equity over predecessors' and successors' tenure (max ten years) around turnover from Compustat. Industry and year fixed effects are included in all regressions. N is the number of observations and Adj. R² is the adjusted R-square. P-values are reported below regression estimates and are calculated using heteroscedasticity- and clustered-consistent standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Y=AROA	(1)	(2)	(3)	(4)	(5)	All CEOs Pre+Post			
	All CEOs Pre+Post	Pre	Post	Champions & Top successors	Champions & Their successors	min	mean	median	max
Intercept	0.0175	0.0731 ***	-0.0755 **	0.1491 ***	0.1297 ***				
	0.4700	0.0010	0.0280	0.0000	0.0000				
Successor=1	-0.0092 **			0.0136 ***	0.0014	0	0.5	0.5	1
	0.0160			0.0030	0.7710				
Champion II=1	0.0423 ***	0.0437 ***				0	0.33	0	1
	0.0000	0.0000							
Champion II's Successor	-0.0004		0.0397 ***			0	0.17	0	1
	0.9440		0.0000						
Log (Firm Age)	-0.0007	0.0008	0.0008	0.0013	0.0134 *	2.08	3.52	3.61	4.16
	0.9000	0.8930	0.9120	0.8550	0.0770				
Log (Firm Assets)	0.0036	-0.0036 *	0.0100 **	-0.0086 ***	-0.0111 ***	1.52	7.89	7.76	14.53
	0.1790	0.0990	0.0130	0.0010	0.0000				
GSALES	-0.0241 ***	-0.0279 ***	-0.0196	-0.0161	-0.0052 **	-0.94	0.12	0.06	18.71
	0.0000	0.0000	0.2720	0.5570	0.0360				
MTB	0.0164 ***	0.0174 ***	0.0149 ***	0.0188 ***	0.0189 ***	0.00	2.99	2.28	17.36
	0.0000	0.0000	0.0000	0.0000	0.0000				
Industry & Year FE	Y	Y	Y	Y	Y				
N	2741	1371	1370	915	916				
Adj R ²	46%	51%	46%	61%	59%				

Table 3.8: Regressions of AROA2 on Champions and Successors for Champion League I and II

This table reports the coefficients from cross-sectional regressions of operating performance (AROA2) on Champion League I & II dummy, successor dummy and champion I & II's successor dummy. AROA2 is the number of years where AROA is positive divided by the corresponding total number of years. Champion League I (II) is the 458 top tercile performed CEOs ranked by Measure Index (One) Two. Champion I (II) dummy in specification 1 and 6 (2 and 7) is a dummy variable equals to 1 if the CEO is one of the Champions or their successors (champion predecessors) ranked by Measure Index (One) Two, 0 otherwise. Champion I (II)'s successor is a dummy variable equals to 1 if the incoming CEO is champion CEO's successor, 0 otherwise. Successor dummy is a dummy variable equals to 1 if the CEO is a successor, 0 otherwise. Log (Firm Age) is the natural log of the number of year's firms in operations from Compustat. Log (Firm Assets) is the annual average natural log of inflation-adjusted Total Assets over predecessors' and successors' tenure (max ten years) around turnover from Compustat. GSALES is the annual average inflation-adjusted growth in sales over predecessors' and successors' tenure (max ten years) around turnover from Compustat. MTB is the annual average market value of equity over book value of equity over predecessors' and successors' tenure (max ten years) around turnover from Compustat. Industry and year fixed effects are included in all regressions. N is the number of observations and Adj. R² is the adjusted R-square. P-values are reported below regression estimates and are calculated using heteroscedasticity- and clustered-consistent standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)		(6)	(7)	(8)	(9)	(10)
Y=AROA2	All CEOs Pre+Post	Pre	Post	Champions & Top successors	Champions & Their successors	Y=AROA2	All CEOs Pre+Post	Pre	Post	Champions & Top successors	Champions & Their successors
Intercept	0.2569***	0.4302***	-0.154*	0.485***	0.4089***	Intercept	0.359***	0.5537***	-0.0671	0.8035***	0.6838***
	0.001	0	0.077	0	0		0	0	0.448	0	0
Successor=1	-0.2395***			-0.2452***	-0.3254***	Successor=1	-0.2032***			-0.2521***	-0.3812***
	0			0	0		0			0	0
Champion I=1	0.1813***	0.1721***				Champion II=1	0.2771***	0.2777***			
	0	0					0	0			
Champion I's Successor	-0.0795***		0.1062***			Champion II's Successor	-0.1746***		0.0948***		
	0		0				0		0		
Log (Firm Age)	0.0891***	0.0815***	0.1047***	0.086***	0.0872***	Log (Firm Age)	0.0708***	0.0593***	0.0903***	0.0571***	0.0739***
	0	0	0	0	0		0	0.001	0	0.001	0
Log (Firm Assets)	-0.0025	-0.0225***	0.0138**	0.0006	0.005	Log (Firm Assets)	-0.0071	-0.0284***	0.0114**	-0.0041	0.0041
	0.612	0	0.01	0.932	0.491		0.129	0	0.035	0.43	0.505
GSALES	-0.0173**	-0.0331***	0.0149	-0.0079	-0.0013	Growth in Sales	-0.0173**	-0.0327***	0.0138	-0.0011	0.0011
	0.023	0.002	0.454	0.836	0.923		0.026	0.002	0.475	0.984	0.935
MTB	0.0169***	0.0163***	0.0148***	-0.0012	0.0072**	MTB	0.0173***	0.016***	0.0156***	0.0026	0.0097***
	0	0	0	0.705	0.043		0	0	0	0.353	0.005
Industry & Year FE	Y	Y	Y	Y	Y	Industry & Year FE	Y	Y	Y	Y	Y
N	2741	1371	1370	916	916	N	2741	1371	1370	915	916
Adj R ²	33%	20%	21%	37%	41%	Adj R ²	38%	33%	21%	43%	50%

3.6.2 Cross-sectional regressions of EPS Surprise on Champions and Successors

Table B.2 and B.3 further test the first hypothesis and report estimates from OLS regressions of the EPS Surprise (EPS Surprise2) on the championship, CEO succession, and firm characteristics. Champion I (II) dummy is a dummy variable equals to 1 if the predecessor is one of the top tercile performed CEOs ranked by Measures Index One (Two). Champion I (II)'s successor is a dummy variable equals to 1 if the incoming CEO is champion CEOs' successor of champion league one (two). Successor dummy is a dummy variable equals to 1 if the CEO is a successor. After controlling for firm cyclicity, year and industry fixed effects, the coefficients of Champion I dummy are positive, and both statistically and economically significant at 1% level for specifications (1), (2), (6) and (7). Consistent with the results of the difference tests, champion CEOs have significantly superior performance than bottom performed predecessors as seen from the specifications (2) and (7).

Successors' dummy is introduced to investigate whether successors underperform their predecessors. Successors, in general, have better EPS surprise after controlling for growth and cyclicity, as seen from the coefficient estimates from specifications (1) and (6) in Table B.2 and B.3. In specific, the coefficient estimates of successor dummies are positively and significantly associated with EPS Surprise (0.0287 and 0.0207) and EPS Surprise2 (0.0423 and 0.0426) for both champion leagues, suggesting that successors tend to beat analyst forecasts to a greater degree than their predecessors. Contrary to Favaro, Karlsson and Neilson's (2015) argument that predecessors outperform their successors in general since CEO turnover tend to divert corporate priorities, I find significantly positive and significant relations of successor dummy and EPS Surprise (EPS Surprise2). This finding is valuable since EPS Surprise is the best performance measure that not directly related to firm cycles, sizes and other factors containing noises. The positive relation between EPS Surprise and successor dummy suggest that successors, in general, outperform their predecessors in terms of EPS surprise after controlling for firm cyclical. However, champions have significantly superior performance than their successors (in the specification (1), (5) and (6), (10)), indicating that champions' successors are not as successful as champions. Thus, hypothesis one is not supported in terms of EPS Surprise. However, I find similar results in Table B.3 that champions and their successors outperform their peers from the significant coefficient estimates in specifications (2), (7) and (3), (8). Although the estimates for successors (0.0250 and 0.0220) are not as high as champion predecessors (0.1294 and 0.1201), they significantly outperform their peers, suggesting hypothesis I is partially supported for EPS Surprise 2.

In sum, the findings from the multivariate analysis combined further support hypothesis one that although champions' successors underperform their predecessors, they outperform their peers. Champion's successor dummies are significantly and positively related to AROA, AROA2 and EPS Surprise2, as seen in specifications (3), (8), with the only exception of EPS Surprise. Thus, hypothesis one that champion's successors outperform other successors is partially supported.

3.6.3 Cross-sectional regressions of Successors' Z-Scores on Predecessor Legacy

To test hypothesis 2 (predecessors legacy hypothesis), in this section, I examine the relationship between the successors' and predecessors' performance using cross-sectional regressions. In specific, regressions analysis of successors' Z-score against predecessors' legacy, effective replacement and predecessors influence proxies for Measures Index One, and Two are presented in Table 3.9 and 3.10. The dependent variables are successors' measures indices' z-scores, where Measures Index One (Two) is the ranks of the four performance measures' (the four beat percentage performance measures') average rankings. Measures indices are transferred into z-scores since ranks are discrete data. After transferring into normally distributed continuous data, t statistics can be used to interpret the test results³⁵. The main independent variables are predecessors' legacy, where pre-turnover predecessors Measure Index One/Two z-scores are employed to proxy for predecessors' legacy. In the multivariate regression framework, the potential determinants of successors' performance, i.e., effective replacement, including corporate governance variables and succession plan proxies, predecessors influence proxies, and industry, year fixed effects dummies are controlled. The interaction variables PRE*REMAIN_BOARD and PRE*SAMEDATE are also included. Results from the cross-sectional regressions of the successor Measure Index One (Two) z-scores, and their predecessors' legacy are presented in Table 3.9 and 3.10.

³⁵ Ranks are not normally distributed, which are ordinal and usually form a rectangular (uniform) distribution. One of the solution is to transform the ranks into z-scores (standard normal scores) using an inverse normal function. The z-scores will be normally distributed continuous data with mean equal to zero and a standard deviation of one. In SAS, I tried both transfer ranks to z-scores and NCE (normal curve equivalence) scores, which is the standardized score with a mean of 50 and a standard deviation of 21.06. I then run regressions using both z-scores and NCE and get the same results. ZscoreSuccessors=probit (Successors' rankings/No. of CEOs); ZscorePredecessors= probit (Predecessors' rankings/ No. of CEOs)

Hypothesis 2 predicts that predecessors' legacy significantly affects successors' performance for voluntary turnover events, i.e., successors' performance relies heavily on their predecessors' performance in general. The coefficient estimates of Predecessor Legacy are statistically and economically positive and significant at 1% level after controlling for other determinants across all specifications, with the only exception in the specification (7) of Table 3.9, which is significant at 10% level. In regression (1) of Table 3.9 (3.10), after controlling for industry and year fixed effects, predecessors' legacy alone can explain 21.36% (12.97%) of successors' performance ranking z-scores. Predecessors' legacy significantly affects successors' performance across all specifications, after controlling for corporate governance, succession plan, and predecessor influence. Thus, the results are consistent with the conjecture that successors' performance ranks are mainly driven by predecessors'; and thus, predecessor legacy hypothesis is supported. In line with the view of **Khurana's (2002)** that CEO selection is amongst the most important tasks of the board of directors, I find predecessors' legacy and succession plan together have an enormous impact on successors' performance after the voluntary turnover events. This can be seen from the coefficient estimates for the interaction variable PRE*SAMEDATE, which is statistically significant at 5% and 10% level for CEOs in Champion League I and II, respectively. This finding indicates that predecessors' legacy can significantly influence successors' performance, through sound succession plan in place by the board of directors before the turnover, and adds to existing literature that succession plan plays a critical role in CEO replacement. When it comes to predecessors' influence, successors tend to outperform if their predecessor still served on the board after stepping down as CEOs since the coefficients of REMAIN_BOARD are both statistically and economically significant across all specifications in Table 3.9 and 3.10. Interestingly, predecessors' legacy does not come from their retentions on the board. Predecessors influence and their legacy affect successors' performance separately. Succession plan before turnover combined with the champion CEOs' legacy together strongly contributes to successors' superior performance.

As can be seen from the statistically and positively significant coefficient estimates of insider dummy in Table 3.10 and SERVEYEAR in both tables, the longer insider successors served in the firms before promoting to CEOs, the better the successors' performance after becoming CEOs. **Fich and Shivdasani (2006)** find that "busy boards" are less likely to dismiss poorly-performed CEOs. Interestingly, within the voluntary turnover framework, "busy boards" seems to play a crucial role in the successful succession (see coefficient estimates of the

BUSY dummy in specifications (5) and (6)). Unlike **Masulis, Wang, and Xie (2007)** who report that firms with better corporate governance tend to have better firm performance, there is no apparent link between other corporate governance variables and successors' performance for my voluntary turnover sample. Successors seem not benefit from predecessors' founder status much.

To sum up, there is continuous superior performance and no distinct reversion when successors take offices from their predecessors. Besides, predecessors' ranking is the most significant element in explaining successors' performance ranking, which is in line with my conjectures. Consequently, hypothesis 2 that predecessors' legacy significantly affects successors' performance in voluntary turnover events, in other words, successors' performance depends on their predecessors' performance is supported.

Table 3.9: Regressions of Successor Measures Index One Z-score on Predecessor Legacy

This table reports the coefficients from cross-sectional regressions of the post-turnover successors Measures Index One z-scores (POST) on predecessors' legacy (PRE), effective replacement, including corporate board quality variables, governance indices, and succession plan proxies, and predecessors influence proxies. PRE is the pre-turnover predecessor's Measures Index One z-scores. SIZE is the total number of directors sitting on the board. INDEP is the percentage of independent directors sitting on the board relative to the firm's total directors. BUSY is an indicator variable equal to 1 if more than 50% independent directors serve on three or more boards. GINDEX is the GIM index, equals the sum of 24 anti-takeover provisions following Gompers, Ishii, and Metrick (2003). EINDEX is the entrenchment index, defined as the sum of six anti-takeover provisions following Bebchuk, Cohen, and Ferrell (2005). INSIDER is an indicator variable equal to 1 if the successor holds other managerial position(s) in the firm for more than one year. SAMEDATE is an indicator variable equal to 1 if the turnover announcement dates and successors' hire announcement dates are the same, which proxies for the succession plan. SERVEYEAR is the number of years that insider successors hold other managerial positions in the firms. REMAIN_BOARD is an indicator variable equal to 1 if the predecessor still served on the board after step down. FOUNDER is an indicator variable equal to 1 if the predecessor is the founder of the firm. PRE*REMAIN_BOARD and PRE*SAMEDATE are Interaction variables. Industry and year fixed effects are included in all specifications. N is the number of observations and Adj. R² is the adjusted R-square. P-values are reported below regression estimates and are calculated using heteroscedasticity- and clustered-consistent standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Z-scores	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	POST	POST	POST	POST	POST	POST	POST
INTERCEPT	0.0703 0.7370	0.0530 0.8100	0.0022 0.9930	0.0554 0.8140	-0.0174 0.95	-0.0298 0.906	-0.0826 0.743
<u>Predecessor legacy</u>							
PRE	0.2724*** 0.0000	0.2670*** 0.0000	0.2451*** 0.0000	0.2456*** 0.0000	0.2310*** 0.0000	0.2248*** 0.0000	0.1232* 0.0660
<u>Effective replacement</u>							
Corporate Governance							
SIZE					-0.0022 0.817		
INDEP					-0.0042 0.98		
BUSY					0.1348** 0.02	0.1469** 0.011	
GINDEX						0.0076 0.445	0.0076 0.426
EINDEX			-0.0122 0.5230	-0.0103 0.5900			
<u>Succession Plan</u>							
INSIDER			0.0561 0.3860				
SAMEDATE		-0.0969 0.1930		-0.0879 0.2630			
SERVEYEAR				0.0047** 0.0360			
<u>Predecessor influence</u>							
REMAIN_BOARD		0.1252** 0.025	0.1002* 0.081	0.1137** 0.047	0.1233** 0.031		0.1152** 0.042
FOUNDER						0.1481* 0.0690	0.1238 0.104
PRE*REMAIN_BOARD						0.0158 0.793	
PRE*SAMEDATE							0.1515** 0.033
YEAR FE	Y	Y	Y	Y	Y	Y	Y
IND FE	Y	Y	Y	Y	Y	Y	Y
N	1371	1371	1237	1237	1167	1133	1251
Adj. R ²	21.36%	21.59%	22.25%	22.44%	23.08%	23.37%	22.95%

Table 3.10: Regressions of Successor Measure Index Two Zscore on Predecessor Legacy

This table reports the coefficients from cross-sectional regressions of the post-turnover successors Measure Index Two z-scores (POST) on predecessors legacy (PRE), effective replacement, including corporate board quality variables, governance indices, and succession plan proxies, and predecessors influence proxies. PRE is the pre-turnover predecessor's Measures Index Two z-scores. SIZE is the total number of directors sitting on the board. INDEP is the percentage of independent directors sitting on the board relative to the firm's total directors. BUSY is an indicator variable equal to 1 if more than 50% independent directors serve on three or more boards. GINDEX is the GIM index, equals the sum of 24 anti-takeover provisions following Gompers, Ishii, and Metrick (2003). EINDEX is the entrenchment index, defined as the sum of six anti-takeover provisions following Bebchuk, Cohen, and Ferrell (2005). INSIDER is an indicator variable equal to 1 if the successor holds other managerial position(s) in the firm for more than one year. SAMEDATE is an indicator variable equal to 1 if the turnover announcement dates and successors' hire announcement dates are the same. SERVEYEAR is the number of years that insider successors hold other managerial positions in the firms. REMAIN_BOARD is an indicator variable equal to 1 if the predecessor still served on the board after step down. FOUNDER is an indicator variable equal to 1 if the predecessor is the founder of the firm. PRE*REMAIN_BOARD and PRE*SAMEDATE are Interaction variables. Industry and year fixed effects are included in all specifications. N is the number of observations and Adj. R² is the adjusted R-square. P-values are reported below regression estimates and are calculated using heteroscedasticity- and clustered-consistent standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Z-scores	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	POST	POST	POST	POST	POST	POST	POST
INTERCEPT	0.1554 0.5170	0.0704 0.7810	0.0897 0.7380	0.1260 0.6400	-0.0611 0.851	0.1032 0.715	0.0516 0.851
Predecessor legacy							
PRE	0.2725*** 0.0000	0.2631*** 0.0000	0.2477*** 0.0000	0.2438*** 0.0000	0.2421*** 0.0000	0.2335*** 0.0000	0.1908*** 0.0000
Effective replacement							
Corporate Governance							
SIZE					0.0101 0.313		
INDEP					0.0590 0.747		
BUSY					0.2263*** 0.001		0.2160*** 0.001
GINDEX						0.0047 0.666	
EINDEX			-0.0241 0.2440	-0.0214 0.3040			
Succession Plan							
INSIDER			0.1253* 0.0630				
SAMEDATE		-0.0608 0.4280		-0.0416 0.6040			
SERVEYEAR				0.0071*** 0.0050		0.0078*** 0.0010	0.0055** 0.0320
Predecessor influence							
REMAIN_BOARD		0.1702*** 0.004	0.1316** 0.028	0.1407** 0.02	0.1625*** 0.008		0.1309** 0.032
FOUNDER						0.0353 0.6490	
PRE*REMAIN_BOARD						0.0412 0.339	
PRE*SAMEDATE							0.0744* 0.088
YEAR FE	Y	Y	Y	Y	Y	Y	Y
IND FE	Y	Y	Y	Y	Y	Y	Y
N	1371	1371	1237	1237	1167	1237	1153
Adj. R ²	12.97%	13.41%	13.45%	13.67%	13.83%	13.28%	14.04%

3.7 Analysis of the Performance Measurements Distribution

To further test the legacy hypothesis, I divide the full turnover sample into ten categories and aim at examining the performance pattern between predecessors and their corresponding successors for various performance categories. In this performance distribution difference tests, I did not distinguish between forced and voluntary turnovers as previous literature did. This tends to avoid biases due to misclassifications. Moreover, CEOs can be forced out for reasons unrelated to their performance, such as conflicts with firm culture or policy, and departures can result from bad performance without being forced out, such as poorly-performed CEOs might voluntarily retire earlier. Also, excluding forced turnovers would introduce a bias towards more successful CEOs and distort the CEO performance distribution, based on which CEOs are ranked before the turnover.

Table B.4 reports the decile performance distributions of the four measures (AROA³⁶, ABHAR³⁷, EPS Surprise³⁸ and M&A CARs³⁹) for predecessors and successors. In column 1 to 4, all predecessors in the full sample are ranked based on each of the four measures mutually exclusively. Column 5 to 8 show distributions of their corresponding successors' performance. Notably, successors follow the similar performance distribution (AROA, EPS Surprise, and M&A CARs) as their predecessors, that is, top performed predecessors tend to be replaced by top performed successors and bottom performed predecessors tend to be replaced by worst performed successors. These performances deteriorate trends are distinct for successors as move down gradually from the top decile to the bottom deciles. The only exception is the trend for ABHAR, which might result from the overvaluation or undervaluation issue involved with stock returns. Also, Stock returns tend to capture many factors and contain noises which are not related to current CEO's performance. Figures of their differences in each decile are reported in the last four columns.

³⁶ In an unreported test I also examined the difference in industry-adjusted ROA based on FF49 as the alternative measures of AROA based on 2-digit SIC code, and get similar results.

³⁷ In an unreported test I also examined the difference in BHAR based on Fama-French 25 firm size and book to market portfolios as the alternative measures for industry-adjusted BHAR based on 2-digit SIC code, and get similar results. I also calculated and compared out-of-sample universal control firm abnormal return and calendar time abnormal return method before choosing industry-adjusted BHAR as stock performance measure.

³⁸ In an unreported test I also examined the difference in EPS Surprise measures based on (actual EPS-forecasted EPS)/Price and industry-adjusted (actual EPS-forecasted EPS)/(absolute actual EPS), respectively, as the alternative measures of unadjusted EPS Surprise, and get similar results. EPS could be negative, so I take the absolute value of EPS as denominators. I also tried to exclude all the negative EPS and performed the test, which also gives similar results.

³⁹ In an unreported test I also examined the difference in investment performance based on control firm M&A CARs as the alternative measure of M&A Sum CARs, and get similar results.

Average AROA and ABHAR of all predecessors tend to be better than that of their successors. The possible reason is that CEO turnover events tend to divert corporate priorities and result in an inward focus (Favaro, Karlsson and Neilson, 2015). Top-performed predecessors significantly outperform their successors, whereas bottom-performed predecessors significantly underperform their successors. Luck reversion and growth cycle are also possible reasons leading to declining in successors' performance. Although successors underperform their champion predecessors due to luck reversion, growth cycle and divert priorities, the board are expected to find best successors available. More importantly, successors' performance depends heavily on their predecessors' performance in each decile. Thus, the legacy hypothesis is further supported.

Similar results and more distinct patterns are presented in Table B.5, where four beat percentage performance measures (AROA2, ABHAR2, EPS Surprise2 and M&A CARs2) decile tables for predecessors and successors are shown. Similar to Table B.4, successors follow the similar performance distribution (for all four measures) as their predecessors. Better performed predecessors are more likely to be replaced by better-performed successors and vice versa. As move down gradually from the top decile to the bottom deciles, the likelihood of achieving positive performance for successors decreases accordingly. For all measures, top-performed predecessors significantly outperform their successors, and firm performance tends to be better after poorly performed CEOs leave. On average, the possibility of beating industry (AROA2 and ABHAR2) for predecessors is significantly higher than that for their successors; whereas, successors are more likely to beat analyst forecasts (EPS Surprise2) than their predecessors. Thus, hypothesis two is further supported.

3.8 Conclusion

This chapter contributes to the CEO literature in the following aspects. This is the first to examine the performance of successful CEOs' successors using sample both include and exclude forced turnover events. In the univariate framework, results are consistent for each performance measure, beat performance measure and average rankings that top-performed predecessors outperform their successors on average. On the other hand, champions' successors are demonstrated to outperform non-champions' successors. The possible reasons are fourfold. Firstly, either forced or voluntary CEO turnovers could lead to shifts in top management teams, which tends to divert corporate priorities and result in an inward focus (Favaro, Karlsson and Neilson, 2015). Secondly, CEOs' luck reversion and firm growth cyclicity may also explain the performance differences. The third possible explanation for champions' superior performance is that founders make better leaders given the higher percentage of founders in CEO Champions' sample. Last but not the least, I impose no less than five years tenure for predecessors, which tends to reduce performance-induced turnovers marginally from my sample, and consequently slightly increase predecessors' performance relative to their successors'.

However, after controlling for firm growth and cyclicity in the multivariate framework, successors are demonstrated to perform as well as their champion predecessors for AROA. Thus, firm growth and cyclicity are demonstrated to be the main reason behind the deteriorating performance of champions' successors. Champions are more likely to be retained on the board and firms have sound succession plan beforehand contributes to their superior performance. The combined results suggest that Champions' successors can perform as well as their predecessors. Although champions' successors cannot sustain their predecessors' performance in the univariate framework, they tend to beat their peers as much as their champion predecessors did after controlling for growth cyclicity in the multivariate framework. Thus, CEO Champions can be successfully replaced on average since corporate board can appoint better successors available, and hypothesis one is supported.

The predecessor legacy hypothesis is tested in both univariate and multivariate frame. The predecessor's performance ranking is found to be the most significant element in explaining successor's ranking in voluntary turnover events. There are continuous superior performance and no significant performance reversion when successors take offices from champions. Thus hypothesis two is supported. The result reinforces the CEO Champion Legacy Conjecture that successors' performance is mainly driven by their predecessors' performance.

Furthermore, predecessors' legacy and succession plan together have an enormous impact on successors' performance after the voluntary turnover events from the cross-sectional regressions. I also find implications supporting CEO Champions Remaining Influence Conjecture in the multivariate analysis that predecessors' retention on the board positively and significantly contributes to their successors' performance. For CEO Champions Effective Replacement Conjecture, the only evidence from this chapter is that busy boards tend to play a key role in effective replacement in the voluntary turnover events. This is contrary to previous findings in the forced turnover studies that busy boards are less likely to dismiss underperformed CEOs. Thus, the CEO Champion Legacy Conjecture and CEO Champions Remaining Influence Conjecture may mainly explain the effective replacements.

The results from this chapter provide CEO succession literature with several implications. First, well-governed firms tend to hire better-performed CEOs and will continue to do so when they have to replace their champions. Second, champion CEOs built better firms and boards can replace them more successfully either through a good succession plan or through paving the way for internal successors. Inspired by the above findings, I am interested in whether better corporate governance, better succession plan or champion CEO's remaining power after stepping down could mitigate the performance deteriorate trend from CEO turnover events, and which factors play vital roles in determining corporate board's better replacement decisions. In the next chapter, I aim at investigating the reasons behind the results for CEO Champion sample more extensively. Hypotheses are further developed, and regression models are built to capture the essential variables in explaining the better replacement decisions.

Insiders VS. Outsiders: "Well performed firms tend to promote from within because that creates a sense of passion and engagement among the staff. If the company is fundamentally challenged, then you might need new capabilities, and the board might want to look outside for someone to transform the company."

The Best-Performing CEOs in the World 2016, Harvard Business Review

4. When do corporate board successfully replace Champion CEOs?

4.1 Introduction

Succession planning is considered to be associated with the continuous development of internal talent. To select the right successors, the board of directors needs to understand the company's strengths, weaknesses and the main factors for success (**Petrovic, 2008**); and accordingly, identify the appropriate candidate with the skill sets and capability to manage the firm's resources. Ideally, the board of directors should maintain a list of candidates and prepare them for both scheduled and unexpected CEO transitions. Besides, the outgoing CEO is responsible for coaching, mentoring potential successors and assigning challenging projects to develop candidates' new skills, in hoping that internal successors can push their predecessor's vision and continue to lead the brand in a favourable direction. Given the size limitation of the CEO labour market and certain un-transferable executive skill sets among various industries, cultural fit, most companies prefer to train and promote talents within. Familiar with their companies', insiders tend to be the first choices of boards⁴⁰. Having witnessed and evaluated insiders' performance, leadership style, and cultural fit over time, the board of directors is more confident that insiders may perform to their expectations.

Considerable evidence has shown that internal CEOs outperform outside CEOs⁴¹, which may partially because outsider CEOs are preferable when boards are dissatisfied with firm performance and intend to change operational strategy (**Brickley, 2003**). However, **Favaro, Karlsson, and Neilson (2013)** show that the percentage of outside CEO succession among the world's largest international firms has increased from 14% in 2007 to 29% in 2012. The growing tendency of hiring outsiders is partially driven by the external knowledge demands and increasing information processing required by large firms (**Hermann and Datta, 2002; Menon and Pfeffer, 2003; Magnusson and Boggs, 2006**). Furthermore, being more objective and beholden to fewer internal stakes, outsiders are more capable of instilling change and improving results, especially for underperforming firms. In 1999, John Thompson left his job at IBM to become the CEO of Symantec, a company experiencing lacklustre performance and transformed it into a standout during his 10-year tenure. On the other hand, successful companies may prefer insiders, who can bring continuity and smooth transition.

⁴⁰ Karlsson, Neilson and Webster (2007) reported that almost 80 percent successions involve internal promotion. Similarly, the sample of Sala's (2010) includes 79.1% insiders, and is used as a proxy for succession plan.

⁴¹ Furtado and Rozeff (1987) find positive relation between abnormal returns and internal CEO replacements; whereas Warner, Watts and Wruck (1988) and Huson, Malatesta and Parrino (2004) find the negative relation between stock returns and outside succession.

However, there has been much controversy regarding the association between insider/outsider CEO succession origin and firm performance; and thus, the expected sign of the coefficient of the insider/outsider replacement choice is ambiguous, especially for champion CEOs' voluntary turnover. While some scholars highlight the benefits of outside succession, others consider outsider CEO succession as a disruptive and disadvantageous event for the firm⁴². **Georgakakis and Ruigrok (2017)**⁴³ reconcile the two opposing theoretical perspectives, i.e., organisational adaptation view and organisational disruption view of succession. They document that outside CEO succession outweighs the costs when the new CEOs socio-demographically resembles incumbent executives, or possesses rich experience, or is hired by a well-performing firm operating in a munificent industry. On the other hand, replacement by insiders can either suggest good succession programs or increased managerial entrenchment. Michael C. Hawley, Gillette's president, and the chief operating officer, took office from CEO Champion Alfred M. Zeien, who was the long-term CEO of Gillette and has built the company into consumer product giant. Unfortunately, Hawley did not bring continuity to the company's success but bring disruption to company's operation. He resigned after Gillette's stock has fallen more than fifty percent during his one-and-half years' tenure. Directors of Gillette's then hire the outsider James M. Kilts, who turn around the once-great company that had lost its edge and guide Gillette re-joining the top ranks of consumer products companies. Given the conflicting predictions regarding the association between the effect of insider/outsider choice and firm performance after turnover, the successor origin decision on a successful replacement is investigated thoroughly in this chapter. I provide new evidence to management succession literature that consistent with **Georgakakis and Ruigrok (2017)**'s conclusion, i.e., outsiders tend to be the better choices for the board of directors when replacing well-performing CEOs.

In Chapter Three, I find evidence that champion successors' performance relies on their predecessors. Either CEO Champions' firms have sound governance and succession plans, or

⁴² Helmich and Brown's (1972) organizational adaptation view of succession implies that outsider CEOs possess more external knowledge and information compared to insiders. Thus, Menon and Pfeffer (2003) advocate that outsiders are better equipped to expand the resource base of the firm and promote innovation, learning, and high performance. Vancil's (1987) organizational disruption view of succession regards outside succession as a disruptive event related to costs for the firm. Scholars supporting this view argue that outsiders lack firm familiarity which, in combination with the difficulty of integrating in the incumbent top management team and organization, causes disruption to internal processes and leads to low performance (Friedman and Saul, 1991; Zhang and Rajagopalan, 2004).

⁴³ They develop an integrated multilevel framework and study 109 CEO succession events in large international firms headquartered in Switzerland, the Netherlands, Germany, and the UK over the period 2005–09. They examine the performance advantages of outside succession and conclude that successor origin should not be considered in isolation, but in interaction with multilevel characteristics.

champions' legacies or remaining influence will be the foundation of these companies they left behind, these champions can be successfully replaced on average by hiring better successors available. Inspired by the findings, this chapter aims at examining the underlying reasons for the successful replacements of these CEO Champions. Among the 295 out of 458 CEOs in both Champion Leagues, John P. Morgridge of CISCO Systems Inc. earned the top place in CEO Champion League I (No. 182 on League II). John Chamber, the successor of John P. Morgridge, is also on both lists. Similarly, he won the 2nd place on 2015 Harvard Business Review's best-performing CEOs in the world. Altera Corporations' long-term CEO Rodney Smith comes out as No.1 on champion league II (No. 21 of the League I). In last ten years during his tenure, Rodney Smith delivered positive AROA, M&A CARs (if available) each year, positive ABHAR for nine years, and beat analyst forecast EPS 8 out of 10 years. His successor still remains on both lists after the turnover⁴⁴. To identify the key factors drive their superior performance, I employ the two CEO Champion leagues constructed based on Measures Index One and Two. Aiming at investigating the main factors that affect corporate board's better replacement decisions, in this chapter, I further study the implications of the results in chapter one extensively. Regression models are built to capture the variation in performance deterioration and key variables in better replacement decisions. I am interested in whether better corporate governance, champion CEO's remaining power after stepping down, and successor origin could mitigate the performance deterioration results from CEO turnover. The same methodology is employed to calculate the eight distinct measures and construct the two champion leagues.

Previous studies examining CEO succession events did not focus particularly on successful predecessors, which might present incomplete results. For underperformed companies, better successors who successfully replaced their predecessors may not as good as other successors who took office from top-performed predecessors. These successors outperform their poorly-performed predecessors might because it was easier to exceed relatively low-performance starting point. On the other hand, it not necessary meant these successors are unsuccessful if

⁴⁴ More cases with both successful predecessors and successors include Louis V. Gerstner, Jr of International Business Machine, Ralph S. Larsen of Johnson & Johnson, Andrew S. Grove of Intel Corp, the founder of Nike Inc. Philip H. Knight and their corresponding successors, etc. On the other hand, some CEO Champions are not successfully replaced by their successors, including Jeffrey L. Bleustein of Harley Davidson Inc. and Margaret C. Whitman of EBay Inc., etc.; whereas some boards successfully replace CEO Champions by better successors, such as boards of Fossil Inc. (and Polaris Industries Inc.) who managed to find better insider (and outsider) successors than their champion predecessors. In line with Harvard Business Review's female CEO rankings, the only female CEO on their top 100 list is Margaret C. Whitman of EBay Inc., who also comes as the top female CEO in champion league I (No.38). The other two female CEOs on both champion leagues are Katherine M. Hudson of Brady Corp and Carol A. Bartz of Autodesk Inc.

they could not perform better given the firms were in a miserable financial situation, and there might be higher risk involved which make them harder to turn around. This explains why outsider executives usually require higher compensation, which is regarded as risk premium mitigating the higher chance of failure when the companies were in financial troubles. In existing literature, there is criticism of outsiders who did not perform well when the firms were in trouble while outsiders tend to require higher compensations. Interestingly, the results of this study show a negative relation between insider/outside dummy and successful replacement around turnover events, indicating that CEO Champions are more likely to be successfully replaced by outsiders, rather than insiders. I provide new evidence in this chapter that outsiders tend to perform better than insiders when the firm performance is above average, which provides new evidence to succession literature and substantially contributes to existing literature on CEO turnover.

With regards to the relation between corporate governance and firm performance, **Core, Holthausen and Larcker (1999)** and **Fich and Shivdasani (2006)**⁴⁵ argue that busy board is harmful to firm performance. In contrast, my findings suggest that busy board tend to have better capability to replace CEO Champions successfully. In line with the reputational capital view of directorships, directors serving on multiple boards are more likely to provide executives with broader experience, more visibility and commercial contacts rather than overpaying CEOs or under-monitoring. This probably results from that they tend to have more valuable experience and information while sitting on different boards simultaneously. Firms under management by champion CEOs may require less monitoring, but broader visions and strategic guide; thus, successful champions' replacement might attribute to busy boards. No statistically significant results for other corporate governance variables are identified in determining the successful replacement for my sample. Regarding predecessors' influence variables, this study finds that successful former CEOs are more likely to be reappointed to the board after stepping down and successors tend to sustain success, which is in line with **Fahlenbrach, Minton and Pan's (2011)**. For champions' founder status in affecting successful replacement, successors of champion founders' are demonstrated to have greater performance improvement than non-founders' successors, which suggests that champion founders are less likely to be entrenched as **Schwert (1985)** document.

⁴⁵ "Busy boards" are boards with a majority of independent directors serve on three or more boards. Core, Holthausen and Larcker (1999) document that busy independent directors award CEOs with excessive compensations, but in exchange for poor firm performance. Fich and Shivdasani (2006) argued that busy board is harmful to corporate governance since they spent less time monitoring and are less likely to dismiss underperformed CEOs.

The remainder of this chapter is organised as follows. Section 2 describes the hypotheses development. Section 3 presents the data and methodologies and documents the results of univariate tests. Section 4 offers multivariate analysis results while Section 5 concludes.

4.2 Research Design and Hypotheses Development

Under the assumption of **Huson et al. 's (2004)** that manager quality varies across CEOs, this chapter aims at examining the determinants of turnover-related performance changes and circumstances under which the replacements are efficient. I first consider corporate governance, i.e., the impact of monitoring mechanisms on the successful replacement. I then examine whether the new CEO promoted from within the firm or hired from outside would play a vital role in the successful replacement. I further discuss predecessors' retention and founder status in determining the successful replacement. Four hypotheses are developed accordingly and tested by the POST-PRE regressions and logistic regressions. This chapter aims at solving the following questions:

1. Will board with sound corporate governance replace CEO Champions more successfully?
2. Are CEO Champions more likely to be successfully replaced when their successors are insiders or outsiders?
3. Will newly appointed CEOs to perform better if CEO Champions were retained on the board after stepping down?
4. Are champion founders more likely to be successfully replaced?

To test the above research questions, I develop the four corresponding hypotheses as follows. Prior literature suggests that firms with better corporate governance tend to terminate poorly-performed CEOs. The sensitivity of turnover to performance increases with higher quality boards⁴⁶. **Fich and Shivdasani (2006)** find that “busy boards⁴⁷” are less likely to dismiss poorly-performed CEOs. Thus, to examine whether the higher quality board can more successfully replace champion CEOs, the percentage of independent directors, directors’ stock ownership, and “busy boards” are tested in this chapter. Also, the market for corporate control play a key role in discouraging corporate empire-building, and there is a negative relation between ATPs (Anti-Takeover Provisions) and firm value, long-term stock

⁴⁶ Jenter and Lewellen (2010) defined higher quality boards as smaller boards with more independent directors and higher directors’ stock ownership.

⁴⁷ “Busy boards” are defined as boards on which a majority of independent directors serve on three or more boards and they assume these directors will not effectively monitor.

performance, and acquisitions bidder returns⁴⁸. Accordingly, GIM Index and E-Index are also examined in the contribution to successful replacement of CEO Champions in hypothesis one.

Hypothesis 1: boards with better corporate governance are more likely to replace Champion CEOs successfully

Support: Δ (change in rankings) is associated with measures of board quality or corporate governance

Reject: Δ (change in rankings) is not associated with measures of board quality or corporate governance (where measures of board quality include GIM Index, E-Index, BUSY, INDEP, and OWNER.)

Whether insiders or outsiders make better CEOs is a topic of heated debate. Some researchers find evidence in supporting internal CEO replacements. Some criticise that outsiders tend to request higher compensations but fail to achieve better performance than insiders⁴⁹. CEOs promoted from inside tend to have stronger performance than those brought in from the outside. When it comes to generating long-term growth for firms, industry- and firm-specific knowledge is critical, suggesting that tapping insider talent for the CEO's office is a better option. On the other hand, outsiders are more capable of instilling change and improving results, especially for underperforming firms. In Harvard Business Review 2010 Top 100 CEO study, they provide evidence that troubled companies were more likely to tap outsiders as CEOs. 37% of the companies with returns at -46% or worse two years before turnover chose outsider CEOs, whereas 21% of all companies in the sample did. However, they did not find evidence of outsiders outperforming insiders when comparing the results of CEOs who took over underperforming companies. Hence, the expected sign of the coefficient of the insider/outsider replacement choice is ambiguous, especially for CEOs in outperforming firms. Replacement by insiders can either suggest good succession programs or increased managerial entrenchment. Moreover, a recent report by Strategy &⁵⁰ indicate that even an internal promotion can deteriorate shareholder values and successors tend to underperform predecessors.

⁴⁸ Gompers, Ishii, and Metrick (2001), Bebchuk and Cohen (2005), Bebchuk, Cohen, and Ferrell (2009) and Masulis, Wang and Xie (2007).

⁴⁹ Furtado and Rozeff (1987), Warner, Watts and Wruck (1988) and Huson et al. (2004); Khurana (2002).

⁵⁰ Ken Favaro, Per-Ola Karlsson and Gary Neilson, "2014 study of CEOs, governance, and success: The value of getting CEO succession right", Strategy &, April 14, 2015

Most prior research studies forced turnover sample, suggesting that outsiders are more likely to take office when companies are experiencing or suffering from some financial or operational difficulties, whereas insiders are more likely to succeed when firms are in good positions. The results thus would bias towards poor performance for outsiders. Given HBR study did not compare the results of insider and outsider CEOs who took over outperforming companies, this chapter aims at providing evidence of insiders versus outsiders for successful companies. For the champion CEOs sample in this chapter, firms involved are all superior-performed, and successors' origins are comparable accordingly. CEO Champions have already built their firms into above-average performing ones and left their legacy within the firms. Insiders have always been guided by champions, and their outlook could have been constrained to a certain extent. In this case, outsiders with broader visions and experience might bring new expertise to the successful management team and achieve superior performance (**Menon and Pfeffer, 2003**). To test this conjecture, I explore the influence of insider or outsider replacement decision on firm performance and intend to provide new evidence to succession literature. Hypothesis two is developed as follows:

Hypothesis 2: Champion CEOs are more likely to be successfully replaced when the incoming CEOs are insiders

Support: Δ (change in performance) is positively associated with insider dummy

Reject: Δ (change in performance) is negatively or not associated with insider dummy

Fahlenbrach, Minton, and Pan (2011) suggest that successful and powerful former CEOs tend to be reappointed to the board after stepping down and their firms tend to outperform. The former CEO's retention on the board is considered to be good news, and stock market reaction to succession announcements is greater, which suggests that firms should retain predecessors and not grant successors too much power to improve long-run performance (**Perry, Yao and Chandler, 2011**). **Evans, Nagarajan, and Schloetzer (2010)** document that the likelihood of retention is higher when the CEO voluntarily left, is a founder or member of founding family or succeeded by an insider. The above findings imply that champions retained on the board after stepping down are more likely to be successfully replaced and this leads to the third hypothesis.

Hypothesis 3: Boards that retained Champion CEOs after they stepping down are more likely to replace them successfully

Support: Δ (change in rankings) is positively associated with Champion CEOs' retention

Reject: Δ (change in rankings) is not or negatively associated with Champions' retention

Founders are more likely to have specific knowledge which is valuable to the firms, and they tend to perform well (**Anderson and Reeb, 2003; Palia and Ravid, 2008; Adam, Almeida and Ferreira, 2009; Fahlenbrach, 2009**). Some founders are uniquely talented and hard to replace; however, others might also become entrenched and are reluctant to step down once their performance deteriorates (**Schwert, 1985**). Inspired by the opposing arguments on firm founders, I further build the last hypothesis.

Hypothesis 4: Champion CEOs are more likely to be successfully replaced when they are founders

Support: Δ (change in rankings) positively or not associated with founder dummy

Reject: Δ (change in rankings) negatively or not associated with founder dummy

4.3 Data, Methodology and Sample Statistics

4.3.1 Data and Sample Selection

The sample of CEO Champions is from ExecuComp and includes CEO turnover events between 1992 and 2009, with the firm performance from 1982 to 2012. ExecuComp is used to identify turnover events, CEO characteristics, and compensation information. I hand-collect turnover reasons, announcement date and CEO characteristics from LexisNexis, Proxy Statement, and Businessweek. Annual industry and firm financial data, and monthly stock market data are from Compustat and CRSP. Quarterly actual EPS and the corresponding consensus median analysts' forecasted EPS immediately preceding the quarterly earnings announcement date was collected from the IBES unadjusted detail history database. Board of directors' related information is achieved from ISS Governance Services RiskMetrics database. M&A announcements and deal characteristics are derived from Thomson Financial SDC and deals are announced between 1980 and 2012. Acquirers are U.S. public firms and targets are either U.S. or non-U.S. public, private or subsidiary firms. Deal transaction value is set to no less than 1 million dollars and including only completed deals⁵¹. Acquirer's ownership of the target is required to be less than 10% before acquisition announcement and more than 50% following the deal completion. Target-to-acquirer relative size should be no less than 1%, and the targets and the bidders are different companies.

⁵¹ Spin-offs, recapitalizations, self-tenders, repurchases, minority stake purchases, acquisitions of remaining interest, exchange offers and privatizations are excluded.

4.3.2 Measures of CEO Champions and CEO Ranking Z-scores

Champion CEOs are defined as strong performers, regarding long-term performance measures AROA, ABHAR, EPS Surprise and M&A CARs, or AROA2, ABHAR2, EPS Surprise2 and M&A CARs2. For AROA, ABHAR, EPS Surprise, at least five years data should be available prior turnover to ensure continuity. CEOs with data available for at least any three of the four measures are ranked based on these eight performance measures mutually exclusively to ensure champion CEOs are not limited to those who have to initiate M&A deals during their tenure. In specific, each CEO is ranked from 1 (best) to 1371 (worst) for each metric and averaged the first four (three if anyone is missing) performance measures' (AROA, ABHAR, EPS Surprise and M&A CARs) rankings to obtain the CEO's overall ranking One, which defined as Measures Index One. **Champion League I** consists the top tercile performed CEOs from Measures Index One. Measure Index Two is generated in the same way, by which I re-rank the average ranking of the four (three if anyone is missing) beat percentage performance measures (AROA2, ABHAR2, EPS Surprise2 and M&A CARs2). **Champion League II** consists the top tercile performed CEOs from Measure Index Two. Incorporating two sets of four metrics is a balanced and robust approach: While Measures Index One's risk is skewed toward smaller companies, measure index two takes into account only how many times CEO beat their peers and thus free from firm size skewness bias. Finally, Measures Index One and Two are transferred into z-scores since ranks are discrete data. After transferring into normally distributed continuous data, t statistics can be used to interpret the results. The opposite number of z-scores are employed to ensure that larger z-scores indicate better CEOs' performance.

4.3.3 Methods

4.3.3.1 Multiple regression cross-sectional analysis

To further investigate which factors lead to superior quality replacement, successor origin, predecessor influence, and corporate governance variables are examined in the multivariate framework. The dependent variables, $\Delta Z\text{-score}$ ⁵² are the changes in z-scores of measure indices between the newly appointed CEOs and their champion predecessors, which proxy for the post-turnover ranking surprise and the degree of successful replacement. I employ

⁵² Each CEO is ranked from 1 (best) to 1371 (worst) for each performance metric, and the four (three if anyone is missing) performance metrics' rankings (AROA, ABHAR, EPS Surprise and M&A CARs) are averaged and re-ranked to obtain the Measures Index One. Measures Index One is transferred into z-scores since ranks are discrete data. After transferring into normally distributed continuous data, t statistics can be used to interpret the results.

equation (14) estimated in a nested regression form with various combinations of explanatory variables including INSIDER dummy, FOUNDER dummy, REMAIN_BOARD dummy, REMAIN_CHAIR dummy, GINDEX, EINDEK, BUSY dummy, INDEP, OWNER, ΔAGE, ΔTENURE, ΔDUALITY, ΔCOMPENSATION, ΔASSETS, ΔGSALES, and ΔMTB. The year and industry fixed effects are controlled by including the year and industry dummies in the regression analysis.

$$\Delta Zscore_i = PRE - POST = \alpha + \sum_{j=1}^k \beta_j X_{ij} + \varepsilon_i \quad i = 1 \dots N \quad (14)$$

4.3.3.2 Ordinal Logistic Regressions analysis

To access the ranks directly, I modify the binary logistic regression model to incorporate the ordinal nature of the dependent variables, the changes in predecessors' and successors' Measures Index One (Two), by defining the probabilities differently. Instead of considering the probability of an individual event, I consider the probability of that event and all events that are ordered before it. In ordinal logistic regression, the event of interest is observing a particular score or less. For the rating of judges, I model the following odds:

$$\theta_j = \text{prob}(\text{score} \leq j) / \text{prob}(\text{score} > j)$$

$$\text{Or, } \theta_j = \text{prob}(\text{score} \leq j) / (1 - \text{prob}(\text{score} \leq j)) \quad (15)$$

The ordinal logistic model for the independent variable, changes in predecessors' and successors' Measures Index One (Two) is as below.

$$\ln(\theta_j) = \alpha_j - \sum_{j=1}^{k-1} \beta X_{ij} + \varepsilon_i \quad i = 1 \dots N \quad (16)$$

Where j represents the number of turnover events, which goes from 1 to the number of categories k minus 1. There is a minus sign before the coefficients for the predictor variables so that larger coefficients indicate an association with higher scores, i.e., a positive coefficient for a dichotomous factor indicates higher scores for the first category. Each logit has its term α_j but the same coefficient β , indicating that the effect of the independent variable is the same for different logit functions. The vector of explanatory variables X_{ij} includes a set of explanatory variables: INSIDER, FOUNDER, REMAIN_BOARD, REMAIN_CHAIR, GINDEX, EINDEK, BUSY, INDEP, OWNER, ΔAGE, ΔTENURE,

Δ DUALITY, Δ COMPENSATION, Δ ASSETS, Δ GSALES and Δ MTB. The year and industry fixed effects are also controlled in the regression analysis.

4.3.3.3 Logistic Regressions analysis

To estimate the probability of successors' relative rankings to their predecessors, I formulate the estimated logistic regression equation as below. The coefficients α and β_k are determined according to a maximum likelihood approach, and it allows me to estimate the probability of the dependent variable, REPLACE (or BEAT) taking on the value 1 for given values of x_k .

$$\text{Estimate of } P(y=1|x_1, x_2, x_3, \dots, x_p) = 1 / (1 + e^{-(\alpha + \sum_k \beta_k x_k)}) \quad k = 1 \dots p \quad (17)$$

REPLACE is coded to take the value of one if successors are also ranked among the top 458 CEOs following the same ranking methodology as their champion predecessors, suggesting that successors have successfully replaced their predecessors by inheriting the championship among their peers. BEAT is coded to take the value of one if the successor who ranked among the top 458 CEOs following the same ranking methodology as champions beat predecessor' rank, suggesting that the successor has successfully replaced the champion predecessor by achieving a higher rank among the peers. Similar combinations of explanatory variables as above are included and tested.

4.3.4 Descriptive Statistics

4.3.4.1 Difference Tests between Champions and Bottom-Performed CEOs

In this section, the CEO turnover sample is partitioned into two sets of subsamples, Champion League I (top tercile performed CEOs) and corresponding bottom (terciles) performed CEOs, and Champion League II (top tercile performed CEOs) and corresponding bottom (terciles) performed CEOs. Table 4.1 compares one-year prior turnover corporate governance characteristics, succession plan and predecessor remaining influence proxies for these Champion CEOs and bottom performed CEOs. Whether successful replacements are related to the governance structure of the firm is tested using the governance index of **Gompers, Iishi, and Metrick (2003)** and the entrenchment index of **Bebchuk, Cohen, and Ferrell (2005)**. Higher levels of the governance index and the entrenchment index are indicative of firms that favour management, rather than shareholders. Statistics for Measures Index One reflect that champion CEOs' firms tend to have significantly lower GIM Index and

E-index. Compared to the considerably higher GIM and Entrench Indices of firms supervised by the bottomed performed CEOs, the typical firms managed by CEOs in Champion League I have mean governance index at 8.9 and entrenchment index at 2.29, indicating Champion CEOs' firms are more favour their shareholders rather than management. Neither apparent differences are identified in governance nor entrenchment indices between top and bottom performed CEOs for champion league II.

Comparisons between board quality of top and bottom performed CEOs are carried out on board size, the board members comprised of outsiders, and shares held by board members. Champions' firms tend to have smaller board size, fewer independent directors serve on three or more boards simultaneously and higher board of directors ownership. The median board in champion league I has nine members, with 65% outsiders, and holds approximately 1% of the shares on average. Strikingly, these firms tend to have the significantly lower proportion of independent directors, indicating that champion CEOs are not necessarily monitored by more independent board members. The lower percentage of independent directors for boards of champion CEOs is in conflict with prior research conjectures⁵³. Similar but less significant results are presented for Champion League II with the only exception that firms managed by champion CEOs tend to be supervised by a busier board with directors serve on three or more boards simultaneously. This result implies that board quality is not the reason that champions outperform their peers and these champions are not necessarily monitored by firms with better governance to deliver superior performance.

When it comes to succession plan proxies, there is no significant difference between champion CEOs and bottom performed CEOs in champion league I. In contrast, 81% successors of champion league II are insiders, which is significantly higher than successors of bottom performed CEOs (71.7%). 87% predecessors stepped down on the same day as successors' hire announcement day, suggesting that there is a sound succession plan in place before CEO turnovers for Champion League II. With regards to predecessors' remaining influence proxy, champions CEOs are more likely to be founders in both champion leagues. For both Leagues, Champions are more likely to be retained on the board, mainly as chairman, than the bottom performing CEOs.

⁵³ The literature on board independence and its relation to firm value and managerial actions is extensive. For example, Shivdasani and Yermack (1999) and Huson, Malatesta and Parrino (2004).

Table 4.1: Governance, Succession Plans, and Predecessors' Remaining Influence

This table compares corporate governance characteristics one year before turnover, succession plans, and predecessors' remaining influence proxies for the two Champion CEO samples and bottom terciles performed CEOs sample, respectively. In Panel A, GINDEX is the GIM index, equals the sum of 24 anti-takeover provisions following Gompers, Ishii, and Metrick (2003). EINDEX is the entrenchment index, defined as the sum of six anti-takeover provisions following Bebchuk, Cohen, and Ferrell (2005). SIZE is the total number of directors sitting on the board. INDEP is the percentage of independent directors sitting on the board relative to the firm's total directors. OWNER is the average stock ownership of all directors sitting on the board. BUSY is an indicator variable equal to 1 if more than 50% independent directors serve on three or more boards. In Panel B, INSIDER (%) is an indicator variable equal to 1 if the successor holds other managerial position(s) in the firm for no less than one years. SAMEDATE is an indicator variable equal to 1 if the turnover announcement dates and successors' hire announcement dates are the same. In Panel C, FOUNDER is an indicator variable equal to 1 if the predecessor is the founder of the firm. REMAIN_BOARD is an indicator variable equal to 1 if the predecessor still served on the board after step down. REMAIN_CHAIR is an indicator variable equal to 1 if the predecessor still served on the board as chairman after step down. N is the number of observations. Mean difference tests are based on t-test, and median difference tests are based on Wilcoxon-test ***, ** and * represent significance at the 1%, 5%, and 10% level, respectively.

		Champion League I			Champion League II		
		(1)	(2)	(1)-(2)	(1)	(2)	(1)-(2)
		Champion CEO	Bottom-performed CEO	Difference	Champion CEO	Bottom-performed CEO	Difference
Panel A: Corporate Governance Characteristics							
GINDEX	mean	8.90	9.47	-0.57***	9.28	9.27	0.00
	median	9.00	10.00	-1.00***	9.00	9.00	0.00
	N	422	829		426	825	
EINDEX	mean	2.29	2.45	-0.16**	2.37	2.41	-0.04
	median	2.00	2.00	0.00**	2.00	2.00	0.00
	N	422	829		426	825	
SIZE	mean	9.17	10.51	-1.34***	9.86	10.15	-0.29
	median	9.00	10.00	-1.00***	9.00	10.00	-1.00*
	N	406	761		415	752	
INDEP	mean	65.47	68.32	-2.86***	66.08	68.02	-1.94*
	median	66.67	71.43	-4.76***	66.67	71.43	-4.76**
	N	406	761		415	752	
OWNER	mean	1.08	0.74	0.34***	0.96	0.80	0.16*
	median	0.49	0.23	0.26***	0.35	0.28	0.06***
	N	406	761		415	752	
BUSY	mean	23.15	25.23	-2.08	28.19	22.47	5.72**
	N	406	761		415	752	
Panel B: Succession plan proxy							
INSIDER	mean	77.41	73.56	3.86	81.06	71.73	9.33***
	N	456	900		454	902	
SAMEDATE	mean	86.03	83.02	3	87.12	82.48	4.64**
	N	458	913		458	913	
Panel C: Predecessors' remaining influence proxy							
FOUNDER	Mean	20.96	13.14	7.82***	18.34	14.46	3.88*
	N	458	913		458	913	
REMAIN_BOARD	mean	74.89	65.72	9.17***	76.2	65.06	11.14***
	N	458	913		458	913	
REMAIN_CHAIR	mean	51.09	43.37	7.72***	52.84	42.5	10.34***
	N	458	913		458	913	

4.3.4.2 *Difference Tests of CEO Rankings between CEO Champions and their Successors*

In this section, champions and their successors' average ranks are compared in Table 4.2, in particular for successors who succeed champions' superior performance and also ranked as top performed successors.

Panel A compares average ranks of CEOs in Champion League I and their successors grouped by various CEO and board characteristics dummies. Among the 458 champions' successors, 223 are successful successors who ranked as top successors when following the same ranking method as champion predecessors. Out of the 223 successful successors, 116 beat their predecessors' ranks. In Column (1) and (2), 458 predecessors from Champion League I are partitioned into two sets of subsamples grouped by variables characteristics dummies, respectively. Columns (1), (3), (5) and (7) are the sub-sample of champions who are replaced by insiders, who are the founders, who still serve on the board after stepping down, and who are monitored by the busy board, respectively. On the other hand, columns (2), (4), (6) and (8) are the sub-sample of champion CEOs who are replaced by outsiders, who are not the founders, who leave their firms after stepping down, and who are monitored by the non-busy board, respectively.

Outsiders' champion predecessors (as shown in column (2)) have significantly higher mean and median ranks than insiders' predecessors (in column (1)). Similarly, CEOs appointed from the external labour market in the top successor sample (in column (4)) also have significantly higher average ranks than CEOs who are promoted from within their firms (in column (3)). The results suggest that champions are more likely to be successfully replaced by outsiders rather than insiders. Similar results are found for top successors who beat their predecessors' performance in the difference test (7)-(8), which further suggests that champions are more likely to be beaten by outsiders. These results combined suggest that CEO Champions are more likely to be successfully replaced by outsiders rather than insiders. In contrary to prior findings in successor origin studies for the forced turnover sample, hypothesis two that champions are more likely to be successfully replaced when the incoming CEOs are insiders is rejected. In line with **Helmich and Brown's (1972)** and **Menon and Pfeffer's (2003)** organisational adaptation view of succession, this novel finding provides valuable implication consistent with **Georgakakis and Ruigrok's (2017)** that outsiders tend to be better options for the board of directors when replacing successful CEOs.

When it comes to predecessors' founder status, the average ranks of founder predecessors are significantly higher, whereas neither significant results are identified for top successors nor successors who beat champions. I find similar results for champions who stay on the board that their average ranks are significantly higher, but not for their top-performed successors. Neither significant results are found for champions and their top successors with regards to busy board dummy. The above univariate test results suggest that founders and those CEOs who retained on the board after stepping down tend to have better performance among champions, but their successors do not show superior performance compared with their peers. Thus, the univariate test results do not provide evidence supporting hypotheses three and four that boards that retained champions are more likely to replace them successfully, and champion predecessors are more likely to be successfully replaced when they are founders. Thus, hypotheses three and four are rejected in the univariate framework.

In panel B, CEO average ranks of predecessors in Champion League II and their successors in terms of CEO and board characteristics dummies are compared. Out of the 458 champions' successors, 205 are successful successors, and 96 beat their predecessors' rank. For top successors' insider/ outsider status in successful replacement, no significant results from the univariate test are identified for Champion League II sample. Similarly, champions' founder status and their destination after stepping down both lose significance level for Champion League II sample and their successors do not rank significantly higher than their peers. In contrast, I find significant results in busy board dummy for top successors in Champion League II sample, suggesting that successors monitored by busy boards are more likely to be successful in replacing their champions. In contrary to Fich and Shivdasani (2006)'s finding that busy boards are less likely to dismiss poorly-performed CEOs, the findings for successful predecessors provide evidence in supporting busy boards are more likely to hire or support successors with superior performance when replacing champions. Thus, hypothesis 1 that boards with better corporate governance are more likely to replace champions successfully is partially supported. Hypotheses two, three and four are rejected in the univariate framework for Champion League II sample since there is no statistically significant difference in successors' average rankings for successor origin, predecessors founder status, and destination subgroups. In sum, hypothesis one is partially supported; whereas hypotheses two, three and four are rejected in the univariate framework.

Table 4.2: CEO Average Ranks Comparisons between Champions and their successors

This table compares CEO average ranks of champions' and their successors' subsamples regarding CEO insider, founder, remain on the board and busy dummies. In Panel A, Column (1) is the sub-sample of CEOs in Champion League I who are replaced by insiders (who are the founders/ who still serve on the board after stepping down/ who are monitored by the busy board). On the other hand, column (2) is the sub-sample of champion CEOs who are replaced by outsiders/ who are not the founders/ who leave their firms after stepping down/ who are monitored by the non-busy board). Column (3) and (4) are the sub-sample of champions' successors who are also top performed successors while column (5) and (6) are the sub-sample of champions' successors who are not ranked as top successors. Column (7) and (8) are the sub-sample of champions' successors who beat their predecessors' ranks. The same variables are tested in panel B for champion league II. N is the number of observations. Mean difference tests are based on t-test, and median difference tests are based on Wilcoxon-test ***, ** and * represent significance at the 1%, 5%, and 10% level, respectively.

Panel A: CEO Average Ranks for Champion League I

		Champion Predecessor (N=458)			Champion's Successor (N=458)						Top Successors beat PRE (N=116/223)		
					Top Successor (N=223)			Non-Top Successors (N=235)					
		(1) Y	(2) N	(1)-(2) Difference	(3) Y	(4) N	(3)-(4) Difference	(5) Y	(6) N	(5)-(6) Difference	(7) Y	(8) N	(7)-(8) Difference
INSIDER	mean	235.83	207.83	28.00*	227.13	180.02	47.11**	798.06	846.04	-47.98	162.85	102.20	60.65***
	median	239.00	189.00	50.00**	213.00	128.00	85.00***	769.00	758.50	10.50	146.00	93.00	53.00***
	N	353.00	103.00		174.00	49.00		179.00	54.00		91.00	25.00	
FOUNDER	mean	203.71	236.34	-32.63**	223.02	214.83	8.19	808.35	808.41	-0.06	157.43	148.08	9.34
	median	180.50	240.50	-60.00**	205.00	197.00	8.00	752.00	771.00	-19.00	136.00	135.00	1.00
	N	96.00	362.00		53.00	170.00		43.00	192.00		21.00	95.00	
REMAIN_BOARD	mean	221.10	254.54	-33.43**	222.94	194.31	28.62	781.96	874.70	-92.74***	147.52	156.23	-8.71
	median	217.00	265.00	-48.00***	212.00	166.50	45.50*	721.50	837.00	-115.50***	133.50	144.50	-11.00
	N	343.00	115.00		175.00	48.00		168.00	67.00		86.00	30.00	
Busy	mean	236.09	231.27	4.82	210.69	226.10	-15.41	723.57	824.58	-101.02**	152.04	153.19	-1.16
	median	237.00	235.00	2.00	175.00	215.00	-40.00	679.00	786.00	-107.00***	144.00	135.50	8.50
	N	94.00	312.00		48.00	145.00		46.00	167.00		28.00	72.00	

Panel B: CEO Average Ranks for Champion League II

		Champion Predecessor (N=458)			Champion's Successor (N=458)						Top Successors beat PRE (N=96/205)		
					Top Successor (N=205)			Non-Top Successors (N=253)			(7) Y	(8) N	(7)-(8) Difference
		(1) Y	(2) N	(1)-(2) Difference	(3) Y	(4) N	(3)-(4) Difference	(5) Y	(6) N	(5)-(6) Difference			
INSIDER	mean	226.83	241.86	-15.03	206.40	215.56	-9.16	828.60	925.43	-96.83**	131.53	119.25	12.28
	median	224.50	261.50	-37.00	192.00	187.00	5.00	792.00	928.00	-136.00**	101.50	97.50	4.00
	N	368.00	86.00		165.00	39.00		203.00	47.00		76.00	20.00	
FOUNDER	mean	222.88	230.99	-8.11	236.35	201.16	35.19	847.93	849.22	-1.29	121.50	130.24	-8.74
	median	236.50	229.50	7.00	268.50	181.00	87.50*	884.50	819.00	65.50	64.50	107.50	-43.00
	N	84.00	374.00		40.00	165.00		44.00	209.00		14.00	82.00	
REMAIN_BOARD	mean	229.38	229.89	-0.51	204.54	222.90	-18.36	837.27	879.67	-42.40	129.15	128.06	1.09
	median	226.00	240.00	-14.00	184.50	230.00	-45.50	792.00	881.50	-89.50	101.50	98.00	3.50
	N	349.00	109.00		166.00	39.00		183.00	70.00		80.00	16.00	
Busy	mean	243.75	225.75	18.00	181.26	220.87	-39.60*	819.33	853.00	-33.67	101.74	138.15	-36.41
	median	242.00	225.00	17.00	154.00	212.50	-58.50**	743.50	869.50	-126.00	83.00	94.00	-11.00*
	N	117.00	298.00		57.00	128.00		60.00	170.00		27.00	61.00	

4.4 Multivariate Analysis

4.4.1 Regressions of the Changes in Measures Indices Z-scores

To further investigate which factors lead to superior quality replacement, successor origin, predecessor influence, and corporate governance variables are examined in the multivariate framework in this section. CEO and firm characteristics are included as control variables. **Murphy and Zimmerman (1993)** and **Weisbach (1988)** have documented a strong relation between CEO turnover and CEO age; thus, change in CEO age is included as a control variable. Change in CEO tenure is also included following **Dikolli et al. (2014)**'s findings that CEO tenure associated with superior past performance. The dependent variables are the changes in z-scores of measure indices between the newly appointed CEOs and their champion predecessors. Table 4.3 reports the regression results of the changes in Champion League I z-scores on successor origin, predecessors influence, and corporate governance proxies. CEOs in Champion League I and their successors are ranked from 1 to 458 with decreasing Z-scores. The dependent variable predecessor's minus successor's z-score proxies for the post-turnover ranking surprise and the degree of successful replacement⁵⁴. The year and industry fixed effects are controlled by including the year and industry dummies in the regression analysis.

Table 4.3 presents regression analysis of changes in Measures Index One Z-scores around turnover on Successor Origin, Predecessor influence, Corporate Governance and other control variables for Champion League I. Consistent with findings in the univariate analysis, successor origin insider dummy significantly and negatively contribute to the successful replacements. Unlike most prior studies on forced turnovers implied, the novel findings suggest that champion CEOs are more likely to be successfully replaced when hiring outsiders rather than insiders. In contrary to the conclusions in the univariate analysis, the significant and positive relations between FOUNDER dummy and ΔZ -scores across all specifications provide consistent evidence of predecessors' influence in determining better replacements. Founders have a substantially profound impact on firms' performance, and their spirits are vital to firms' future superior performance. Champion founders are less likely to be entrenched founders, and successors of these champion founders are more likely to replace their predecessors successfully.

⁵⁴ For example, predecessors with 30th ranking may have the z-score of -2, and his/her successors ranked 350th may have the z-score of 2, so the changes in z-scores is -4. Predecessors with 400th ranking may have the z-score of 2.5, and his/her successors ranked 100th may have the z-score of -1.5, so the changes in z-scores is 4. Given all predecessors are CEO Champions, the higher the changes in Pre-Post Z-scores, the better the successors are, suggesting better replacements.

Besides, **Fahlenbrach, Minton, and Pan (2011)** provide evidence that firm performance is affected by successful former CEOs' retention on the board; thus, the indicator variable `REMAIN_BOARD` is added, which equals to one if the predecessor still served on the board after step down and zero otherwise. The coefficient of `REMAIN_BOARD` is significantly positive in the specification (2) but loses its significance in the specification (4), which partially support that successors are more likely to sustain champion' performance if the predecessors remain on the board.

Regression estimates for the impact of corporate governance on the replacement, however, are mixed and inconclusive. Most variables are irrelevant to superior performed firms' successful replacements given the statistically insignificant coefficients across regressions, with the only exception that the coefficient (-0.0619) of E-index in the regression (3) is negative and significant. This is in line with **Bebchuk, Cohen, and Ferrell (2005)** and provides partial support for hypothesis one that better corporate governance in explaining successful replacements. However, the coefficient estimate for `INDEP` and `OWNER` dummy is insignificant, which is in line with the implication of previous studies. **Demsetz and Lehn (1985)** and **Demsetz and Villalonga (2001)** propose that there is no systematic relation cross-sectionally between ownership structure and firm performance since the difference in the optimal structure across firms lead to various ownership structure. **Agrawal and Knoeber (1996)** distinguish between agency control mechanisms decided internally, i.e., insider shareholdings and the proportion of outside directors on the board, and decided by outsiders, i.e., institutional shareholdings. They argue that firms choose the levels of internally decided mechanisms to equate their marginal costs and benefits to maximise firm value; consequently, cross-sectional variation in firm performance should not be related to the internally decided mechanisms. Thus, my finding is in support of their implication that performance improvements following CEO turnovers should be unrelated to internally decided control mechanisms, `INDEP` and `OWNER` dummy.

The only significant corporate governance variable across specifications is the `BUSY` dummy, which positively associates with ΔZ -scores in all regressions. **Fich and Shivdasani (2006)** suggest that busy board is harmful to corporate governance since they are less likely to dismiss underperformed CEOs. **Core, Holthausen, and Larcker (1999)** also find evidence that busy independent directors tend to overpay CEOs and result in weaker firm performance. In contrast, my findings provide supporting evidence for the reputational capital view of directorships that independent directors serving on various boards simultaneously not

necessarily signals less monitoring and poor corporate governance. These directors may expose to broader areas and gain more valuable and professional experience when they are sitting on different boards, which can, in turn, guide each board's management. Thus, a busy board with more independent directors sitting on various boards simultaneously tend to have better capability to replace champion CEOs successfully.

To my knowledge, there is no firm performance related literature used firms' average performance rankings or rankings' z-scores as dependent variables in regression analysis. Thus, several main variables proven to drive firm performance are controlled, and results are consistent with the prior literature (**Malmendier and Tate⁵⁵, 2009**). In specific, I control for the changes in CEO experience characteristics age and tenure, which have been extensively shown in past literature to influence firm performance. Additionally, I control for the changes in CEO duality, which is a dummy variable equals to 1 if CEO also served as chairman of a firm's board of directors and 0 otherwise, so as to account for the additional authority afforded those CEOs who control both the firm's officers and directors (**Core et al., 1999**). Changes in CEO compensation, which is the ratio of total compensation to the firm's total assets at the fiscal years of their departure (appointment), is also controlled. Changes in firm characteristics that have been shown in the prior literature to impact firm performance are also added to the regression model, namely, size, which is the annual average ln (total assets), annual average growth in sales and annual average market-to-book over predecessors' or successors' tenure. Evidence from regression models documented in the table show support for the positive and significant relation between Δ DUALITY, Δ COMPENSATION, Δ MTB and improvement in subsequent firm performance.

To summarise, the results show that champion CEO's remaining influence and successor origin play critical roles in the successful replacement. Predecessors' legacy and spirit would guide firms' future performance, which is in line with univariate test results in chapter three. Also, outsiders tend to bring fresh management and sights to firms. Consequently, hypothesis one is partially supported by busy board and EINDEX. Hypothesis two is rejected; indicating champions are more likely to be successfully replaced by outside successors; whereas hypotheses three and four are supported.

⁵⁵ Malmendier and Tate (2009) use firm characteristics (market capitalizations, B/M ratio, past return), CEO characteristics (CEO age, gender and tenure) and past performance to predict CEO awards.

Table 4.3: Regressions of Changes in Measures Index One Z-scores-Champion League I

This table reports the coefficients from the cross-sectional regressions of the predecessors' minus successors' Measures Index One z-scores around turnover on Successor Origin, Predecessor influence, Corporate Governance and other control variables for Champion League I. Each CEO is ranked from 1 (best) to 1371 (worst) for each performance metric, and the four (three if anyone is missing) performance metrics' rankings (AROA, ABHAR, EPS Surprise and M&A CARs) are averaged and re-ranked to obtain the Measures Index One. Measures Index One is transferred into z-scores since ranks are discrete data. After transferring into normally distributed continuous data, t statistics can be used to interpret the results. Champion League I consists of the top tercile (458) performed CEOs from Measures Index One. For Successor Origin variable, INSIDER (%) is an indicator variable equal to 1 if the successor holds other managerial position (s) in the firm for no less than one years. FOUNDER is an indicator variable equal to 1 if the predecessor is the founder of the firm. REMAIN_BOARD is an indicator variable equal to 1 if the predecessor still served on the board after step down. REMAIN_CHAIR is an indicator variable equal to 1 if the predecessor still served on the board as chairman after step down. GINDEX is the GIM index, equals the sum of 24 anti-takeover provisions following Gompers, Ishii, and Metrick (2003). EINDEX is the entrenchment index, defined as the sum of six anti-takeover provisions following Bebchuk, Cohen, and Ferrell (2005). BUSY is an indicator variable equal to 1 if more than 50% independent directors serve on three or more boards. INDEP is the percentage of independent directors sitting on the board relative to the firm's total directors. OWNER is the average stock ownership of all directors sitting on the board. For the CEO characteristics, Δ AGE is post-pre turnover CEO age in the year of hiring (successors) or leaving (predecessor). Δ TENURE is post-pre turnover years the CEO served as CEO in the firm. Δ DUALITY is post-pre turnover CEO also served as chairman. Δ COMPENSATION is post-pre turnover the ratio of total compensation to the firm's total assets at the fiscal years of their departure (appointment). For the firm characteristics, Δ ASSETS is the changes in annual average Ln(Assets) around turnover over predecessors' and successors' tenure (maximum ten years). Δ GSALES is the changes in annual average growth in sales around turnover over predecessors' and successors' tenure (max ten years). Δ MTB is the changes in the annual average market value of equity over book value of equity around turnover over predecessors' and successors' tenure (maximum ten years). Industry and year fixed effects are included in regressions (1) (2) (3) (6) and industry fixed effects are included in (4) (5). N is the number of observations and Adj. R² is the adjusted R-square. P-values are reported below regression estimates and are calculated using heteroscedasticity- and clustered-consistent standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Champion League I	(1)	(2)	(3)	(4)	(5)	(6)
ΔZ -score1	PRE-POST	PRE-POST	PRE-POST	PRE-POST	PRE-POST	PRE-POST
INTERCEPT	-0.5185* 0.0600	-0.3210*** 0.0033	-1.0562 0.1780	-0.6245** 0.0380	-0.3196 0.3750	-0.2648 0.5160
<u>Successor Origin</u>						
INSIDER				-0.2546* 0.0960	-0.2535* 0.0970	-0.1971 0.2180
<u>Predecessor Influence</u>						
FOUNDER	0.3221** 0.0140	0.3110** 0.0170	0.2444** 0.0500			0.3264** 0.0290
REMAIN_BOARD		0.3681** 0.0470		0.0284 0.8640		
REMAIN_CHAIR		-0.1627 0.1520				
<u>Corporate Governance</u>						
GINDEX				0.0210 0.3410	0.0256 0.2340	
EINDEX			-0.0619* 0.0680			0.0330 0.4590
BUSY				0.2306** 0.0490	0.2182* 0.0710	0.2507** 0.0500
INDEP					-0.4352 0.1790	-0.4658 0.1960
OWNER					-0.5558 0.8880	
<u>Control Variables</u>						
CEO characteristics						
Δ AGE	0.0092 0.1690	0.0093 0.1710		0.0064 0.3920	0.0061 0.4120	0.0097 0.2140
Δ TENURE	-0.0013 0.8550	-0.0015 0.8360	0.0077 0.1810	-0.0001 0.9940	0.0010 0.8830	0.0012 0.8800
Δ DUALITY	0.3087*** 0.0070	0.3218*** 0.0040	0.1492 0.1030			0.1875 0.1640
Δ COMPENSATION	0.0258** 0.0270	0.0261** 0.0240	0.0370*** 0.0000	0.0240* 0.0690	0.0227* 0.0900	0.0177 0.1830
Firm characteristics						
Δ ASSETS	-0.0296 0.7780	-0.0449 0.6680	0.0891 0.3760			-0.1157 0.3290
Δ GSALES	0.2773 0.4460	0.3171 0.3650	-0.0303 0.5910		0.1178 0.7720	0.1629 0.6630
Δ MTB	0.1054*** 0.0000	0.1070*** 0.0000	0.1007*** 0.0000	0.1160*** 0.0000	0.1143*** 0.0000	0.1236*** 0.0000
YEAR FE	Y	Y	Y	N	N	Y
IND FE	Y	Y	Y	Y	Y	Y
N	321	321	420	265	265	265
Adj R ²	17.89%	18.71%	18.91%	19.49%	19.49%	22.77%

Table 4.4 documents the regression results of changes in Measures Index Two Z-scores of Champion League I on successor origin, predecessors influence and corporate governance proxies. The main explanatory variables are INSIDER, FOUNDER, REMAIN_BOARD, GINDEX, EINDEX, BUSY, INDEP, and OWNER, respectively. Changes in CEO and firm characteristics are also controlled. Similar results are identified across all specifications that INSIDER dummy is negatively and significantly associate with ΔZ -score2, suggesting the successors of CEOs in champion league I are more likely outperform their predecessors in terms of Measure Index Two (the average rankings of the four beat percentage measurements) when they are outsiders. Founder and REMAIN_BOARD dummies have positive and statistically significant coefficients in specifications (1), (2) and (4), but are statistically insignificant in specifications (6) when further control for E-index in the analysis. There is no obvious link between corporate governance variables and performance changes. Greater differences between predecessors and successors in tenure, MTB, and percentage of CEOs served as chairmen simultaneously also lead to significantly better firm performance after successors take office.

Table 4.5 reports estimates from OLS regression of the changes in Measures Index Two Z-scores of Champion League II on successor origin, predecessors influence and corporate governance proxies. Consistently, the coefficients of Insider dummy are negative and statistically significant in all specifications. With respect to predecessor influence, the binary variables FOUNDER and REMAIN_BOARD dummies account for predecessors' positive impact on successors' performance, and their coefficient estimates confirm this relation from the statistical perspective. Moreover, the coefficient of EINDEX dummy is significantly negative in the specification (3) but loses its significance in the specification (6), which weakly suggested that better governance is one of the main factors in improving firm performance. Similar to results in Table 4.4, the greater the differences between predecessors and successors in CEO tenure, MTB, and percentage of CEOs served as chairmen simultaneously the better the firm performance after successors take office. Additionally, the firm characteristics variables changes in ASSETS and GSALES also positively associated with the performance improvement/ retain after succession events. Thus, hypothesis one is partially supported, and hypothesis two is rejected; whereas hypotheses three and four are supported. The analysis in this section is based on the performance ranks' z-scores. To further test the hypotheses, in the next section, I examine the performance ranks directly using ordinal logistic regression models.

Table 4.4: Regressions of changes in Measures Index Two Z-scores- Champion League I

This table reports coefficients from cross-sectional regressions of the predecessors' minus successors' Measures Index Two z-scores around turnover on Successor Origin, Predecessor influence, Corporate Governance and other control variables for Champion League I sample. Each CEO is ranked from 1 (best) to 1371 (worst) for each performance metric, and the four (three if anyone is missing) beat percentage performance metrics' rankings (AROA2, ABHAR2, EPS Surprise2 and M&A CARs2) are averaged and re-ranked to obtain the Measures Index Two. Measures Index Two is transferred into z-scores since ranks are discrete data. After transferring into normally distributed continuous data, t statistics can be used to interpret the results. Champion League I consists of the top tercile (458) performed CEOs from Measures Index One. For Successor Origin variable, INSIDER (%) is an indicator variable equal to 1 if the successor holds other managerial position (s) in the firm for no less than one years. FOUNDER is an indicator variable equal to 1 if the predecessor is the founder of the firm. REMAIN_BOARD is an indicator variable equal to 1 if the predecessor still served on the board after step down. REMAIN_CHAIR is an indicator variable equal to 1 if the predecessor still served on the board as chairman after step down. GINDEX is the GIM index, equals the sum of 24 anti-takeover provisions following Gompers, Ishii, and Metrick (2003). EINDEX is the entrenchment index, defined as the sum of six anti-takeover provisions following Bebchuk, Cohen, and Ferrell (2005). BUSY is an indicator variable equal to 1 if more than 50% independent directors serve on three or more boards. INDEP is the percentage of independent directors sitting on the board relative to the firm's total directors. OWNER is the average stock ownership of all directors sitting on the board. For the CEO characteristics, Δ AGE is post-pre turnover CEO age in the year of hiring (successors) or leaving (predecessor). Δ TENURE is post-pre turnover years the CEO served as CEO in the firm. Δ DUALITY is post-pre turnover CEO also served as chairman. Δ COMPENSATION is post-pre turnover the ratio of total compensation to the firm's total assets at the fiscal years of their departure (appointment). For the firm characteristics, Δ ASSETS is the changes in annual average Ln (Assets) around turnover over predecessors' and successors' tenure (maximum ten years). Δ GSALES is the changes in annual average growth in sales around turnover over predecessors' and successors' tenure (max ten years). Δ MTB is the changes in the annual average market value of equity over book value of equity around turnover over predecessors' and successors' tenure (maximum ten years). Industry and year fixed effects are included in regressions (1) (2) (3) (5) (6) and industry fixed effects are included in (4). N is the number of observations and Adj. R^2 is the adjusted R-square. P-values are reported below regression estimates and are calculated using heteroscedasticity- and clustered-consistent standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Champion League I	(1)	(2)	(3)	(4)	(5)	(6)
ΔZ-score2	PRE-POST	PRE-POST	PRE-POST	PRE-POST	PRE-POST	PRE-POST
INTERCEPT	0.2856 0.3790	0.0861 0.7990	0.3522 0.2660	0.0749 0.8010	0.4037 0.2810	0.1857 0.5600
<u>Successor Origin</u>						
INSIDER			-0.3265** 0.0220	-0.2883** 0.0410	-0.3028** 0.0460	-0.3166** 0.0350
<u>Predecessor influence</u>						
FOUNDER	0.2799* 0.0910			0.3187** 0.0420		0.2625 0.1310
REMAIN_BOARD		0.3224* 0.0870		0.4004** 0.0410		0.2894 0.1440
REMAIN_CHAIR				-0.2374* 0.0780		-0.1933 0.1680
<u>Corporate Governance</u>						
GINDEX				0.0091 0.7070		
EINDEX						0.0195 0.6860
BUSY					0.1581 0.2790	
INDEP					-0.2661 0.4960	
OWNER					3.6258 0.3510	
<u>Control Variables</u>						
CEO characteristics						
ΔAGE	0.0046 0.5180	0.0038 0.6020	0.0029 0.6810	-0.0004 0.9510	-0.0002 0.9840	0.0032 0.6680
ΔTENURE	0.0363*** 0.0000	0.0327*** 0.0000	0.0290*** 0.0000	0.0425*** 0.0000	0.0394*** 0.0000	0.0381*** 0.0000
ΔDUALITY	0.3074*** 0.0080	0.3052*** 0.0070	0.3147*** 0.0070	0.2898** 0.0120		0.3163*** 0.0070
ΔCOMPENSATION	0.0070 0.5070	0.0097 0.3430	0.0020 0.8520			0.0027 0.8130
Firm characteristics						
ΔASSETS	0.0747 0.5150	0.1033 0.3480	0.1220 0.2660			0.0349 0.7630
ΔGSALES	0.1523 0.5500	0.1585 0.5110	0.1190 0.6410	0.1793 0.4400		0.1142 0.6450
ΔMTB	0.0360 0.1080	0.0328 0.1360	0.0386* 0.0780	0.0530*** 0.0090	0.0598*** 0.0080	0.0567** 0.0110
YEAR FE	Y	Y	Y	N	Y	Y
IND FE	Y	Y	Y	Y	Y	Y
N	321	321	319	293	282	291
Adj R ²	17.93%	18.00%	18.35%	16.13%	16.33%	21.36%

Table 4.5: Regression of changes in Measures Index Two Z-scores-Champion League II

This table reports coefficients from cross-sectional regressions of the predecessors' minus successors' Measures Index Two z-scores around turnover on Successor Origin, Predecessor influence, Corporate Governance and other control variables for Champion League II sample. Each CEO is ranked from 1 (best) to 1371 (worst) for each performance metric, and the four (three if anyone is missing) beat percentage performance metrics' rankings (AROA2, ABHAR2, EPS Surprise2 and M&A CARs2) are averaged and re-ranked to obtain the Measures Index Two. Measures Index Two is transferred into z-scores since ranks are discrete data. After transferring into normally distributed continuous data, t statistics can be used to interpret the results. Champion League II is the top tercile (458) performed CEOs from Measure Index Two. For Successor Origin variable, INSIDER (%) is an indicator variable equal to 1 if the successor holds other managerial position (s) in the firm for no less than one years. FOUNDER is an indicator variable equal to 1 if the predecessor is the founder of the firm. REMAIN_BOARD is an indicator variable equal to 1 if the predecessor still served on the board after step down. REMAIN_CHAIR is an indicator variable equal to 1 if the predecessor still served on the board as chairman after step down. GINDEX is the GIM index, equals the sum of 24 anti-takeover provisions following Gompers, Ishii, and Metrick (2003). EINDEX is the entrenchment index, defined as the sum of six anti-takeover provisions following Bebchuk, Cohen, and Ferrell (2005). BUSY is an indicator variable equal to 1 if more than 50% independent directors serve on three or more boards. INDEP is the percentage of independent directors sitting on the board relative to the firm's total directors. OWNER is the average stock ownership of all directors sitting on the board. For the CEO characteristics, Δ AGE is post-pre turnover CEO age in the year of hiring (successors) or leaving (predecessor). Δ TENURE is post-pre turnover years the CEO served as CEO in the firm. Δ DUALITY is post-pre turnover CEO also served as chairman. Δ COMPENSATION is post-pre turnover the ratio of total compensation to the firm's total assets at the fiscal years of their departure (appointment). For the firm characteristics, Δ ASSETS is the changes in annual average Ln (Assets) around turnover over predecessors' and successors' tenure (maximum ten years). Δ GSALES is the changes in annual average growth in sales around turnover over predecessors' and successors' tenure (max ten years). Δ MTB is the changes in the annual average market value of equity over book value of equity around turnover over predecessors' and successors' tenure (maximum ten years). Industry and year fixed effects are included in all the specifications. N is the number of observations and Adj. R2 is the adjusted R-square. P-values are reported below regression estimates and are calculated using heteroscedasticity- and clustered-consistent standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Champion League II	(1)	(2)	(3)	(4)	(5)	(6)
ΔZ-score2	PRE-POST	PRE-POST	PRE-POST	PRE-POST	PRE-POST	PRE-POST
INTERCEPT	0.3611	-0.1834	0.4224	0.5153	0.6659**	0.7906*
	0.1170	0.7090	0.4300	0.1380	0.0350	0.0580
<u>Successor Origin</u>						
INSIDER				-0.3331*	-0.3369*	-0.3284*
				0.0590	0.0630	0.0710
<u>Predecessor influence</u>						
FOUNDER	0.3350**		0.3877***	0.3320*		0.3861**
	0.0380		0.0090	0.0620		0.0240
REMAIN_BOARD		0.2318**				
		0.0400				
REMAIN_CHAIR						0.0774
						0.5270
<u>Corporate Governance</u>						
GINDEX				0.0150		
				0.5240		
EINDEX			-0.0672*		0.0083	
			0.0950		0.8670	
BUSY				0.2146*	0.2118	
				0.0910	0.1040	
INDEP						-0.3139
						0.4860
OWNER						2.1264
						0.5330
<u>Control Variables</u>						
CEO characteristics						
Δ AGE	-0.0027			-0.0088	-0.0083	-0.0113
	0.6770			0.2210	0.2510	0.1120
Δ TENURE	0.0255***	0.0201***	0.0310***	0.0318***	0.0251***	0.0332***
	0.0010	0.0000	0.0000	0.0000	0.0010	0.0000
Δ DUALITY	0.2785**	0.2461**	0.2507**		0.1995*	0.2642**
	0.0130	0.0170	0.0300		0.0980	0.0280
Δ COMPENSATION	0.0140	0.0184	0.0174	0.0153	0.0150	0.0207
	0.3000	0.1670	0.1600	0.2420	0.2520	0.1430
Firm characteristics						
Δ ASSETS	0.3498***	0.4355***		0.4304***	0.4590***	0.3651***
	0.0010	0.0000		0.0000	0.0000	0.0030
Δ GSALES	0.8133**	-0.0756	-0.0699	1.0279***	0.9017***	1.0381***
	0.0120	0.1940	0.1880	0.0040	0.0050	0.0030
Δ MTB	0.0458**	0.0775***	0.0759***	0.0654**	0.0617**	0.0461
	0.0500	0.0000	0.0010	0.0250	0.0400	0.1200
YEAR FE	Y	Y	Y	Y	Y	Y
IND FE	Y	Y	Y	Y	Y	Y
N	333	457	425	285	285	297
Adj R ²	14.27%	15.85%	13.43%	17.88%	17.27%	17.80%

4.4.2 Ordinal Logistic Regressions of the Changes in Measures Indices

In this section, the relation between successor origin, predecessor influence, corporate governance and the changes in performance ranking is analysed in a multivariate framework using ordinal logistic regression model, to examine the ranks rather than Z-scores directly. Table 4.6 reports estimates from ordinal logistic regressions where the dependent variable is the change in predecessors' and successors' performance ranks. Successor origin is measured by INSIDER dummy; whereas FOUNDER and REMAIN_BOARD dummies proxy for predecessors influence as described previously. CEO experience characteristics and firm characteristics are included to control for the effects that have been demonstrated to affect firm performance (Malmendier and Tate, 2009; Ammann, Horsch and Oesch, 2016).

Ordinal Logistic Regressions is used here since the dependent variable ΔRank has more than two categories and the values of each category have a meaningful sequential order.⁵⁶ For ordinal categorical variables, ordinal logistic regressions overcome the drawback of the multinomial regression models that the ordering of the categories is ignored. The formula of the ordinal logistic model (a.k.a. the proportional odds model) for a single independent variable is $\ln(\theta_j) = \alpha_j - \beta X$, where j is from 1 to the number of categories minus 1. Each logit has one different term⁵⁷ but the same coefficient, indicating that the independent variable has the same effect on different logit functions (Norusis, 2012). There is a minus sign before the coefficient so that larger coefficients indicate higher scores. In Table 4.6, the coefficients for INSIDER dummy are significantly negative in specifications (4) and (5), suggesting the lower scores (ΔRank) are more likely for insiders while predecessors are more likely to be successfully replaced when their successors are outsiders. However, it loses significance after including E-index and FOUNDER dummy. When it comes to predecessor influence variables, FOUNDER dummy is positively associated with ΔRank , which indicates that higher scores (successful replacement) are more likely for the founder predecessors. Although the coefficient of the REMAIN_BOARD dummy is significantly positive in the specification (3), that of REMAIN_CHAIR is negatively related to ΔRank . Thus, successors tend to outperform when champions remain on the board, but not as chairmen (women).

⁵⁶ Ordinal Logistic Regressions are applicable when the variables of interest are ordinal and can be ranked, but the real distance between categories is unknown. Ordinal Logistic Regression estimates a score as a linear function of the independent variables' (Hamilton, 2006, p.279).

⁵⁷ The terms, a.k.a. the threshold values, are of not much interest. Similar to the intercept in a linear regression but each logit has one, values of the terms do not depend on the values of the independent variable. The terms are usually used in the predicted values' calculations.

For corporate governance variables, GINDEX and EINDEX are introduced to account for the potential contribution of better governance in successful replacement. Estimates of GINDEX and EINDEX do not demonstrate a significant relation between governance and Δ Rank. The coefficient estimates are statistically insignificant in all regression specifications, except for significantly negative coefficient of EINDEX in the specification (2). The coefficient estimates of the BUSY dummy, which takes the value one if more than 50% independent directors serve on three or more boards and zero otherwise, are significantly positive across all specifications. In line with the findings in the previous section, the positive association between BUSY dummy and Δ Rank suggests that successful replacement is more likely when independent directors are sitting on several boards at the same time. Strikingly, as INDEP increases, the likelihood of larger scores decreases. This implies that better monitor from independent directors does not necessarily ensure performance improvement after successions.

To sum up, the results from Ordinal Logistic Regressions further demonstrate that champion CEO's remaining influence and the successor origin play key roles in the successful replacement. Test results are reinforced with hypothesis 2 rejected and hypotheses 4 supported. Partial support is identified for corporate governance influence and predecessors retention; thus, hypotheses 1 and 3 are partially supported.

Table 4.6: Ordinal Logistic Regressions of changes in Measures Index One for Champion League I

This table reports the coefficients from Ordinal Logistic Regression of the changes in predecessors' and successors' Measures Index One on Successor Origin, Predecessors Influence, Corporate Governance and other control variables for Champion League I sample. Each CEO is ranked from 1 (best) to 1371 (worst) for each performance metric, and the four (three if anyone is missing) performance metrics' rankings (AROA, ABHAR, EPS Surprise and M&A CARs) are averaged and re-ranked to obtain the Measures Index One. Champion League I consists of the top tercile (458) performed CEOs from Measures Index One. For Successor Origin variable, INSIDER (%) is an indicator variable equal to 1 if the successor holds other managerial position (s) in the firm for no less than one years. FOUNDER is an indicator variable equal to 1 if the predecessor is the founder of the firm. REMAIN_BOARD is an indicator variable equal to 1 if the predecessor still served on the board after step down. REMAIN_CHAIR is an indicator variable equal to 1 if the predecessor still served on the board as chairman after step down. GINDEX is the GIM index, equals the sum of 24 anti-takeover provisions following Gompers, Ishii, and Metrick (2003). EINDEX is the entrenchment index, defined as the sum of six anti-takeover provisions following Bebchuk, Cohen, and Ferrell (2005). BUSY is an indicator variable equal to 1 if more than 50% independent directors serve on three or more boards. INDEP is the percentage of independent directors sitting on the board relative to the firm's total directors. OWNER is the average stock ownership of all directors sitting on the board. For the CEO characteristics, Δ AGE is post-pre turnover CEO age in the year of hiring (successors) or leaving (predecessor). Δ TENURE is post-pre turnover years the CEO served as CEO in the firm. Δ DUALITY is post-pre turnover CEO also served as chairman. Δ COMPENSATION is post-pre turnover the ratio of total compensation to the firm's total assets at the fiscal years of their departure (appointment). For the firm characteristics, Δ ASSETS is the changes in annual average Ln(Assets) around turnover over predecessors' and successors' tenure (maximum ten years). Δ GSALES is the changes in annual average growth in sales around turnover over predecessors' and successors' tenure (max ten years). Δ MTB is the changes in the annual average market value of equity over book value of equity around turnover over predecessors' and successors' tenure (maximum ten years). Industry and year fixed effects are included in all specifications. N is the number of observations, and Pseudo R^2 is the pseudo R-square. INTERCEPT (CUT) N is the number of Ancillary parameters to define the changes among categories. P-values are reported below regression estimates and are calculated using heteroscedasticity- and clustered-consistent standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Champion League I	(1)	(2)	(3)	(4)	(5)	(6)
ΔRANK1	PRE-POST	PRE-POST	PRE-POST	PRE-POST	PRE-POST	PRE-POST
INTERCEPT(CUT) N	286	365	392	242	242	242
<u>Successor Origin</u>						
INSIDER				-0.5647* 0.0880	-0.5820* 0.0840	-0.5178 0.1150
<u>Predecessor influence</u>						
FOUNDER	0.7576*** 0.0100	0.5441** 0.0390	0.4603* 0.0580			0.7864** 0.0230
REMAIN_BOARD			0.6097** 0.0240	-0.0884 0.8250		
REMAIN_CHAIR			-0.3598* 0.0810			
<u>Corporate Governance</u>						
GINDEX				-0.0018 0.9690	0.0057 0.9070	
EINDEX		-0.1474** 0.0320				0.0818 0.4250
BUSY				0.6605** 0.0160	0.6928** 0.0210	0.5310* 0.0680
INDEP					-1.7218** 0.0200	-1.2327* 0.0900
OWNER					-11.7372 0.2740	
<u>Control Variables</u>						
CEO characteristics						
ΔAGE	0.0191 0.1400			0.0229 0.1560	0.0237 0.1500	0.0235 0.1490
ΔTENURE	0.0039 0.8010	0.0215 0.0560	0.0130 0.2170	0.0042 0.7830	0.0056 0.7260	0.0102 0.5660
ΔDUALITY	0.7089*** 0.0040	0.3828* 0.0540	0.5485*** 0.0030			0.5530* 0.0630
ΔCOMPENSATION	0.0179 0.4140	0.0483* 0.0510	0.0419* 0.0540	0.0098 0.7200	0.0129 0.6350	0.0036 0.8950
Firm characteristics						
ΔASSETS	0.1857 0.3240	0.3891** 0.0310	0.4034** 0.0190			0.0362 0.8740
ΔGSALES	0.9158 0.3110	-0.0446 0.6170	-0.0289 0.8170		0.1982 0.8500	0.3504 0.7560
ΔMTB	0.2314*** 0.0000	0.2294*** 0.0000	0.2158*** 0.0000	0.2875*** 0.0000	0.2857*** 0.0000	0.2969*** 0.0000
YEAR FE	Y	Y	Y	Y	Y	Y
IND FE	Y	Y	Y	Y	Y	Y
N	321	420	456	265	265	265
Pseudo R ²	2.97%	2.70%	2.39%	3.53%	3.72%	4.02%

In Table 4.7 and 4.8, similar Ordinal Logistic regression results of successor origin, predecessor influence and corporate governance on the changes in performance ranking are reported for measures index two, for Champion League I and Champion League II, respectively.

The consistent negative, both statistically and economically significant, coefficient estimates for INSIDER dummy are identified across all specifications in both tables. This further suggests that outsiders are more likely to replace champions successfully and the results are robust across champion sample and performance measures. The same finding applies to FOUNDER dummy. Champion founders are significantly more likely to be successfully replaced in all specifications. Contrary to **Schwert (1985)**'s finding that some founders might be entrenched and are reluctant to step down once their performance deteriorates, champion founders are less likely to be entrenched. This unique and robust finding contributes to existing founder literature by providing evidence of founders with superior performance specifically. A similar result is presented for predecessors' retention on the board. The coefficient of the REMAIN_BOARD dummy is significantly positive in several specifications, which partially support REMAIN_BOARD dummy's association with Δ Rank.

Previous research by **Gompers, Ishii, and Metrick (2003)** and **Bebchuk, Cohen and Ferrell (2009)** show that GINDEX and EINDEX negatively affect firm performance; therefore, the indices are examined. However, the coefficients are statistically insignificant in both tables, with the only exception of EINDEX in the specification (3) of Table 4.8. BUSY dummy loses its significance level across all specifications for measures index two in both samples. CEO and firm characteristics are controlled. Different from findings in Table 4.6, Δ TENURE becomes significant across all specifications in both tables, demonstrating a significant relationship between changes in CEO tenure and Δ Rank. Furthermore, Δ GSALES also gain significance level in Table 4.8 suggesting that Δ GSALES affect Δ Rank of CEOs in Champion League II for Measures Index Two.

The robust test results in Table 4.7 and 4.8 further support hypotheses 4 and reject hypothesis 2. Test results for hypothesis 2 suggest that champion CEOs are more likely to be successfully replaced when the incoming CEOs are outsiders. Little support is identified for corporate governance influence and predecessors retention; thus, hypotheses 1 and 3 are weakly supported.

Table 4.7: Ordinal Logistic Regressions of changes in Measures Index Two for Champion League I

This table reports the coefficients from Ordinal Logistic Regression of the changes in predecessors' and successors' Measures Index Two on Successor Origin, Predecessors Influence, Corporate Governance and other control variables for Champion League I sample. Each CEO is ranked from 1 (best) to 1371 (worst) for each performance metric, and the four (three if anyone is missing) beat percentage performance metrics' rankings (AROA2, ABHAR2, EPS Surprise2 and M&A CARs2) are averaged and re-ranked to obtain the Measures Index Two. Champion League I consists of the top tercile (458) performed CEOs from Measures Index One. For Successor Origin variable, INSIDER (%) is an indicator variable equal to 1 if the successor holds other managerial position (s) in the firm for no less than one years. FOUNDER is an indicator variable equal to 1 if the predecessor is the founder of the firm. REMAIN_BOARD is an indicator variable equal to 1 if the predecessor still served on the board after step down. REMAIN_CHAIR is an indicator variable equal to 1 if the predecessor still served on the board as chairman after step down. GINDEX is the GIM index, equals the sum of 24 anti-takeover provisions following Gompers, Ishii, and Metrick (2003). EINDEX is the entrenchment index, defined as the sum of six anti-takeover provisions following Bebchuk, Cohen, and Ferrell (2005). BUSY is an indicator variable equal to 1 if more than 50% independent directors serve on three or more boards. INDEP is the percentage of independent directors sitting on the board relative to the firm's total directors. OWNER is the average stock ownership of all directors sitting on the board. For the CEO characteristics, ΔAGE is post-pre turnover CEO age in the year of hiring (successors) or leaving (predecessor). ΔTENURE is post-pre turnover years the CEO served as CEO in the firm. ΔDUALITY is post-pre turnover CEO also served as chairman. ΔCOMPENSATION is post-pre turnover the ratio of total compensation to the firm's total assets at the fiscal years of their departure (appointment). For the firm characteristics, ΔASSETS is the changes in annual average Ln(Assets) around turnover over predecessors' and successors' tenure (maximum ten years). ΔGSALES is the changes in annual average growth in sales around turnover over predecessors' and successors' tenure (max ten years). ΔMTB is the changes in the annual average market value of equity over book value of equity around turnover over predecessors' and successors' tenure (maximum ten years). Industry and year fixed effects are included in all the specifications. N is the number of observations, and Pseudo R² is the pseudo R-square. INTERCEPT (CUT) N is the number of Ancillary parameters to define the changes among categories. P-values are reported below regression estimates and are calculated using heteroscedasticity- and clustered-consistent standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Champion League I	(1)	(2)	(3)	(4)	(5)	(6)
ΔRANK2	PRE-POST	PRE-POST	PRE-POST	PRE-POST	PRE-POST	PRE-POST
INTERCEPT(CUT) N	285	285	283	260	253	259
<u>Successor Origin</u>						
INSIDER			-0.5840** 0.0280	-0.5420** 0.0350	-0.5530** 0.0440	-0.5660** 0.0450
<u>Predecessor influence</u>						
FOUNDER	0.5270* 0.0900			0.6478** 0.0190		0.5658* 0.0910
REMAIN_BOARD		0.6010* 0.0890		0.6730* 0.0620		0.5665 0.1310
REMAIN_CHAIR				-0.4787* 0.0660		-0.3931 0.1810
<u>Corporate Governance</u>						
GINDEX				0.0021 0.9610		
EINDEX						-0.0049 0.9550
BUSY					0.3187 0.2320	
INDEP					-0.3510 0.6670	
OWNER					3.6170 0.6540	
<u>Control Variables</u>						
CEO characteristics						
ΔAGE	0.0093	0.0083	0.0053	-0.0019	-0.0009	0.0049
	0.4640	0.5150	0.6830	0.8820	0.9480	0.7160
ΔTENURE	0.0698***	0.0631***	0.0571***	0.0817***	0.0799***	0.0744***
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
ΔDUALITY	0.6252***	0.5989***	0.6373***	0.5940***		0.6723***
	0.0080	0.0090	0.0040	0.0100		0.0060
ΔCOMPENSATION	0.0130	0.0189	0.0053			0.0009
	0.4460	0.2670	0.7730			0.9660
Firm characteristics						
ΔASSETS	0.2890	0.3562*	0.3719*			0.1902
	0.1590	0.0720	0.0520			0.3920
ΔGSALES	0.5868	0.5639	0.5607	0.3262		0.4181
	0.4260	0.4040	0.4460	0.5360		0.5400
ΔMTB	0.0554	0.0454	0.0581	0.0815**	0.0880**	0.0966**
	0.2120	0.3040	0.1740	0.0290	0.0340	0.0410
YEAR FE	Y	Y	Y	N	Y	Y
IND FE	Y	Y	Y	Y	Y	Y
N	321	321	319	293	282	291
Pseudo R ²	2.82%	2.83%	2.87%	2.40%	2.79%	3.42%

Table 4.8: Ordinal Logistic Regressions of changes in Measures Index Two for Champion League II

This table reports the coefficients from Ordinal Logistic Regression of the changes in predecessors' and successors' Measures Index Two on Successor Origin, Predecessors Influence, Corporate Governance and other control variables for Champion League II sample. Each CEO is ranked from 1 (best) to 1371 (worst) for each performance metric, and the four (three if anyone is missing) beat percentage performance metrics' rankings (AROA2, ABHAR2, EPS Surprise2 and M&A CARs2) are averaged and re-ranked to obtain the Measures Index Two. Champion League II is the top tercile (458) performed CEOs from Measure Index Two. For Successor Origin variable, INSIDER (%) is an indicator variable equal to 1 if the successor holds other managerial position (s) in the firm for no less than one years. FOUNDER is an indicator variable equal to 1 if the predecessor is the founder of the firm. REMAIN_BOARD is an indicator variable equal to 1 if the predecessor still served on the board after step down. REMAIN_CHAIR is an indicator variable equal to 1 if the predecessor still served on the board as chairman after step down. GINDEX is the GIM index, equals the sum of 24 anti-takeover provisions following Gompers, Ishii, and Metrick (2003). EINDEX is the entrenchment index, defined as the sum of six anti-takeover provisions following Bebchuk, Cohen, and Ferrell (2005). BUSY is an indicator variable equal to 1 if more than 50% independent directors serve on three or more boards. INDEP is the percentage of independent directors sitting on the board relative to the firm's total directors. OWNER is the average stock ownership of all directors sitting on the board. For the CEO characteristics, Δ AGE is post-pre turnover CEO age in the year of hiring (successors) or leaving (predecessor). Δ TENURE is post-pre turnover years the CEO served as CEO in the firm. Δ DUALITY is post-pre turnover CEO also served as chairman. Δ COMPENSATION is post-pre turnover the ratio of total compensation to the firm's total assets at the fiscal years of their departure (appointment). For the firm characteristics, Δ ASSETS is the changes in annual average Ln(Assets) around turnover over predecessors' and successors' tenure (maximum ten years). Δ GSALES is the changes in annual average growth in sales around turnover over predecessors' and successors' tenure (max ten years). Δ MTB is the changes in the annual average market value of equity over book value of equity around turnover over predecessors' and successors' tenure (maximum ten years). Industry and year fixed effects are included in all the specifications. N is the number of observations, and Pseudo R² is the pseudo R-square. INTERCEPT (CUT) N is the number of Ancillary parameters to define the changes among categories. P-values are reported below regression estimates and are calculated using heteroscedasticity- and clustered-consistent standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Champion League II	(1)	(2)	(3)	(4)	(5)	(6)
Δ RANK2	PRE-POST	PRE-POST	PRE-POST	PRE-POST	PRE-POST	PRE-POST
INTERCEPT(CUT) N	289	289	362	250	250	260
<u>Successor Origin</u>						
INSIDER				-0.7581** 0.0300	-0.7549** 0.0300	-0.7648** 0.0310
<u>Predecessor influence</u>						
FOUNDER	0.6298* 0.0630		0.7835*** 0.0080			0.7982** 0.0310
REMAIN_BOARD		0.6192** 0.0450				
REMAIN_CHAIR						0.3306 0.2050
<u>Corporate Governance</u>						
GINDEX					-0.0016 0.9750	
EINDEX			-0.1452* 0.0570	-0.0080 0.9410		
BUSY				0.4149 0.1400	0.4160 0.1370	0.3435 0.2130
INDEP						-0.1244 0.9040
OWNER						4.2210 0.5810
<u>Control Variables</u>						
CEO characteristics						
Δ AGE	-0.0038 0.7690	-0.0051 0.6900		-0.0188 0.2310	-0.0189 0.2300	-0.0241 0.1060
Δ TENURE	0.0516*** 0.0000	0.0429*** 0.0010	0.0577*** 0.0000	0.0554*** 0.0000	0.0553*** 0.0000	0.0705*** 0.0000
Δ DUALITY	0.5360** 0.0190	0.5466** 0.0170	0.4674** 0.0220	0.2970 0.2500	0.2971 0.2500	0.5031* 0.0600
Δ COMPENSATION	0.0248 0.1640	0.0277 0.1160	0.0295* 0.0890	0.0252 0.1620	0.0254 0.1640	0.0306* 0.0980
Firm characteristics						
Δ ASSETS	0.8372*** 0.0000	0.8738*** 0.0000		1.0440*** 0.0000	1.0443*** 0.0000	0.9605*** 0.0000
Δ GSALES	1.8630** 0.0140	1.7054** 0.0220	-0.1456* 0.0980	1.9861*** 0.0060	1.9873*** 0.0070	2.4058*** 0.0070
Δ MTB	0.0821* 0.0690	0.0742* 0.1000	0.1276*** 0.0020	0.1098* 0.0610	0.1093* 0.0600	0.0765 0.1740
YEAR FE	Y	Y	Y	Y	Y	Y
IND FE	Y	Y	Y	Y	Y	Y
N	333	333	425	285	285	297
Pseudo R ²	2.69%	2.69%	2.06%	3.38%	3.38%	3.47%

4.4.3 Logistic Regressions of Successful Replacements and Beat Replacements

In this section, the relation between successor origin, predecessor influence, corporate governance and successful replacement is analysed in a multivariate framework using logistic regression models. To test under what situation does champion CEOs more likely to be successfully replaced, two sets of dependent variables successful replacement dummies and beat replacement dummies are employed to test top successors sample and successors who beat their predecessors' sample, respectively.

4.4.3.1 Logistic Regressions of Successful Replacements for Top Successors

Table 4.9 and 4.10 report Logistic Regressions results of Measures Index One (Two) successful replacement for Champion League I (II) sample, respectively. The dependent variable REPLACE takes the value of one if a successor can sustain or exceed performance and zero otherwise⁵⁸. The same explanatory variables are examined in this section.

INSIDER dummies are both economically and statistically significant across all specifications in both tables. The negative coefficient estimates of INSIDER indicate that insiders, versus outsider successors, decrease the log odds of successful REPLACE dummy (versus non-REPLACE) by 70% to 95% across different specifications. This, in turn, suggests that outsiders contribute to the higher probability of successful replacements. Given that pseudo R-square cannot be compared across datasets or interpreted independently, they are useful in evaluating multiple models predicting the same outcome on the same sample. The model with higher pseudo R² is better in predicting successful replacement. Apparently, models with INSIDER dummy tend to have relatively higher pseudo R², and thus further support successor origin in explaining successful replacement. The coefficient estimates of FOUNDER dummy are statistically significant for Measures Index One in Table 4.9, but lose significance level when using the average rankings of the four beat percentage performance measures for Champion League II sample in Table 4.10, which is consistent with difference test results for founder status.

For predecessors remaining influence variables, only REMAIN_CHAIR is negatively significant for Champion League I sample in Table 4.9; whereas REMAIN_BOARD is positively significant for Champion League II sample in Table 4.10. The positive coefficient

⁵⁸ Logistic regression assumes that P (Y=1) is the probability of the event occurring; thus REPLACE is coded to take the value of one if successors are also ranked among the top 458 CEOs following the same ranking methodology as their champion predecessors, suggesting that successors have successfully replaced their predecessors by inhering the championship among their peers.

estimates suggest that predecessors' retention on the board after stepping down as CEO increase the log odds of successful replacement by 0.8412 and 0.7383, respectively. For corporate governance variables, no significant relations between governance and successors' performance improvement are identified across the different performance measures and CEO Champion sample, with the only exception of EINDEX in the specification (1) of Table 4.9 and specification (3) of Table 4.10. For every one unit change in EINDEX, the log odds of REPLACE (versus non-REPLACE) decreases by 19.37% and 23.18%, respectively.

Consistent with the findings of ordinal logistic regression, Δ TENURE is not significant for Measures Index One but becomes significant across all specifications in both tables for measure index two. For every one unit change in Δ TENURE, the log odds of REPLACE increase by around 4%, which indicates a significant relation between changes in CEO tenure and the probability of successors' performance improvement after turnover. The coefficient estimates of Δ MTB are both statistically and economically significant across most specifications in different champion CEO sample and performance measures. This finding reinforces the result in chapter three that firms' growth opportunities during successors' tenure are highly associated with successful replacement after turnovers. Similarly, Δ GSALES is only significant in the specification (1) for CEOs in Champion League II sample.

In sum, the logistic regression on successful replacements for top successors further support that champions are more likely to be successfully replaced when new incoming CEOs are outsiders; Thus, hypothesis 2 is rejected. Partial support is found for champion founders' status and predecessors' retention; thus hypothesis 3 and 4 are partially supported. Little support is identified for corporate governance influence; thus, hypotheses 1 is weakly supported.

**Table 4.9: Logistic Regressions of the Measures Index One Successful Replacements-
Champion League I**

This table reports coefficients from the Logistic Regressions of the successful replacements on Successor Origin, Predecessors Influence, Corporate Governance and the control variables for Champion League I sample. Each CEO is ranked from 1 (best) to 1371 (worst) for each performance metric, and the four (three if anyone is missing) performance metrics' rankings (AROA, ABHAR, EPS Surprise and M&A CARs) are averaged and re-ranked to obtain the Measures Index One. Champion League I consists of the top tercile (458) performed CEOs from Measures Index One. REPLACE equals 1 if a successor can sustain or exceed predecessor's performance, 0 otherwise. In specific, REPLACE is coded to take the value of one if successors are also ranked among the top 458 CEOs following the same ranking methodology as their champion predecessors, suggesting that successors have successfully replaced their predecessors by inheriting the championship among their peers. For Successor Origin variable, INSIDER (%) is an indicator variable equal to 1 if the successor holds other managerial position (s) in the firm for no less than one years. FOUNDER is an indicator variable equal to 1 if the predecessor is the founder of the firm. REMAIN_BOARD is an indicator variable equal to 1 if the predecessor still served on the board after step down. REMAIN_CHAIR is an indicator variable equal to 1 if the predecessor still served on the board as chairman after step down. GINDEX is the GIM index, equals the sum of 24 anti-takeover provisions following Gompers, Ishii, and Metrick (2003). EINDEX is the entrenchment index, defined as the sum of six anti-takeover provisions following Bebchuk, Cohen, and Ferrell (2005). BUSY is an indicator variable equal to 1 if more than 50% independent directors serve on three or more boards. INDEP is the percentage of independent directors sitting on the board relative to the firm's total directors. OWNER is the average stock ownership of all directors sitting on the board. For the CEO characteristics, Δ AGE is post-pre turnover CEO age in the year of hiring (successors) or leaving (predecessor). Δ TENURE is post-pre turnover years the CEO served as CEO in the firm. Δ DUALITY is post-pre turnover CEO also served as chairman. Δ COMPENSATION is post-pre turnover the ratio of total compensation to the firm's total assets at the fiscal years of their departure (appointment). For the firm characteristics, Δ ASSETS is the changes in annual average Ln(Assets) around turnover over predecessors' and successors' tenure (maximum ten years). Δ GSALES is the changes in annual average growth in sales around turnover over predecessors' and successors' tenure (max ten years). Δ MTB is the changes in the annual average market value of equity over book value of equity around turnover over predecessors' and successors' tenure (maximum ten years). Industry and year fixed effects are included in all the specifications. N is the number of observations, and Pseudo R² is the pseudo R-square. P-values are reported below regression estimates and are calculated using heteroscedasticity- and clustered-consistent standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Champion League I	(1)	(2)	(3)	(4)	(5)	(6)
	REPLACE=1	REPLACE=1	REPLACE=1	REPLACE=1	REPLACE=1	REPLACE=1
INTERCEPT	-0.4734 0.8070	0.2770 0.7800	-0.7924 0.5690	0.0563 0.9580	-0.1480 0.8880	0.8066 0.5540
<u>Successor Origin</u>						
INSIDER				-0.9563** 0.0160	-0.9412** 0.0180	-0.8701** 0.0360
<u>Predecessor influence</u>						
FOUNDER	0.7225** 0.0220	0.8113** 0.0240	0.9816*** 0.0070	1.0423*** 0.0100		1.3416*** 0.0040
REMAIN_BOARD			0.7079 0.1360			
REMAIN_CHAIR			-0.7519** 0.0430			
<u>Corporate Governance</u>						
GINDEX			0.0252 0.7020			
EINDEX	-0.1937** 0.0400			0.0437 0.7240	0.0811 0.5500	0.1143 0.4530
BUSY					0.5423 0.1840	0.5438 0.2250
INDEP						-1.2320 0.2640
OWNER						-20.5257 0.1330
<u>Control Variables</u>						
CEO characteristics						
ΔAGE		0.0160 0.2890	0.0196 0.2000	0.0098 0.5670	0.0205 0.2060	0.0212 0.2630
ΔTENURE	0.0210 0.1830	0.0066 0.7270		0.0262 0.1930		0.0210 0.4120
ΔDUALITY	-0.0032 0.9890	0.3547 0.2230				0.0151 0.9690
ΔCOMPENSATION	0.0351 0.2140	0.0150 0.6470				0.0101 0.8100
Firm characteristics						
ΔASSETS	0.6615*** 0.0020	0.3616 0.1630		0.2666 0.3410	0.4543 0.1060	0.3148 0.3220
ΔGSALES	0.1227 0.2870	0.5987 0.3470				0.2367 0.7260
ΔMTB	0.2289*** 0.0000	0.2923*** 0.0000	0.3491*** 0.0000	0.3540*** 0.0000	0.3220*** 0.0000	0.3402*** 0.0000
YEAR FE	Y	Y	Y	Y	Y	Y
IND FE	Y	Y	Y	Y	Y	Y
N	418	319	292	290	263	262
Pseudo R ²	17.49%	17.76%	21.32%	21.83%	21.92%	25.64%

**Table 4.10: Logistic Regressions of the Measures Index Two Successful Replacements-
Champion League II**

This table reports coefficients from the Logistic Regressions of the successful replacements on Successor Origin, Predecessors Influence, Corporate Governance and the control variables for Champion League II sample. Each CEO is ranked from 1 (best) to 1371 (worst) for each beat percentage performance metric, and the four (three if anyone is missing) beat percentage performance metrics' rankings (AROA2, ABHAR2, EPS Surprise2 and M&A CARs2) are averaged and re-ranked to obtain the Measures Index Two. Champion League II consists of the top tercile (458) performed CEOs from Measures Index Two. REPLACE equals 1 if a successor can sustain or exceed predecessor's performance, 0 otherwise. In specific, REPLACE is coded to take the value of one if successors are also ranked among the top 458 CEOs following the same ranking methodology as their champion predecessors, suggesting that successors have successfully replaced their predecessors by inhering the championship among their peers. For Successor Origin variable, INSIDER (%) is an indicator variable equal to 1 if the successor holds other managerial position (s) in the firm for no less than one years. FOUNDER is an indicator variable equal to 1 if the predecessor is the founder of the firm. REMAIN_BOARD is an indicator variable equal to 1 if the predecessor still served on the board after step down. REMAIN_CHAIR is an indicator variable equal to 1 if the predecessor still served on the board as chairman after step down. GINDEX is the GIM index, equals the sum of 24 anti-takeover provisions following Gompers, Ishii, and Metrick (2003). EINDEX is the entrenchment index, defined as the sum of six anti-takeover provisions following Bebchuk, Cohen, and Ferrell (2005). BUSY is an indicator variable equal to 1 if more than 50% independent directors serve on three or more boards. INDEP is the percentage of independent directors sitting on the board relative to the firm's total directors. OWNER is the average stock ownership of all directors sitting on the board. For the CEO characteristics, ΔAGE is post-pre turnover CEO age in the year of hiring (successors) or leaving (predecessor). ΔTENURE is post-pre turnover years the CEO served as CEO in the firm. ΔDUALITY is post-pre turnover CEO also served as chairman. ΔCOMPENSATION is post-pre turnover the ratio of total compensation to the firm's total assets at the fiscal years of their departure (appointment). For the firm characteristics, ΔASSETS is the changes in annual average Ln(Assets) around turnover over predecessors' and successors' tenure (maximum ten years). ΔGSALES is the changes in annual average growth in sales around turnover over predecessors' and successors' tenure (max ten years). ΔMTB is the changes in the annual average market value of equity over book value of equity around turnover over predecessors' and successors' tenure (maximum ten years). Industry and year fixed effects are included in all the specifications. N is the number of observations, and Pseudo R² is the pseudo R-square. P-values are reported below regression estimates and are calculated using heteroscedasticity- and clustered-consistent standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Champion League II	(1)	(2)	(3)	(4)	(5)	(6)
	REPLACE=1	REPLACE=1	REPLACE=1	REPLACE=1	REPLACE=1	REPLACE=1
INTERCEPT	-0.2193 0.7980	-0.7740 0.3750	0.6802 0.5970	-1.1306 0.2660	-0.2011 0.8530	0.4920 0.7260
<u>Successor Origin</u>						
INSIDER	-0.7293* 0.0640	-0.7968* 0.0550			-0.6928* 0.0920	-0.7203* 0.0740
<u>Predecessor influence</u>						
FOUNDER				0.5708 0.2310		
REMAIN_BOARD		0.8412** 0.0410		0.7383* 0.0810		
REMAIN_CHAIR			0.1587 0.5130			
<u>Corporate Governance</u>						
GINDEX			0.0518 0.4290			
EINDEX			-0.2318* 0.0750	-0.0331 0.8030	-0.0779 0.5440	-0.0291 0.8260
BUSY	0.2202 0.4970	0.2329 0.4790			0.3324 0.3210	0.3103 0.3580
INDEP						-0.8103 0.4500
OWNER				4.3152 0.7600		
<u>Control Variables</u>						
CEO characteristics						
ΔAGE	-0.0142 0.3750	-0.0179 0.2740		-0.0056 0.7320	-0.0052 0.7450	-0.0048 0.7620
ΔTENURE	0.0343* 0.0560	0.0389** 0.0370	0.0430*** 0.0030	0.0477** 0.0180	0.0348* 0.0530	0.0352** 0.0470
ΔDUALITY	0.7154** 0.0270	0.8996*** 0.0070		0.9227*** 0.0080	0.7630** 0.0300	0.7900** 0.0310
ΔCOMPENSATION	0.0457 0.1860			0.0681 0.1080		0.0446 0.2060
Firm characteristics						
ΔASSETS	1.5963*** 0.0000	1.4623*** 0.0000	1.5006*** 0.0000	1.3874*** 0.0000	1.5601*** 0.0000	1.6275*** 0.0000
ΔGSALES	1.6157* 0.0920					1.4607 0.1260
ΔMTB	0.0955 0.2130	0.1491* 0.0560	0.1408** 0.0170	0.1744** 0.0380	0.2062** 0.0120	0.1603** 0.0470
YEAR FE	Y	Y	Y	Y	Y	Y
IND FE	Y	Y	Y	Y	Y	Y
N	288	289	416	280	278	277
Pseudo R ²	18.53%	18.33%	18.08%	20.64%	19.51%	20.61%

4.4.3.2 Logistic Regressions of Replacements for Successors Beaten Predecessors

Table 4.11 and 4.12 report logistic regression results of beat replacement dummies for successors who exceed their predecessors' ranks for Champion League I and II sample, respectively. The dependent variable BEAT takes the value of one if a successor can exceed predecessor's rank and zero otherwise⁵⁹. The same explanatory variables are examined in this section.

Table 4.11 reports logistic regression results of Measures Index One beat replacements for Champion League I; whereas Table 4.12 reports results of Measures Index Two beat replacements for Champion League II sample. INSIDER dummies are statistically significant across all specifications in the two tables. Consistent with the findings in previous successful replacement analysis, the coefficient estimates of INSIDER are both economically and significantly negative in Table 4.11 and 4.12, which further supports that outsiders contribute to the higher probability of beat replacements. Also, models with INSIDER dummy tend to have relatively higher pseudo R², and thus further support that successors' outsider origin has explanatory power in beat replacements. The coefficient estimates of FOUNDER dummy are statistically significant for Measures Index One in Table 4.11, but lose significance level when using the average rankings of the four beat percentage performance measures for Champion League II sample in Table 4.12. In contrast, I do not find any significant results for the two predecessor influence variables REMAIN_BOARD and REMAIN_CHAIR for Measures Index One in Table 4.11. However, significant results of REMAIN_BOARD dummies are identified in specifications (2) and (3) of Table 4.12. The positive coefficient estimates suggest that predecessors' retention on the board after stepping down as CEO increase the log odds of beat replacement by 0.6905 and 0.6214, respectively in Table 4.12. The only significant corporate governance variable is EINDEX in Table 4.11. For every one unit change in EINDEX, the log odds of BEAT decreases by 32.45%.

To sum up, I find robust results for successor origins but inconsistent results for predecessors' influence when using different CEO performance measures in logistic regressions on successful and beat replacements. The only partial evidence is identified for corporate governance variable E-Index in explaining successors' performance improvement.

⁵⁹ Logistic regression assumes that P (Y=1) is the probability of the event occurring; thus BEAT is coded to take the value of one if the successor who ranked among the top 458 CEOs following the same ranking methodology as champions beat predecessor' rank, suggesting that the successor has successfully replaced the champion predecessor by achieving higher rank among the peers.

**Table 4.11: Logistic Regressions of the Measures Index One Beat Replacements-
Champion League I**

This table reports coefficients from the Logistic Regressions of the beat replacements on Successor Origin, Predecessors Influence, Corporate Governance and the control variables for Champion League I sample. Each CEO is ranked from 1 (best) to 1371 (worst) for each performance metric, and the four (three if anyone is missing) performance metrics' rankings (AROA, ABHAR, EPS Surprise and M&A CARs) are averaged and re-ranked to obtain the Measures Index One. Champion League I consists of the top tercile (458) performed CEOs from Measures Index One. The dependent variable BEAT takes the value of one if a successor can exceed predecessor's performance and zero otherwise. In specific, BEAT is coded to take the value of one if the successor who ranked among the top 458 CEOs following the same ranking methodology as champions beat predecessor' rank, suggesting that the successor has successfully replaced the champion predecessor by achieving a higher rank among the peers. For Successor Origin variable, INSIDER (%) is an indicator variable equal to 1 if the successor holds other managerial position (s) in the firm for no less than one years. FOUNDER is an indicator variable equal to 1 if the predecessor is the founder of the firm. REMAIN_BOARD is an indicator variable equal to 1 if the predecessor still served on the board after step down. REMAIN_CHAIR is an indicator variable equal to 1 if the predecessor still served on the board as chairman after step down. GINDEX is the GIM index, equals the sum of 24 anti-takeover provisions following Gompers, Ishii, and Metrick (2003). EINDEX is the entrenchment index, defined as the sum of six anti-takeover provisions following Bebchuk, Cohen, and Ferrell (2005). BUSY is an indicator variable equal to 1 if more than 50% independent directors serve on three or more boards. INDEP is the percentage of independent directors sitting on the board relative to the firm's total directors. OWNER is the average stock ownership of all directors sitting on the board. For the CEO characteristics, ΔAGE is post-pre turnover CEO age in the year of hiring (successors) or leaving (predecessor). ΔTENURE is post-pre turnover years the CEO served as CEO in the firm. ΔDUALITY is post-pre turnover CEO also served as chairman. ΔCOMPENSATION is post-pre turnover the ratio of total compensation to the firm's total assets at the fiscal years of their departure (appointment). For the firm characteristics, ΔASSETS is the changes in annual average Ln(Assets) around turnover over predecessors' and successors' tenure (maximum ten years). ΔGSALES is the changes in annual average growth in sales around turnover over predecessors' and successors' tenure (max ten years). ΔMTB is the changes in the annual average market value of equity over book value of equity around turnover over predecessors' and successors' tenure (maximum ten years). Industry and year fixed effects are included in all the specifications. N is the number of observations, and Pseudo R² is the pseudo R-square. P-values are reported below regression estimates and are calculated using heteroscedasticity- and clustered-consistent standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Champion League I	(1)	(2)	(3)	(4)	(5)	(6)
	BEAT=1	BEAT=1	BEAT=1	BEAT=1	BEAT=1	BEAT=1
INTERCEPT	-0.2867 0.8460	0.2268 0.7800	0.5069 0.6150	0.5398 0.6010	0.5458 0.5170	1.8351 0.1870
<u>Successor Origin</u>						
INSIDER			-0.6849* 0.0930		-0.6847* 0.0920	
<u>Predecessor influence</u>						
FOUNDER		0.7179* 0.0930		0.9314* 0.0510	0.9125* 0.0550	0.6400 0.2330
REMAIN_BOARD				0.0519 0.9130		
REMAIN_CHAIR						-0.2742 0.4730
<u>Corporate Governance</u>						
GINDEX				-0.0430 0.4890		-0.0204 0.7600
EINDEX	-0.3245*** 0.0010				-0.1010 0.4450	
BUSY			0.1981 0.6450			
INDEP						-2.0080 0.1020
OWNER			8.5222 0.3630			
<u>Control Variables</u>						
CEO characteristics						
ΔAGE		0.0182 0.3010	0.0116 0.5660	0.0242 0.2660	0.0248 0.2510	0.0275 0.2320
ΔTENURE	0.0237 0.2530	0.0181 0.4470	0.0227 0.4280	0.0368 0.1750	0.0325 0.2540	0.0447 0.1750
ΔDUALITY	0.4214* 0.0920	1.0867*** 0.0020	1.0171*** 0.0090	1.0930*** 0.0080	1.1237*** 0.0090	1.0318** 0.0130
ΔCOMPENSATION	0.0550* 0.0560	0.0675 0.1560	0.0125 0.7660	0.0538 0.2520	0.0387 0.4230	-0.0078 0.8310
Firm characteristics						
ΔASSETS	0.3393 0.1830	-0.0193 0.9500	-0.2605 0.4900	-0.1261 0.7350	-0.1022 0.7830	-0.4250 0.3150
ΔGSALES	0.2191 0.1810	0.4753 0.6350	0.2255 0.8040	0.5837 0.5640	0.5089 0.6320	0.2677 0.7570
ΔMTB	0.1866*** 0.0010	0.2808*** 0.0000	0.2465*** 0.0020	0.3218*** 0.0000	0.3363*** 0.0000	0.3424*** 0.0000
YEAR FE	Y	Y	Y	Y	Y	Y
IND FE	Y	Y	Y	Y	Y	Y
N	415	317	277	289	287	254
Pseudo R ²	18.00%	20.43%	22.70%	24.90%	25.57%	25.72%

**Table 4.12: Logistic Regressions of the Measures Index Two Beat Replacements-
Champion League II**

This table reports coefficients from the Logistic Regressions of the beat replacements on Successor Origin, Predecessors Influence, Corporate Governance and the control variables for Champion League II sample. Each CEO is ranked from 1 (best) to 1371 (worst) for each beat percentage performance metric, and the four (three if anyone is missing) beat percentage performance metrics' rankings (AROA2, ABHAR2, EPS Surprise2 and M&A CARs2) are averaged and re-ranked to obtain the Measures Index Two. Champion League II consists of the top tercile (458) performed CEOs from Measures Index Two. The dependent variable BEAT takes the value of one if a successor can exceed predecessor's performance and zero otherwise. In specific, BEAT is coded to take the value of one if the successor who ranked among the top 458 CEOs following the same ranking methodology as champions beat predecessor' rank, suggesting that the successor has successfully replaced the champion predecessor by achieving a higher rank among the peers. For Successor Origin variable, INSIDER (%) is an indicator variable equal to 1 if the successor holds other managerial position (s) in the firm for no less than one years. FOUNDER is an indicator variable equal to 1 if the predecessor is the founder of the firm. REMAIN_BOARD is an indicator variable equal to 1 if the predecessor still served on the board after step down. REMAIN_CHAIR is an indicator variable equal to 1 if the predecessor still served on the board as chairman after step down. GINDEX is the GIM index, equals the sum of 24 anti-takeover provisions following Gompers, Ishii, and Metrick (2003). EINDEX is the entrenchment index, defined as the sum of six anti-takeover provisions following Bebchuk, Cohen, and Ferrell (2005). BUSY is an indicator variable equal to 1 if more than 50% independent directors serve on three or more boards. INDEP is the percentage of independent directors sitting on the board relative to the firm's total directors. OWNER is the average stock ownership of all directors sitting on the board. For the CEO characteristics, ΔAGE is post-pre turnover CEO age in the year of hiring (successors) or leaving (predecessor). ΔTENURE is post-pre turnover years the CEO served as CEO in the firm. ΔDUALITY is post-pre turnover CEO also served as chairman. ΔCOMPENSATION is post-pre turnover the ratio of total compensation to the firm's total assets at the fiscal years of their departure (appointment). For the firm characteristics, ΔASSETS is the changes in annual average Ln(Assets) around turnover over predecessors' and successors' tenure (maximum ten years). ΔGSALES is the changes in annual average growth in sales around turnover over predecessors' and successors' tenure (max ten years). ΔMTB is the changes in the annual average market value of equity over book value of equity around turnover over predecessors' and successors' tenure (maximum ten years). Industry and year fixed effects are included in all the specifications. N is the number of observations, and Pseudo R² is the pseudo R-square. P-values are reported below regression estimates and are calculated using heteroscedasticity- and clustered-consistent standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

Champion League II	(1)	(2)	(3)	(4)	(5)	(6)
	BEAT=1	BEAT=1	BEAT=1	BEAT=1	BEAT=1	BEAT=1
INTERCEPT	-0.4404 0.6440	0.5973 0.6310	0.7010 0.5780	-0.2323 0.8510	-0.2397 0.8600	0.9385 0.5790
<u>Successor Origin</u>						
INSIDER	-0.8666** 0.0480			-1.0694** 0.0320	-1.1314** 0.0290	-1.1021** 0.0360
<u>Predecessor Influence</u>						
FOUNDER					0.3160 0.6210	
REMAIN_BOARD		0.6905* 0.0530	0.6214* 0.0960			
REMAIN_CHAIR					0.3088 0.4270	
<u>Corporate Governance</u>						
GINDEX			-0.0177 0.7410			
EINDEX				-0.04534 0.7530	0.010259 0.9480	
BUSY					-0.0139 0.9720	-0.0674 0.8640
INDEP						-1.0361 0.4790
OWNER						21.7995* 0.0590
<u>Control Variables</u>						
CEO characteristics						
ΔAGE	-0.0329* 0.0900			-0.0283 0.1410	-0.0349 0.1020	-0.0509** 0.0190
ΔTENURE	0.0761*** 0.0090	0.0694*** 0.0090	0.0823*** 0.0100	0.0900** 0.0120	0.0952** 0.0170	0.0974*** 0.0050
ΔDUALITY	0.2555 0.4590	0.4060 0.1580	0.5142* 0.0940	0.2431 0.5160	0.1696 0.6820	0.1452 0.7200
ΔCOMPENSATION	0.0956 0.2090	0.1094* 0.0540	0.1458** 0.0170	0.1378* 0.0890	0.1591* 0.0850	0.1428* 0.0990
Firm characteristics						
ΔASSETS	0.7511*** 0.0060	0.9410*** 0.0000	1.0803*** 0.0000	1.0258*** 0.0010	1.0624*** 0.0020	0.8555*** 0.0080
ΔGSALES	1.9682* 0.0660	0.0507 0.6410	0.0486 0.6610	2.6925** 0.0360	3.9820*** 0.0090	3.9848*** 0.0050
ΔMTB	0.1324 0.1020	0.1549** 0.0160	0.1977*** 0.0050	0.1851** 0.0400	0.1628* 0.0880	0.1673* 0.0660
YEAR FE	Y	Y	Y	Y	Y	Y
IND FE	Y	Y	Y	Y	Y	Y
N	315	440	410	291	273	283
Pseudo R ²	20.58%	19.00%	21.44%	23.31%	24.23%	24.97%

4.5 Conclusion

Inspired by the findings in Chapter Three that successors are as successful after controlling for firm growth, this chapter explores under what circumstances these successors tend to perform as well or outperform their champion predecessors. I examine corporate governance, successor origin, predecessor influence and control the changes in CEO characteristics to account for the level of discretion afforded a CEO (specifically CEO duality, age, tenure, and compensation) and the changes in firm characteristics (ASSETS, GSALES and MTB).

Previous studies mainly examine forced CEO succession events, which might present incomplete results. Aiming at filling in the research gap and provide a whole picture of CEO turnover events, I investigate champion predecessors' voluntary leave this chapter. Although considerable evidence has shown that internal CEOs outperform outsiders, this chapter provides new evidence that outsiders are more likely to replace their champion predecessors successfully. My findings suggest that outsiders tend to outperform insiders when the firm performance is above average, which reinforces and extends organisational adaptation view and **Georgakakis and Ruigrok (2017)**'s finding that outside CEO succession outweigh the costs when the new CEOs is hired by a well-performing firm operating in a munificent industry. The new evidence contributes to existing literature on CEO turnover and CEO succession.

When it comes to corporate governance, the variables partially relevant to successors' performance improvement are BUSY dummy and EINDEX. In line with the reputational capital view of directorships, the busy board is found to have better capability to replace champion CEOs successfully. This probably results from that they tend to have more valuable experience and information while sitting on different boards simultaneously. Firms under management by champion CEOs may require less monitoring, but broader visions and strategic guidance. I also find evidence partially support that champion predecessors are more likely to be reappointed to the board and their successors tend to sustain success. Champion founders' successors are demonstrated to have better performance improvement, which suggests that champion founders are less likely to be entrenched.

"The CEO's abilities to live the brand and capitalise on internal talents are among the biggest factors in determining future success".

Angela Ahrendts, Former CEO of Burberry

5. CEO Champions League: A new method to rank CEOs based on their long-term performance

5.1 Introduction

Performance measures provide corporate boards with valuable indicators and benchmark, which can prompt board of directors to restore poor performance proactively by hiring new CEOs as well as reward CEO Champions; thus, selecting the appropriate measures is essential for performance evaluation. CEOs usually have the incentive to focus on short-term financial results at the expense of shareholders' long-term interest given shareholders, analysts and boards of directors often judge them harshly if failed to meet the short-term goals. The short-term scope has been criticised widely and regarded as the prime culprit of the latest economic crisis. Increasingly, investors and directors are more interested in how CEOs handle the ups and downs of managing companies over the long term. Developing a rigorous approach to gauge CEOs' long-term performance is indispensable. Accordingly, Harvard Business Review introduced a scorecard to evaluate chief executives' leadership over their entire tenure in office. They ranked CEOs based on corporate performance during CEOs' tenure, which meant to be a measure of enduring success, and aims to identify the top 100 best-performing CEOs in the world. Over each CEO's tenure, they evaluated three long-term financial performance metrics, i.e., the country-adjusted total shareholder return, the industry-adjusted total shareholder return and change in market capitalization. These CEOs are then ranked from best to worst for each financial metric. The three rankings are finally averaged to obtain the CEO's overall ranking. One downside of their methodology is that their rankings only take into account purely financial returns, which may accidentally include CEOs who have disappointed shareholders on other dimensions. Since 2015, HBR further includes another dimension, the ratings of companies' environmental, social, and governance (ESG) performance. One persistent criticism of ESG data is that it can be subjective and the same firm can be ranked significantly different by using ESG criteria.

To improve their methodology, in this chapter, the novel CEO ranking (including voluntary, forced turnovers and no turnover cases) are constructed and compared with HBR rankings. Different from the two CEO Champion Leagues In Chapter Four, the Top 100 CEO lists in this chapter also includes present CEOs who have not left their firms during the sample period. Eight performance metrics are used. Two sets of Weighted INDEX Ranks I and II and two sets of Un-weighted INDEX Ranks I and II are created based on each of the four measures, with respects to firms' operating, stock, investment performance and Earnings per Share (EPS) surprise, to capture diverse dimensions of firms' performance. The performance is given more weights towards recent years over the past five years' period for Weighted

INDEX Rank I and II. By introducing the long-term performance measures, this chapter aims at altering the traditional approach that investors, analysts, and directors assessing CEOs and provide a new judgemental standard for CEOs who have created long-term value for their shareholders.

After taking a longer perspective into account, the new CEO lists do bring to light certain hidden gems. Most of the top CEOs who delivered outstanding results year in and year out are not superstars and away from the glare of the cover stories. These quiet CEOs' success makes a persuasive argument for a new approach to evaluate CEOs. Only by analysing performance from different dimensions, and over the long term can I begin to discover the nature of their great leadership. Admittedly, the lists do include some big names. Ranked as No.1 on 2010 Harvard Business Review's Top 100 CEO, Steven P. Jobs of Apple Inc. ranked 26th on the Weighted INDEX RANK I.

Apart from generating continuously growing shareholder returns, to be ranked as CEO Champions, they also have an essential task, which is to cultivate internal talent and pave the way for their successors. As Burberry's former CEO Angela Ahrendts mentioned, "the CEO's abilities to live the brand and capitalise on internal talents are amongst the biggest factors in determining future success". Success seems hard to sustain in firms across CEOs⁶⁰; thus, post-turnover performance is further included in Weighted INDEX Rank II, i.e. the three years' post-tenure performance of these CEOs. Weighted INDEX Rank II comprises CEOs whose companies performed well not only during their tenure but also after they step down. To construct such a ranking, I calculate the weighted performance of these CEOs by taking into account 70% of five years' performance before the turnover and 30% of three years' performance afterward. Achieved consistent superior performance prior to and post-turnover, William H. Gates III of Microsoft Corporation ranked 38th and 11th in Weighted INDEX RANK I and II, respectively. Timothy Koogole of Yahoo Inc. was ranked 81 places in HBR's best 100 CEOs with high total shareholder returns. However, Timothy was not qualified for my top 100 CEOs in Weighted INDEX Rank I list due to his poor investment performance over tenure (-25% M&A sum CARs). In line with the Bloomberg news⁶¹, Timothy Koogole was forced out of Yahoo Inc. due to poor performance, suggesting that HBR's rank with only stock performance dimension provides limit insight for CEO's contribution to the firms. In

⁶⁰ Most measures of CEO performance do not look at whether a CEO leaves behind a strong or a weak company. In Harvard Business Review 2010 Top 100 CEOs study, they included performance measures go beyond CEOs' time in office and generated the new list "Whose Companies Performed Well after They Left?"

⁶¹ Available at <http://www.bloomberg.com/news/articles/2001-05-20/inside-yahoo>

contrast, the two ranking measures constructed in this chapter capture more dimensions and CEOs finally listed generate value for shareholders from every respective.

Apart from constructing CEO ranks, this chapter also tests CEO ranks in forecasting forced turnover events. Studies examining the relations between firm performance and CEO turnover have documented that internal and external control mechanisms assist in the replacement of poorly-performed CEOs⁶². The rate of top management dismissals is inversely related to prior stock price performance (**Coughlan and Schmidt, 1985; Warner, Watts, and Wruck, 1988**) and prior operating performance (**Denis and Denis, 1995; Huson, Malatesta, and Parrino, 2004**), suggesting that stock and operating performance play a vital role in forced turnover prediction. Also, CEOs are the key decision-makers in Mergers and Acquisitions, and they should be liable for their wrong choices in value-destroying investments (**Hayward and Hambrick, 1997**). These CEOs could also be penalised and disciplined⁶³, and thus are more likely to be replaced for reducing the value of their shareholders (**Mitchell and Lehn, 1990**). **Lehn and Zhao (2006)** document that stock market performance deteriorates, following poor acquisition decisions, which in turn leads to CEOs being dismissed. This implies that investment performance, especially Mergers and Acquisitions CARs are also related to forced turnover events, and thus play a part in forced turnover prediction. Regarding analyst forecast expectations, a proprietary survey cited by **Larcker and Tayan (2015)** suggest that more than 90 percent executives and board members would terminate a CEO after failing to meet analyst forecasted quarterly earnings for eight quarters. Their survey results suggest that Analyst Forecast, in terms of EPS Surprise, is also associated with forced turnover events predictions. Given that every single measure's deterioration is documented to associate with forced turnover, their combined rankings are expected to explain forced turnover. Accordingly, the prediction powers of CEO rankings in forecasting forced turnover events are examined and compared with the above single performance measures, which are demonstrated in prior study to negatively associate with the likelihood of forced CEO turnover (**Warner et al., 1988; Farrell and Whidbee, 2003; Huson et al., 2004; Lehn & Zhao, 2006; Jenter and Lewellen, 2014; Larcker and Tayan, 2015**). In this chapter, I include all long tenure CEOs from S&P 1500, not necessarily has

⁶² Coughlan and Schmidt (1985), Warner, Watts, and Wruck. (1988), Weisbach (1988), Gibbons and Murphy (1990), Jensen and Murphy (1990), Mitchell and Lehn (1990), Blackwell, Brickley, and Weisbach (1994), Kim (1996), and Fee and Hadlock (2003).

⁶³ Mitchell and Lehn (1990) examine the relation between firm acquisition performance and the probability of being acquired. They hypothesize that acquirers announcing bad acquisition decisions should be penalized by the market for corporate control. They find that acquirers with bad acquisition performance are more likely to receive a takeover bid than firms that perform better.

CEO turnovers. The contribution of this chapter is twofold. Firstly, I designed a comprehensive methodology for ranking CEOs, aim at improving Harvard Business Review ranking method. In specific, I ranked all S&P 1500 CEOs based on a SINGLE ranking, Weighted INDEX RANK I, that takes into account all dimensions, the average ranks of weighted AROA, ABHAR, EPS Surprises and M&A CARs (at least 3 out of 4). I also consider post turnover weighted performance in Weighted INDEX RANK II. Two sets of Top 100 CEO lists are generated at the end and compared with HBR 2010 rankings. I further examine the predictive power of CEO rankings in forecasting the probability of being retained versus fired. The forced turnover prediction models⁶⁴ are built, and prediction power for ranking scores versus performance measures are compared. Also, the multinomial logistic models⁶⁵ are built to test and compare prediction power for rank scores versus performance measures for differing turnover events.

From the Univariate Test results, forced out CEOs do have significantly worse rankings, in terms of Weighted INDEX Rank I and Rank II and Un-weighted INDEX Rank I and Rank II, than voluntarily left CEOs and CEOs still serving at firms. This finding suggests that the combined CEO rankings with more dimensions in this study are more effective in forced turnover predictions. Better-ranked CEOs are less likely to be forced out. Also, CEO Rankings capture more dimensions and tend to be more consistent in measuring performance. Consistent with the findings from univariate analysis, Weighted INDEX Rank I Z-scores is negatively and, both statistically and economically, significantly associated with the forced turnover dummy. The specifications with INDEX Rank I Z-scores have higher Pseudo R2 and ROC curve Area than other single performance measures, i.e., Weighted AROA, ABHAR, EPS Surprise Indices and M&A CARs, suggesting that the combined CEO rankings have better prediction power in explaining forced turnover than any single performance measures in the multivariate analysis.

The remainder of this chapter is organised as follows. In Section 2, hypotheses are built. Sample and Data are then presented in Section 3, followed by difference tests results of the univariate analysis in Section 4. Section 5 carries out the multivariate analysis predicting forced turnover. CEO Rankings are further compared in the Multinomial Logistic Regression

⁶⁴ In the forced turnover prediction models, Y=0 if voluntary turnover or no turnover, and Y=1 if forced turnover

⁶⁵ In the multinomial logistic models, Y=0 if voluntary turnover, Y=1 if forced turnover and Y=2 if no turnover until the end of 2009.

framework, and test results are presented. In Section 6, CEOs ranked as top 100 for INDEX Rank I, and II are presented. Section 7 concludes.

5.2 Research Design and Hypotheses Development

Previous literature has documented the great sensitivity between firm performance and forced turnover. Worse stock, operating, analyst forecast surprise or investment performance increases the likelihood of forced CEO turnover (**Warner et al., 1988; Huson et al., 2004; Lehn & Zhao, 2006; Jenter and Lewellen, 2014; Larcker and Tayan, 2011**). The ranks constructed by these performance measures should have negative and significant relations with forced turnover; whereas the difference between voluntary turnover and no turnover events should not be distinct. Based on the conjecture, this chapter is mainly guided by the following research questions:

Are CEOs with higher rankings less likely to be forced out? If yes, do the combined rankings have better prediction power than other forced turnover models with single performance measure? To test the research questions, I develop two corresponding hypotheses as follows:

Hypothesis 1: Higher ranked CEOs are less likely to be forced out

Support: CEO performance rankings is negatively and significantly associated with forced turnover dummy

Reject: CEO performance rankings is not negatively and significantly associated with forced turnover dummy

Hypothesis 2: Combined ranking measure has better prediction power than other forced turnover models with single performance measure

Support: CEO performance rankings have higher explanation power than stock, operating, analyst forecast surprise and investment performance along (in terms of higher Pseudo R-Squire or Area under ROC curve)

Reject: CEO performance rankings do not have higher explanation power than single performance measure-stock, operating, analyst forecast surprise and investment performance

To test the two hypotheses, I used Logit model for model prediction power comparisons and Multinomial Logistic Regressions for forced turnover forecast.

5.3 Sample, Data and Methods

5.3.1 Data and Sample

To test the hypotheses, forced, voluntary and non-turnover cases amongst S&P 1500 firms⁶⁶ are examined. Turnover events are classified as forced or voluntary based on the news from LexisNexis around turnover announcement date. Similar to **Parrino (1997)**, I categorise the turnover as forced when a CEO is fired, forced out of the position, or leave due to policy differences or conflict; whereas retirement, resignation, normal succession, accept other position or pursue other interests, deceased or poor health are categorised as voluntary turnover. Turnover events, CEO characteristics and executive compensation are derived from ExecuComp. Turnover reasons, step down announcement for predecessors, hire announcement for successors are manually collected from LexisNexis, Businessweek website and firm proxy statement. Performance measurements are calculated for predecessors (successors) 5 years prior (3 years post) turnover for forced and voluntary turnover events. Present CEOs' performance over the past five years is calculated for non-turnover cases. Specifically, annual industry and firm financial data are from Compustat, and monthly stock market data are gathered from CRSP. Quarterly actual EPS and the corresponding consensus median analysts' forecasted EPS immediately preceding the quarterly earnings announcement date are collected from IBES unadjusted detail history database.

Merger and acquisition announcements and deal characteristics are collected from Thomson Financial SDC and deals are announced between 1980 and 2012. Acquirers are U.S. public firms and targets are either U.S. or non-U.S. public, private or subsidiary firms. Spin-offs, recapitalizations, self-tenders, repurchases, minority stake purchases, acquisitions of remaining interest, exchange offers and privatisations are excluded from the M&As sample. Deal transaction value is limited to no less than 1 million dollars and only completed deals are included. Moreover, Acquirer's ownership of the target is required to be less than 10% before acquisition announcement and more than 50% following the deal completion. Target-to-acquirer relative size should be no less than 1%, and the targets and the bidders are different companies. The M&As deals sample from SDC is matched with CEO sample using 6-digit CUSIP to get CEO initiated deals over past five years and CARs.

⁶⁶ S&P 1500 firms, including all S&P 500, S&P MidCap and S&P SmallCap firms, between 1992 and 2009 were included and these firms' performance were examined elaborately from 1982 to 2012. S&P 1500 firms are selected since these firms have public history so that I can access to the data required and they cover 90% of U.S. firms' market capitalization.

The sample is first derived from ExecuComp between 1992 and 2013 with CEO flag on and fiscal year is limited to 2009 to leave enough time to calculate the post-turnover performance. HBR's 2010 Top CEO List contains large public companies'⁶⁷ best-performing CEOs over their entire time in the office or still in the job up until September 30, 2009. To be comparable, I construct 2010 Top CEO List including S&P 1500 firms' top CEOs involves or not involve with turnovers until December 31, 2009. Different from HBR methodology, I include only firms in the U.S. and CEOs with no less than five years tenure rather than 1.5 years to leave enough time for CEOs to implement business strategies and for the board of directors to evaluate CEO's ability to mitigate CEO luck. CEOs' tenure is calculated as date left firm minus date become CEOs from ExecuComp and estimated from the date became CEO to 2009.12.31 for present CEOs who have not left office yet as of the end of 2009. A total number of S&P 1500 CEOs by the end of 2009 from ExecuComp is 6476, while the CEOs with no less than five years tenure is 3155. The final turnover sample consists of 139 forced turnover, 1433 voluntary and 1583 no turnover cases from 1992 to 2009. Both forced and voluntary turnovers are retained when generating CEO lists since CEOs can be forced out for reasons unrelated to their performance, that is, a fired CEO can, in fact, be a successful CEO. Also, excluding forced turnovers would introduce a bias towards more successful CEOs and distort the CEO performance distribution, based on which CEOs are ranked before the turnover. To test the variation of the top CEO lists across years, I construct the 2007 and 2008 CEO lists using the same methodology. The CEO sample is then matched with Compustat, CRSP, IBES and SDC databases, and annual median industry-adjusted ROA, BHAR, EPS Surprise and M&A CARs over the past five years are calculated accordingly.

For CEO ranks' construction, firm performance five years before their departure and three years after was calculated accordingly. To ensure data continuity, I impose the restrictions that at least five continuous years' AROA before turnover events and at least three out of the four performance measures data should be available for each CEO rank. More weights are given to the most recent years' AROA before the turnover. In specific, the operating performance Index is composited of 30% of most recent year AROA before the turnover, 25% of 2 years prior, 20% of 3 years prior, 15% of four years prior and 10% of five years before the turnover. The same weights are applied to ABHR and EPS Surprise for stock

⁶⁷ HBR list contains CEOs of all publicly traded companies that had made Standard & Poor's Global 1200 or BRIC 40 lists since 1997. They imposed the restrictions that CEOs had to have assumed the job after January 1995 and no later than December 2007, suggesting at least 1.5 years tenure for Top CEOs. They also include companies from Brazil, Russia, India, and China.

performance and EPS Surprise performance Indices. For the three years' post-turnover performance, more weights are given to the most recent year's AROA after turnover. The post turnover operating performance Index is composed of 50% of most recent year AROA post turnover, 30% of 2 years post and 20% of 3 years post turnover AROA. The same weights apply to ABHR and EPS Surprise performance.

CEOs are then ranked based on weighted AROA, ABHAR, EPS Surprise performance Indices, and M&A CARs mutually exclusively to ensure champion CEOs are not limited to those who have to initiate M&A deals. In specific, each CEO is ranked from best to worst for each metric, and the four (three if one is missing) measure rankings are averaged and re-ranked from 1 to construct the Weighted Index Rank I. Weighted Index Rank II is built in a similar way, but also take into account the post-turnover firm performance, 70% weighted for pre-five years' Weighted INDEX Rank I and 30% weighted for post three years' CEO Weighted INDEX Rank I_POST. The CEO list used for regression analysis in this chapter includes only CEOs with turnover classifications (2379), while the Top 100 CEOs by Weighted INDEX RANK I take into consideration all the CEOs (2623).

5.3.2 Methods

5.3.2.1 Logistic Regressions analysis

To estimate the probability of forced turnover, I formulate the estimated logistic regression equation as below. The coefficients α and β_k are determined according to a maximum likelihood approach, and it allows me to estimate the probability of the dependent variable, turnover dummy taking on the value 1 for given values of x_k .

$$\text{Estimate of } P(y=1|x_1, x_2, x_3, \dots, x_p) = 1 / (1 + e^{-(\alpha + \sum_k \beta_k x_k)}) \quad k = 1 \dots p \quad (17)$$

The dependent variables, turnover I (II) dummy equals to 1 if the turnover is a forced turnover. CEOs are ranked based on Weighted AROA, ABHAR, EPS Surprise Indices, and M&A CARs mutually exclusively. Each CEO is ranked from best to worst for each metric, and the four (three if one is missing) measure rankings are averaged and re-ranked from 1 to bottom to construct the Weighted INDEX RANKI. The vector of explanatory variables x_k includes a set of explanatory variables: performance measures (WEIGHTED AROA INDEX, WEIGHTED ABHAR INDEX, WEIGHTED EPS Surprise INDEX, M&A CAR), Weighted INDEX Rank I Z-SCORE, and control variables: Log (Firm Assets), MTB, GSALES, Log

(Firm Age), AGE (year), TENURE (year), COMPENSATION, Industry and Year fixed effects. The impact of x_k is recorded in the vector β_k .

5.3.2.2 Multinomial Logistic Regressions analysis

To test if CEO Ranking has better prediction power than other forced turnover models with single performance measure, multinomial logistic regressions of turnover on the single measures and Weighted INDEX Rank I are compared. The multinomial logit model, where the dependent variable has more than two categories, has a different parameterisation from the logit model because the response variable has more than two categories. It focuses on the probability to choose one of the j categories knowing some explanatory variables.

The analytical expression of the model is as follows:

$$\text{Log [p(y =j | } x_i) / \text{p(y =1 | } x_i)] = \alpha_j + \beta_j x_i \quad (18)$$

Where the category 1 represents the reference or control category, which is the none-turnover sample in this study. All obtained parameters have to be interpreted relative to this reference category. The probability of choosing category j is:

$$p(y =j | x_i) = e^{(\alpha_j + \beta_j x_i)} / [1 + \sum_{k=2}^j e^{(\alpha_k + \beta_k x_i)}]$$

For the reference category:

$$p(y =1 | x_i) = 1 / [1 + \sum_{k=2}^j e^{(\alpha_k + \beta_k x_i)}]$$

When equation (18) is applied to analysing the forced turnover prediction power of different models, the dependent variable Turnover III dummy is measured as an indicator variable, which equals to 1 if the turnover is a forced turnover, zero if the turnover is a voluntary turnover and 2 if it was not involved with turnover events. The vector of explanatory variables x_i includes a set of explanatory variables: performance measures, Weighted INDEX Rank I Z-SCORE, and control variables: Log (Firm Assets), MTB, GSALES, Log (Firm Age), AGE (year), TENURE (year), COMPENSATION, Industry and Year fixed effects. The impact of x_i is recorded in the vector β_j .

5.4 Univariate Analysis-Difference Tests

Table 5.1 compares CEO, firm characteristics, long-term performance over the past five, ten years, and post three years of S&P 1500 long-tenure CEOs for forced, voluntary and none turnover sample. Panel A provides CEO characteristics comparisons between CEOs in forced and no turnover sample, and CEOs in the voluntary and forced turnover sample. Forced out CEOs tend to be significantly younger than voluntarily departed CEOs, whereas no significant age difference between CEOs in forced and none turnover sample is found given CEOs in the none-turnover sample are still in office. Regarding average CEO tenure, neither significant differences between forced and voluntary, nor differences between forced and no turnover are identified. This mainly results from the imposed restriction of minimum five years tenure for the sample.

When it comes to compensation, on average, forced out CEOs are paid with the higher salary, bonus, and total compensation than CEOs who left voluntarily or still in office. After scaled by firm's total assets, forced out CEOs earned significantly lower relative total compensation than CEOs with no turnover. This finding demonstrates that CEOs in the forced turnover sample used to work for relatively larger corporations and suggests that firm size tend to be positively related to forced turnover. The samples have the similar low percentage of female CEOs. Panel B compares firm characteristics amongst CEOs in forced, voluntary and none turnover sample. Firms involved with forced turnover have significantly larger market capitalizations than firms in the voluntary turnover sample, further reinforce the finding in Panel A that larger firm size is more likely to relate to forced turnover. Similar results are found for assets, which is measured as the annual average natural log of inflation-adjusted total assets over CEO' tenure (maximum ten years). Firms of CEOs in the forced turnover sample tend to be mature firms and are significantly larger in size than those of voluntarily left CEOs and CEOs who still in office. Forced out CEOs' firms have significantly lower Q than those of voluntarily left CEOs, indicating that these are mature firms with fewer growth opportunities. However, there is no material difference in terms of Market-To-Book ratio.

In Panel C, the weighted performance of CEOs over the past five years are compared for voluntary, forced and none turnover sample. More weights are given to the most recent years' measures. In detail, the operating performance weighted AROA Index is composited of 30% of most recent year AROA before the turnover, 25% of 2 years prior, 20% of 3 years prior, 15% of four years prior and 10% of five years before the turnover. The same weights are applied to the weighted ABHR Index and weighted EPS Surprise Index for stock

performance and EPS Surprise performance. CEOs are then ranked based on weighted AROA, ABHAR, EPS Surprise performance Indices, and M&A CARs mutually exclusively. Each CEO is ranked from best to worst for each metric, and the four (three if one is missing) measure rankings are averaged and re-ranked from 1 to bottom to construct the Weighted Index Rank I. CEOs in forced turnover sample tend to significantly underperform CEOs in the other two samples in terms of operating and stock performance indices. No significant results are found for mean EPS surprise index and median M&A investment performance. However, Weighted INDEX RANK I, which is the combination of the four measures, is demonstrated to be efficient in both forced versus voluntary turnover and forced versus none turnover comparisons.

Panel D shows three years' post-turnover performance indices; more weights are given to the most recent year's measures after turnover. The post-turnover performance Index is composed of 50% of most recent year's performance post turnover, 30% of 2 years post and 20% of 3 years post turnover. The same weights apply to Weighted AROA, ABHR and EPS Surprise performance Indices_POST. CEOs are then re-ranked from 1 to bottom based on the average rank of weighted AROA, ABHAR, EPS Surprise performance Indices_POST and M&A CARs to construct the Index Rank I_POST. In Panel D, firms tend to have significantly better median EPS Surprise, M&A CAR performance and mean ABHAR after predecessors being forced out; whereas still underperforming in terms of operating performance. In line with the previous literature of recovery in firm performance (**Huson et al., 2004**), there is no significant difference between post three years' firm performance ranks of forced and voluntary turnovers. Weighted Index Rank II is constructed in a similar way as Index Rank I but also take into account post turnover firm performance. Weighted Index Rank II is 70% weighted for prior five years' Weighted Index Rank I and 30% weighted for post three years' Weighted Index Rank I_POST. After considering post-turnover performance indices, forced turnover CEOs also have significantly lower ranks than voluntary turnover CEOs and CEOs still in office.

Prior turnover 10-year un-weighted firm performance is compared for voluntary, forced and no turnover sample in Panel E. Compared with none turnover sample, long-term performance of CEOs in the forced turnover sample did not significantly underperform in terms of single performance measures, with the only exception of M&A sum CARs. Similarly, forced out CEOs only significantly underperform voluntarily left CEOs in terms of un-weighted ABHAR INDEX. However, forced turnover CEOs do have significantly lower ranks, both

Un-weighted INDEX Rank I and Rank II, than voluntarily left CEOs and CEOs still serving at firms, suggesting that CEO rankings with more dimensions provide more stable performance measure and are effective in forced turnover predictions.

In sum, the results from the univariate analysis demonstrate that forced out CEOs tend to have significantly worse rankings, suggesting that higher ranked CEOs are less likely to be forced out. Thus, hypothesis one is supported. Also, CEO Rankings capture more dimensions and tend to be more consistent in measuring performance.

Table 5.1: CEO characteristics, and Long-run Performance of S&P 1500 long-tenure CEOs

This table presents CEO, firm characteristics, long-term performance over five years before or 3 years post (if any) for S&P 1500 long-tenure CEOs. Panel A compares CEO characteristics at the fiscal years of turnover (or 2009 if no turnover). AGE (YEARS) is the age of the CEO in the year of leaving (or 2009 for present CEOs). TENURE⁶⁸ (YEARS) is the tenure of the CEO served as CEO in the firm. SALARY and BONUS are items from ExecuComp. TOTAL COMPENSATION is the TDC1 item from ExecuComp, which comprises of salary, bonus, other annual compensation, the total value of restricted stock granted, the total value of stock options granted (using black-scholes), long-term incentive payouts, and all other total compensation. COMPENSATION (%) is the ratio of total compensation to the firm's total assets at the fiscal years of their departure. Female (%) is an indicator variable equal to 1 if the CEO is Female and zero if is Male. In Panel B, MKTCAP is the market value of equity from Compustat. ASSETS is the annual average natural log of inflation-adjusted Total Assets over CEO' tenure (max ten years) from Compustat. MARKET-TO-BOOK is the market value of equity over book value of equity. Q is calculated as the market value of equity plus book value of current liabilities and long-term debt divided by book value of equity plus book value of current liabilities and long-term debt. The market-to-book ratio and Q have been winsorized at 1% and 99% level. Performance measures indices are defined in Appendix A. Difference tests are based on t-tests for means and Wilcoxon-tests for medians. ***, ** and * represent significance at the 1%, 5% and 10% level, respectively.

		(1) Forced Turnover	(2) Voluntary Turnover	(3) No Turnover	(3) - (1) Difference	(2) - (1) Difference	
<i>Panel A: CEO Characteristics</i>							
AGE (YEARS)	mean	56.27	61.11	56.46	0.19	4.84	***
	median	56.00	62.00	56.00	0.00	6.00	***
	n	66	1114	1549			
TENURE (YEARS)	mean	11.65	12.24	12.23	0.59	0.59	
	median	8.78	9.76	9.92	1.14	0.98	*
	n	139	1433	1583			
SALARY	mean	849.47	702.85	695.90	-153.56	-146.62	***
	median	782.77	643.25	636.65	-146.12	-139.52	***
	n	139	1433	1583			
BONUS	mean	861.55	644.12	372.40	-489.14	-217.43	**
	median	0.00	211.80	0.00	0.00	211.80	***
	n	139	1433	1583			
TOTAL COMPENSATION	mean	9069.97	4563.58	4052.30	-5017.67	-4506.39	***
	median	3526.13	2177.65	2287.10	-1239.03	-1348.48	***
	n	138	1428	1579			
COMPENSATION	mean	2.41	2.68	4.41	2.01	0.28	**
	median	0.87	1.16	1.78	0.90	0.29	***
	n	138	1428	1564			
FEMALE (%)	mean	0.02	0.01	0.02	0.00	-0.01	
	n	139	1433	1583			
<i>Panel B: Firm Characteristics</i>							
MKTCAP	mean	13841.21	9452.88	4499.53	-9341.68	-4388.34	***
	median	2611.44	1882.40	1235.73	-1375.71	-729.04	***
	n	117	1181	1005	888	1064	
ASSETS	mean	8.81	8.16	7.66	-1.14	-0.65	***
	median	8.55	8.00	7.50	-1.05	-0.55	***
	n	117	1181	1006			
Q	mean	1.95	2.32	2.02	0.07	0.37	***
	median	1.43	1.65	1.61	0.18	0.23	**
	n	117	1178	1001			
MTB	mean	3.32	3.19	2.94	-0.37	-0.13	*
	median	2.73	2.44	2.33	-0.40	-0.29	*

⁶⁸ TENURE (YEAR) for non-turnover CEOs is estimated from the date they became CEO until 2009.12.31.

Panel C: Prior Turnover Five- year's WEIGHTED Firm Performance INDEX

		(1)	(2)	(3)	(3) - (1)	(2) - (1)		
		Forced Turnover	Voluntary Turnover	No Turnover	Difference		Difference	
WEIGHTED AROA INDEX	mean	6.85%	9.33%	8.24%	1.39%		2.48%	**
	median	3.71%	5.95%	5.40%	1.69%	*	2.24%	***
	n	117	1181	1006				
WEIGHTED ABHAR INDEX	mean	12.22%	20.07%	19.85%	7.63%	***	7.85%	***
	median	7.89%	15.21%	16.35%	8.46%	***	7.32%	***
	n	114	1148	939				
WEIGHTED EPS SURPRISE INDEX	mean	1.46%	1.83%	4.71%	3.25%		0.37%	
	median	2.28%	2.58%	4.76%	2.48%	**	0.30%	
	n	111	1148	968				
M&A CARS	mean	-1.55%	0.19%	1.25%	2.80%	**	1.74%	
	median	-0.64%	0.22%	0.40%	1.04%		0.86%	
	n	67	680	643				
WEIGHTED INDEX RANK I	mean	1504	1267	1195	-308	***	-237	***
	median	1606	1286	1181	-426	***	-320	***
	n	117	1181	1006				

Panel D: Post-Turnover Three- year's WEIGHTED Firm Performance INDEX

		(1)	(2)	(2) - (1)		
		Forced Turnover	Voluntary Turnover	Difference		
WEIGHTED AROA INDEX_POST	mean	6.73%	9.65%	2.92%	**	
	median	3.39%	6.06%	2.67%	***	
	n	107	1071	964		
WEIGHTED ABHAR INDEX_POST	mean	22.79%	16.81%	-5.98%	*	
	median	16.15%	12.68%	-3.47%		
	n	106	1052	946		
WEIGHTED EPS SURPRISE INDEX_POST	mean	2.52%	3.51%	0.99%		
	median	7.83%	3.67%	-4.16%	**	
	n	104	1056	952		
M&A CAR_POST	mean	1.72%	-0.27%	-1.99%		
	median	1.17%	-0.20%	-1.37%	**	
	n	47	495	448		
WEIGHTED INDEX RANK I_POST	mean	616	631	15		
	median	666	629	-37		
	n	107	1071			
WEIGHTED INDEX RANK II	mean	676	581	-95	***	
	median	681	579	-102	***	
	n	107	1071			

Panel E: Prior turnover Ten- year's UNWEIGHTED firm performance

		(1)	(2)	(3)	(3) - (1)	(2) - (1)
		Forced Turnover	Voluntary Turnover	No Turnover	Difference	Difference
UN-WEIGHTED AROA INDEX	mean	7.17%	8.84%	7.37%	0.20%	1.67%
	median	4.91%	5.83%	5.24%	0.33%	0.92% *
	n	139	1429	1370		
UN-WEIGHTED ABHAR INDEX	mean	26.57%	46.59%	32.30%	5.73%	20.02% ***
	median	17.53%	20.42%	16.30%	-1.23%	2.89% ***
	n	126	1266	1092		
UN-WEIGHTED EPS SURPRISE INDEX	mean	2.55%	2.09%	5.25%	2.70% *	-0.46%
	median	2.06%	2.30%	4.38%	2.33%	0.24%
	n	114	1183	1130		
M&A CARs	mean	0.52%	1.08%	1.81%	1.30% ***	0.56%
	median	-0.54%	0.39%	0.52%	1.06%	0.92%
	n	79	818	925		
UN-WEIGHTED INDEX RANK I	mean	1352	1194	1168	-184 ***	-159 **
	median	1373	1200	1167	-206 ***	-173 ***
	n	117	1187	1075		
UN-WEIGHTED AROA2 INDEX	mean	66.12%	70.45%	64.98%	-1.13%	4.33% *
	median	70.00%	70.00%	70.00%	0.00%	0.00% **
	n	139	1429	1296		
UN-WEIGHTED ABHAR2 INDEX	mean	55.95%	56.63%	55.54%	-0.41%	0.68%
	median	56.25%	56.67%	55.74%	-0.51%	0.42%
	n	126	1266	1092		
UN-WEIGHTED EPS SURPRISE2 INDEX	mean	57.68%	57.40%	60.20%	2.53%	-0.28%
	median	56.83%	58.33%	60.00%	3.17% **	1.50%
	n	114	1183	1130		
M&A CARs2	mean	46.42%	51.69%	51.42%	4.99%	5.27%
	median	45.45%	50.00%	50.00%	4.55%	4.55%
	n	79	818	925		
UN-WEIGHTED INDEX RANK II	mean	1336	1164	1203	-133 **	-171 **
	median	1356	1157	1206	-150 **	-199 ***
	n	117	1187	1075		

5.5 Multivariate Analysis

5.5.1 Regressions of Force Turnover on Performance Measures and Weighted INDEX

RANK I

To test hypothesis one that higher ranked CEOs are less likely to be forced out, logistic regressions analysis of Turnover I dummy on performance measures and CEO rankings are performed in Table 5.2 and 5.3. The dependent variable is the turnover I dummy. Year and industry fixed effect dummies are included in all specifications. CEO and firm characteristics are controlled in specifications (1)-(3), whereas specifications (4)-(8) compare the sole effect between single performance measures and CEO rankings on forced turnover events.

Table 5.2 reports the coefficients from logistic regressions of turnover I dummy, where Turnover I=1 if the CEO is forced out and 0 for voluntary leave and none turnover CEOs, on

Weighted INDEX Rank I Z-scores. In specification (4), Weighted INDEX Rank I Z-scores alone can explain 12.87% of the forced turnover dummy. The area under the ROC Curve is 78.75% (with the highest accuracy of the test). The coefficient estimate is negative and economically and statistically significant at the 1% level. In specifications (1) and (2), Weighted INDEX Rank I Z-scores are significantly and negatively associated with the forced turnover dummy at 1% significance level after controlling for different characteristics variables, which indicates that CEOs with worse performance rankings are more likely to be forced out.

The single operating performance Weighted AROA INDEX is also significantly and negatively relates to forced turnover in the specification (5), and after controlling for CEO and firm characteristics at 10% significance level in the specification (3). Similarly, stock performance Weighted ABHAR INDEX itself is significantly associated with the forced turnover while no significant results are found for Weighted EPS Surprise INDEX and M&A CARs. However, Weighted INDEX Rank I Z-scores alone in the specification (4) have higher Pseudo R^2 and ROC curve Area than other performance measures across (5)-(8), suggesting that the combined CEO ranks have better prediction power in explaining forced turnover than any single performance measures. In line with previous literature, younger CEOs with longer tenure and larger firm size are more likely associated with forced turnover.

Table 5.3 reports the coefficients from logistic regressions of turnover II dummy, where Turnover II=1 if the CEO is forced out and 0 for voluntary leave, on Weighted INDEX Rank I Z-scores. As seen from specifications (4)-(8), similar results are found in Table 5.3 that Weighted INDEX Rank I Z-scores alone provides higher explanatory power than other performance measures. In specifications (1) and (2), Weighted INDEX Rank I Z-scores are significantly and negatively associated with the forced turnover dummy at 1% significance level after controlling for different characteristics variables, suggesting that CEOs with worse performance rankings are more likely to be forced out. Firm size, CEO age, and tenure are also significantly related to forced turnover.

In sum, Weighted INDEX Rank I is negatively and, both statistically and economically, significantly associated with the forced turnover dummy. CEO Ranking provides better prediction of forced turnover than other single performance measures; thus, hypotheses one and two are supported.

Table 5.2: Logistic Regressions of Forced Turnover I on Performance Measures and Weighted INDEX Rank I

This table reports coefficients from Logistic Regressions of Turnover I dummy on performance measures and Weighted INDEX Rank I. Turnover I dummy is an indicator variable equal to 1 if the turnover is a forced turnover, and zero if the turnover is a voluntary turnover or it was not involved with turnover events. CEOs are ranked based on Weighted AROA, ABHAR, EPS Surprise Indices, and M&A CARs mutually exclusively. Each CEO is ranked from best to worst for each metric, and the four (three if one is missing) measure rankings are averaged and re-ranked from 1 to bottom to construct the Weighted INDEX RANKI. Weighted AROA INDEX is the average of median industry-adjusted ROA over past five years with more weights in recent years, which is composited of 30% of most recent year AROA before turnover, 25% of 2 years prior, 20% of 3 years prior, 15% of four years prior and 10% of five years before turnover. Weighted ABHAR INDEX is the Annual median industry-adjusted Buy and Hold Abnormal Return over past five years with more weights in recent years. Earnings Per Share Surprise (EPS Surprise) = $(e_{t,k} - \hat{e}_{t,k}) / \text{absolute}(\hat{e}_{t,k})$, where $e_{t,k}$ is the actual Earnings Per Share (EPS) announcement for company k in quarter t, and $\hat{e}_{t,k}$ is the corresponding analyst forecasted EPS in quarter t. Weighted EPS Surprise INDEX is EPS Surprise averaged over past five years with more weights in recent years. Weighted ABHAR INDEX and EPS Surprise INDEX have the same weights as Weighted AROA INDEX. M&A CARs is SUM CARs of all deals over past five years. The requirements that at least five continuous years' AROA before turnover events are imposed to ensure continuity. AROA and EPS Surprise are winsorized at the 1 and 99 percentile. For the control variables, Log (Firm Age) is the natural log of the number of year's firms in operations before turnover from Compustat. Log (Firm Assets) is the annual average natural log of inflation-adjusted Total Assets over CEO tenure (maximum ten years) from Compustat. GSALES is the annual average inflation-adjusted growth in sales over CEO tenure (maximum ten years) from Compustat. MTB is the annual average market value of equity over book value of equity over CEO tenure (max ten years) from Compustat. Age (years) is the age of the CEO in the year of leaving. Tenure (years) is the number of years CEO served in the firm. COMPENSATION is the ratio of total compensation (TDC1) to the firm's total assets at the fiscal years of their departure. Industry and year fixed effects are included in all regressions. N is the number of observations, and Pseudo R^2 is the pseudo R-square. P-values are reported below regression estimates. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	1	2	3	4	5	6	7	8
	Turnover I	Turnover I	Turnover I	Turnover I	Turnover I	Turnover I	Turnover I	Turnover I
INTERCEPT	-4.5674***	-4.0170***	-4.3329***	-5.3221***	-5.3221***	-4.9334***	-5.4101***	-5.0543***
	0.0020	0.0030	0.0010	0.0000	0.0000	0.0000	0.0000	0.0000
WEIGHTED INDEX RANK I (Z-SCORE)	-0.6866***	-0.6696***		-0.5390***				
WEIGHTED AROA INDEX			-3.0785*		-2.8848***			
			0.0510		0.0030			
						-2.0363***		
WEIGHTED ABHAR INDEX						0.0000		
							-0.5784	
WEIGHTED EPS Surprise INDEX							0.2640	
								-0.7708
M&A CAR								0.4190
Log (Firm Assets)	0.4812***	0.5862***	0.5712***					
	0.0000	0.0000	0.0000					
MTB	0.0512							
	0.4650							
GSALES	-0.1228							
	0.6420							
Log (Firm Age)	0.5352							
	0.1250							
AGE (year)	-0.1295***	-0.1196***	-0.1107***					
	0.0000	0.0000	0.0000					
TENURE(year)	0.0449**	0.0435*	0.0435*					
	0.0490	0.0540	0.0510					
COMPENSATION	-0.0013							
	0.9630							
Industry&Year FE	Y	Y	Y	Y	Y	Y	Y	Y
N	1954	1959	1959	2297	2297	2194	2220	1242
Pseudo R ²	21.71%	21.02%	18.83%	12.87%	11.22%	12.12%	10.65%	12.77%
ROC curve Area	85.94%	85.72%	84.30%	78.75%	76.68%	77.66%	75.61%	77.61%

Table 5.3: Logistic Regressions of Forced Turnover II on Performance Measures and Weighted INDEX Rank I

This table reports coefficients from Logistic Regressions of Turnover II dummy on performance measures and Weighted INDEX Rank I. Turnover II dummy is an indicator variable equal to 1 if the turnover is a forced turnover, and zero if the turnover is a voluntary turnover. CEOs are ranked based on Weighted AROA, ABHAR, EPS Surprise Indices, and M&A CARs mutually exclusively. Each CEO is ranked from best to worst for each metric, and the four (three if one is missing) measure rankings are averaged and re-ranked from 1 to bottom to construct the Weighted INDEX RANKI. Weighted AROA INDEX is the average of median industry-adjusted ROA over past five years with more weights in recent years, which is composed of 30% of most recent year AROA before turnover, 25% of 2 years prior, 20% of 3 years prior, 15% of four years prior and 10% of five years before the turnover. Weighted ABHAR INDEX is the Annual median industry-adjusted Buy and Hold Abnormal Return over past five years with more weights in recent years. Earnings Per Share Surprise (EPS Surprise) = $(e_{t,k} - \hat{e}_{t,k}) / \text{absolute}(\hat{e}_{t,k})$, where $e_{t,k}$ is the actual Earnings Per Share (EPS) announcement for company k in quarter t , and $\hat{e}_{t,k}$ is the corresponding analyst forecasted EPS in quarter t . Weighted EPS Surprise INDEX is EPS Surprise averaged over past five years with more weights in recent years. Weighted ABHAR INDEX and EPS Surprise INDEX have the same weights as Weighted AROA INDEX. M&A CARs is SUM CARs of all deals over past five years. The requirements that at least five continuous years' AROA before turnover events are imposed to ensure continuity. AROA and EPS Surprise are winsorized at the 1 and 99 percentile. For the control variables, Log (Firm Age) is the natural log of the number of year's firms in operations before turnover from Compustat. Log (Firm Assets) is the annual average natural log of inflation-adjusted Total Assets over CEO tenure (maximum ten years) from Compustat. GSALES is the annual average inflation-adjusted growth in sales over CEO tenure (maximum ten years) from Compustat. MTB is the annual average market value of equity over book value of equity over CEO tenure (max ten years) from Compustat. Age (years) is the age of the CEO in the year of leaving. Tenure (years) is the number of years CEO served in the firm. COMPENSATION is the ratio of total compensation (TDC1) to the firm's total assets at the fiscal years of their departure. Industry and year fixed effects are included in all regressions. N is the number of observations, and Pseudo R^2 is the pseudo R-square. P-values are reported below regression estimates. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	1	2	3	4	5	6	7	8
	Turnover II	Turnover II	Turnover II	Turnover II	Turnover II	Turnover II	Turnover II	Turnover II
INTERCEPT	2.4043	1.5715	1.5497	-1.6601**	-1.5785**	-1.5189*	-1.8008**	-1.6316**
	0.1840	0.3040	0.3070	0.0330	0.0430	0.0520	0.0200	0.0390
WEIGHTED INDEX RANK I (Z-SCORE)	-0.6408***	-0.6496***		-0.5397***				
	0.0010	0.0000		0.0000				
WEIGHTED AROA INDEX			-4.0523**		-3.0680***			
			0.0130		0.0020			
WEIGHTED ABHAR INDEX						-1.9504***		
						0.0000		
WEIGHTED EPS Surprise INDEX							-0.5494	
							0.3030	
M&A CAR								-0.8480
Log (Firm Assets)	0.4768***	0.4719***	0.4649***					0.4040
	0.0000	0.0000	0.0000					
MTB	-0.0288							
	0.7180							
GSALES	-0.1838							
	0.5210							
Log (Firm Age)	-0.1360							
	0.7330							
AGE (year)	-0.1478***	-0.1437***	-0.1398***					
	0.0000	0.0000	0.0000					
TENURE(year)	0.0474**	0.0470**	0.0486**					
	0.0460	0.0470	0.0390					
COMPENSATION	-0.0112							
	0.7560							
Industry & Year FE	Y	Y	Y	Y	Y	Y	Y	Y
N	971	973	973	1291	1291	1255	1252	661
Pseudo R ²	18.58%	18.28%	16.63%	7.87%	6.32%	7.42%	5.62%	7.36%
ROC curve Area	82.15%	81.92%	80.86%	72.33%	69.96%	71.27%	68.45%	70.27%

5.5.2 Multinomial Logistic Regressions of Turnovers on Performance Measures and Weighted INDEX RANK I

In this section, to further test hypothesis two that CEO Ranking has better prediction power than other forced turnover models with single performance measure, multinomial logistic regressions of turnover on the single measures and Weighted INDEX Rank I are compared in Table 5.4. Most prior research on forced turnover employs voluntary turnover as a control group, without taking into account CEOs still in office with no turnovers. Multinomial

Logistic Regression allows more than two discrete outcomes in the same model, which overcomes the limitation of building the forced turnover prediction model without considering active CEOs still in offices. The results of the multinomial logistic regression of forced turnover prediction models for the three types of turnovers are reported in Table 5.4.

In specification (1), compared with the base outcome none turnover sample, forced turnovers can be better forecasted by the Weighted INDEX Rank I Z-scores alone since there is a statistically significant and adverse relation, at 1% significance level with -0.5860 coefficient, between forced turnovers and Weighted INDEX Rank I Z-scores. This indicates that the lower the CEO rankings, the higher the probability of them being forced out due to poor combined performance. Similarly, Weighted AROA and ABHAR indices in specifications (2) and (3) alone can well explain forced turnover at 10% and 1% significance level, respectively. However, the Pseudo R-Square for Weighted AROA and ABHAR indices are lower than Rank I Z-score's. The coefficients for Weighted EPS Surprise and M&A CARs are not significant in forced turnover forecasting, and the Pseudo R-Squares are also smaller than Weighted INDEX Rank I Z-score's. Thus, Weighted INDEX Rank I Z-score alone can provide better prediction powers in forecasting forced turnover events. On the other hand, compared with none turnover sample, only Weighted AROA INDEX, and M&A CARs can explain voluntary turnovers, indicating no significant differences in most performance measures and CEO ranks between voluntary and none turnover events. Specifications (6)-(10) compare Weighted INDEX Rank I Z-score with other single performance measures when considering other explanatory variables. Log (Firm Age), Log (Firm Assets) and MTB are included in all specifications to control for growth and cyclicity, which are significant at 1% level across most of the specifications. Compared with firms with none turnovers, firms with bigger size, higher in MTB and have a longer time in operation tend to involve with voluntary or forced turnover. Consistent with the results from specifications (1)-(5), forced turnovers can be better forecasted by Weighted INDEX Rank I Z-scores alone given the coefficient estimate between forced turnover and INDEX Rank I Z-scores is statistically significant and negative at -0.6899. Weighted AROA and ABHAR indices also significantly negative relate to forced turnover in specifications (7) and (8). Weighted CEO INDEX Rank I Z-scores have the highest prediction power in terms of relatively higher Pseudo R-Square than other performance measures.

To sum up, CEO performance ranking has higher explanatory power than stock, operating, analyst forecast surprise and investment performance along; thus hypothesis two is supported.

Table 5.4: Multinomial Logistic Regressions of Turnover III on Performance Measures and Weighted INDEX Rank I

This table reports coefficients from the multinomial logistic regressions of Turnover III dummy on performance measures and Weighted INDEX Rank I. Turnover III dummy is an indicator variable equal to 1 if the turnover is a forced turnover, zero if the turnover is a voluntary turnover and 2 if it was not involved with turnover events. CEOs are ranked based on Weighted AROA, ABHAR, EPS Surprise Indices, and M&A CARs mutually exclusively. Each CEO is ranked from best to worst for each metric, and the four (three if one is missing) measure rankings are averaged and re-ranked from 1 to bottom to construct the Weighted INDEX RANKI. Weighted AROA INDEX is the average of median industry-adjusted ROA over past five years with more weights in recent years, which is composited of 30% of most recent year AROA before turnover, 25% of 2 years prior, 20% of 3 years prior, 15% of four years prior and 10% of five years before the turnover. Weighted ABHAR INDEX is the Annual median industry-adjusted Buy and Hold Abnormal Return over past five years with more weights in recent years. Earnings Per Share Surprise (EPS Surprise) = $(e_{t,k} - \hat{e}_{t,k}) / \text{absolute}(\hat{e}_{t,k})$, where $e_{t,k}$ is the actual Earnings Per Share (EPS) announcement for company k in quarter t, and $\hat{e}_{t,k}$ is the corresponding analyst forecasted EPS in quarter t. Weighted EPS Surprise INDEX is EPS Surprise averaged over past five years with more weights in recent years. Weighted ABHAR INDEX and EPS Surprise INDEX have the same weights as Weighted AROA INDEX. M&A CARs is SUM CARs of all deals over past five years. The requirements that at least five continuous years' AROA before turnover events are imposed to ensure continuity. AROA and EPS Surprise are winsorized at the 1 and 99 percentile. For the control variables, Log (Firm Age) is the natural log of the number of year's firms in operations before turnover from Compustat. Log (Firm Assets) is the annual average natural log of inflation-adjusted Total Assets over CEO tenure (maximum ten years) from Compustat. GSALES is the annual average inflation-adjusted growth in sales over CEO tenure (maximum ten years) from Compustat. MTB is the annual average market value of equity over book value of equity over CEO tenure (max ten years) from Compustat. Age (years) is the age of the CEO in the year of leaving. Tenure (years) is the number of years CEO served in the firm. COMPENSATION is the ratio of total compensation (TDC1) to the firm's total assets at the fiscal years of their departure. Industry and year fixed effects are included in all regressions. N is the number of observations, and Pseudo R² is the pseudo R-square. P-values are reported below regression estimates. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	1	2	3	4	5	6	7	8	9	10
Turnover III=1 Forced Turnover										
INTERCEPT	-1.6519	-1.6584	-1.1874	-1.8715	-2.0791	-10.9855	-11.2842	-10.1944	-11.0448	-11.5817
	1.0000	1.0000	1.0000	0.9990	1.0000	0.9960	0.9930	0.9960	0.9960	0.9980
WEIGHTED INDEX RANK I Z-SCORE	-0.5860***					-0.6899***				
	0.0000					0.0000				
WEIGHTED AROA INDEX		-1.9127*					-4.8795***			
		0.0720					0.0000			
WEIGHTED ABHAR INDEX			-2.1001***					-2.2087***		
			0.0000					0.0000		
WEIGHTED EPS SURPRISE INDEX				-0.6298					-0.8727	
				0.2680					0.1600	
M&A CARs					-1.7801					-1.3541
					0.1080					0.2430
LOG (FIRM AGE)						1.6236***	1.7403***	1.5771***	1.6514***	1.7571***
						0.0000	0.0000	0.0000	0.0000	0.0000
LOG (FIRM ASSETS)						0.4317***	0.4386***	0.4165***	0.4272***	0.3589***
						0.0000	0.0000	0.0000	0.0000	0.0010
MTB						0.1670***	0.1956***	0.1423**	0.0712	0.0487
						0.0060	0.0020	0.0190	0.2560	0.5320

Turnover III=0 Voluntary Turnover										
INTERCEPT	15.7398	15.5675	15.6999	15.6811	16.2021	7.3762	6.1370	6.8693	7.1345	7.7285
	0.9870	0.9870	0.9870	0.9870	0.9930	0.9940	0.9900	0.9930	0.9930	0.9960
WEIGHTED INDEX RANK I Z-SCORE	-0.0620					-0.0790				
	0.3570					0.2800				
WEIGHTED AROA INDEX		1.4510**						-0.3066		
		0.0150						0.6600		
WEIGHTED ABHAR INDEX				-0.0697					-0.0161	
				0.7570					0.9480	
WEIGHTED EPS SURPRISE INDEX					-0.0613					-0.1658
					0.8500					0.6210
M&A CARs						-1.3254*				-0.6884
						0.0560				0.3410
LOG (FIRM AGE)						1.9647***	1.9676***	2.0330***	1.9574***	1.8331***
						0.0000	0.0000	0.0000	0.0000	0.0000
LOG (FIRM ASSETS)						0.0966**	0.0979**	0.0888*	0.0970*	0.1147*
						0.0490	0.0460	0.0720	0.0560	0.0610
MTB						0.1746***	0.1695***	0.1620***	0.1593***	0.1300***
						0.0000	0.0000	0.0000	0.0000	0.0010
Turnover III=2 No Turnover										
Industry & Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
N	2304	2304	2201	2227	1390	2303	2303	2200	2226	1390
Pseudo R ²	33.42%	33.16%	32.39%	33.32%	33.23%	42.00%	41.73%	41.11%	41.77%	41.27%

5.5.3 Robustness tests

5.5.3.1 Regressions of Forced Turnover on Performance Measures and Un-weighted INDEX RANKs

To examine the robustness of previous test results, I perform the logistic regressions analysis of forced turnover dummy on the Un-weighted performance measures over CEOs tenure (maximum ten years) and corresponding Un-weighted CEO rankings in Table 5.5 and 5.6. The dependent variable is force turnover I dummy, where Turnover I=1 if the CEO is forced out, 0 if it is voluntary turnover or non-turnover. Year and industry fixed effect dummies are included in all specifications. CEO and firm characteristics are controlled in the specification (1)-(3), whereas specification (4)-(8) compare the sole effect between single performance measures and CEO rankings on forced turnover events.

Table 5.5 reports the coefficients from logistic regressions of forced turnover dummy on the first four performance measurements, and Un-weighted CEO INDEX RANK I. In specification (1) and (2), Un-weighted CEO INDEX RANK I Z-scores are significantly and

negatively associated with forced turnover dummy which indicates that CEOs with worse performance rankings are more likely to be forced out. Strikingly, operating performance AROA loses statistical significance level in explaining forced turnover after controlling for CEO and firm characteristics. In line with previous literature, younger CEOs with longer tenure and larger firm size are more likely associated with forced turnover. In specification (4), CEO Ranking I alone can explain 11.62% of the forced turnover dummy. The area under the ROC Curve is 77.27% (with the highest accuracy of the test). The coefficient estimates are, economically and statistically, significant and negative at the 1% level. After considering other CEO and firm characteristics, un-weighted AROA and ABHAR are also negatively associated with CEO Ranking I. However, CEO Ranking I alone provides better explanatory power in predicting forced turnover than other single performance measures in specifications (4)-(8).

Table 5.6 reports the coefficients from logistic regressions of a forced turnover dummy on the four beat performance measurements over CEOs' tenure (over past ten years maximum) and Un-weighted CEO INDEX RANK II. Similar results are found in Table 5.6 that Un-weighted CEO INDEX RANK II alone provides higher explanatory power than other performance measures. Firm size, CEO age, and tenure contribute to explaining forced turnover.

In sum, Un-weighted CEO INDEX RANK I and II are negatively and, both statistically and economically, significantly associated with a forced turnover dummy and provide better explanatory power in predicting forced turnover. Thus, hypotheses one and two are further supported.

Table 5.5: Logistic Regressions of Forced Turnover I on Performance Measures and Un-weighted INDEX Rank I

This table reports coefficients from Logistic Regressions of Turnover I dummy on performance measures and Un-weighted INDEX Rank I. Turnover I dummy is an indicator variable equal to 1 if the turnover is a forced turnover, and zero if the turnover is a voluntary turnover or it was not involved with turnover events. CEOs are ranked based on Un-weighted AROA, ABHAR, EPS Surprise Indices, and M&A CARs mutually exclusively. Each CEO is ranked from best to worst for each metric, and the four (three if one is missing) measure rankings are averaged and re-ranked from 1 to bottom to construct the Un-weighted INDEX RANKI. Un-weighted AROA Index is the average of median industry-adjusted ROA over ten years or tenure if CEO tenure is less than ten years. Un-weighted ABHAR INDEX is the Annual median industry-adjusted Buy and Hold Abnormal Return. Un-weighted EPS Surprise INDEX = $(e_{t,k} - \hat{e}_{t,k}) / \text{absolute}(\hat{e}_{t,k})$, where $e_{t,k}$ is the actual Earnings Per Share (EPS) announcement for company k in quarter t, and $\hat{e}_{t,k}$ is the corresponding analyst forecasted EPS in quarter t. M&A CARs is SUM CARs of all deals over CEOs' tenure (max ten years). The requirements that at least five continuous years' AROA, at least 60 continuous months' ABHAR, and at least 20 continuous quarters' EPS Surprise before turnover events are imposed to ensure continuity. AROA and EPS Surprise are winsorized at the 1 and 99 percentile. For the control variables, Log (Firm Age) is the natural log of the number of year's firms in operations before turnover from Compustat. Log (Firm Assets) is the annual average natural log of inflation-adjusted Total Assets over CEO tenure (maximum ten years) from Compustat. GSALES is the annual average inflation-adjusted growth in sales over CEO tenure (maximum ten years) from Compustat. MTB is the annual average market value of equity over book value of equity over CEO tenure (maximum ten years) from Compustat. Age (years) is the age of the CEO in the year of leaving. Tenure (years) is the number of years CEO served in the firm. COMPENSATION is the ratio of total compensation (TDC1) to the firm's total assets at the fiscal years of their departure. Industry and year fixed effects are included in all regressions. N is the number of observations. P-values are reported below regression estimates. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	1	2	3	4	5	6	7	8
	Turnover I	Turnover I	Turnover I	Turnover I	Turnover I	Turnover I	Turnover I	Turnover I
INTERCEPT	-4.1476***	-3.5993***	-3.6905***	-5.4529***	-5.3615***	-5.2633***	-5.4576***	-5.2340***
	0.0050	0.0030	0.0050	0.0000	0.0000	0.0000	0.0000	0.0000
UNWEIGHTED INDEX RANK I (ZSCORE)	-0.2933*	-0.2578*		-0.3658***				
	0.0940	0.0610		0.0010				
UNWEIGHTED AROA INDEX			-0.4804		-1.7059*			
			0.7660		0.0910			
UNWEIGHTED ABHAR INDEX						-0.6057**		
						0.0230		
UNWEIGHTED EPS SURPRISE INDEX							-0.4576	
							0.5370	
M&A CARs								0.1585
								0.8400
LOG (FIRM ASSETS)	0.4639***	0.5558***	0.5720***					
	0.0000	0.0000	0.0000					
MTB	0.0528							
	0.4580							
GSALES	-0.0657							
	0.7850							
LOG (FIRM AGE)	0.4226							
	0.2470							
AGE (YEAR)	-0.1292***	-0.1233***	-0.1242***					
	0.0000	0.0000	0.0000					
TENURE(YEAR)	0.0517*	0.051**	0.0512**					
	0.0210	0.0410	0.0220					
COMPENSATION	-0.0056							
	0.8540							
Industry & Year FE	Y	Y	Y	Y	Y	Y	Y	Y
N	2013	2018	1973	2362	2314	2251	2274	1530
Pseudo R ²	19.98%	19.53%	19.14%	11.62%	10.56%	10.94%	10.76%	12.57%
ROC curve Area	85.09%	84.88%	84.24%	77.27%	75.60%	76.39%	75.96%	77.61%

Table 5.6: Logistic Regressions of Forced Turnover I on Performance Measures and Un-weighted INDEX RANK II

This table reports coefficients from Logistic Regressions of Turnover I dummy on performance measures and Un-weighted INDEX Rank II. Turnover I dummy is an indicator variable equal to 1 if the turnover is a forced turnover, and zero if the turnover is a voluntary turnover or it was not involved with turnover events. CEOs are ranked based on Un-weighted AROA2, ABHAR2, EPS Surprise2 Indices, and M&A CARs2 mutually exclusively. Each CEO is ranked from best to worst for each beat percentage metric, and the four (three if one is missing) beat percentage measure rankings are averaged and re-ranked from 1 to bottom to construct the Un-weighted INDEX RANK II. Un-weighted AROA2 Index is the number of years where AROA is positive divided by the corresponding total number of years. Un-weighted ABHAR2 INDEX is the number of months where ABHAR is positive divided by the corresponding total number of months. Un-weighted EPS Surprise2 INDEX is the number of quarters where EPS Surprise is positive divided by the corresponding total number of quarters. M&A CAR2 is the number of deals made during CEO tenure (max ten years) which have positive CARs divided by the corresponding total number of deals. The requirements that at least five continuous years' AROA2, at least 60 continuous months' ABHAR2, and at least 20 continuous quarters' EPS Surprise2 before turnover events are imposed to ensure continuity. For the control variables, Log (Firm Age) is the natural log of the number of year's firms in operations before turnover from Compustat. Log (Firm Assets) is the annual average natural log of inflation-adjusted Total Assets over CEO tenure (maximum ten years) from Compustat. GSALES is the annual average inflation-adjusted growth in sales over CEO tenure (maximum ten years) from Compustat. MTB is the annual average market value of equity over book value of equity over CEO tenure (maximum ten years) from Compustat. Age (years) is the age of the CEO in the year of leaving. Tenure (years) is the number of years CEO served in the firm. COMPENSATION is the ratio of total compensation (TDC1) to the firm's total assets at the fiscal years of their departure. Industry and year fixed effects are included in all regressions. N is the number of observations. P-values are reported below regression estimates. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	1	2	3	4	5	6	7	8
	Turnover I	Turnover I	Turnover I	Turnover I	Turnover I	Turnover I	Turnover I	Turnover I
INTERCEPT	-4.4979***	-3.9805***	-3.4294***	-5.5255***	-4.9647***	-3.9741***	-5.3650***	-5.1215***
	0.0030	0.0020	0.0100	0.0000	0.0000	0.0010	0.0000	0.0000
UNWEIGHTED INDEX RANK II (ZSCORE)	-0.3638**	-0.3371**		-0.2378**				
	0.0260	0.0340		0.0250				
UNWEIGHTED AROA2 INDEX			-0.6328		-0.7832**			
UNWEIGHTED ABHAR2 INDEX			0.2610		0.0320			
						-2.6963		
						0.1350		
UNWEIGHTED EPS SURPRISE2 INDEX							-0.2144	
							0.7380	
M&A CARs2								-0.2245
								0.5070
LOG (FIRM ASSETS)	0.4854***	0.5849***	0.5713***					
	0.0000	0.0000	0.0000					
MTB	0.0454							
	0.5090							
GSALES	-0.0899							
	0.7000							
LOG (FIRM AGE)	0.4660							
	0.2030							
AGE (YEAR)	-0.1290***	-0.1216***	-0.1228***					
	0.0000	0.0000	0.0000					
TENURE(YEAR)	0.0573**	0.0565**	0.0578**					
	0.0100	0.0110	0.0110					
COMPENSATION	-0.0080							
	0.8050							
Industry & Year FE	Y	Y	Y	Y	Y	Y	Y	Y
N	2012	2017	1973	2361	2314	2251	2274	1530
Pseudo R ²	20.39%	19.91%	19.36%	10.96%	10.74%	10.21%	10.73%	12.64%
ROC curve Area	85.25%	85.01%	84.40%	76.19%	75.66%	75.14%	75.86%	77.66%

5.5.3.2 Multinomial Logistic Regressions of Turnovers on Performance Measures and Un-weighted INDEX RANK I

In this section, to examine the robustness of previous Multinomial Logistic Regression test results, Multinomial Logistic Regression of Turnover on un-weighted CEO performance measures over CEOs tenure (maximum ten years) and corresponding un-weighted CEO ranking I are performed in Table 5.7.

In specification (1), there is a statistically significant and negative relation (with -0.3535 coefficient) between forced turnovers and Un-weighted INDEX RANK I Z-scores. Thus, forced turnovers can be better forecasted by Un-weighted INDEX RANK I Z-scores alone compared with the base outcome none-turnover sample. The lower the CEO rankings, the higher the probability being forced out due to poor performance. On the other hand, in the specification (2), single operating performance measure Un-weighted AROA INDEX is better employed to explain voluntary turnover, i.e., compared to none turnover sample, CEOs in the voluntary turnovers sample tend to have higher AROA over CEOs' tenure. Although Un-weighted ABHAR INDEX in the specification (3) alone can also provide great explanatory power in forced turnover predictions, it is statistically significant at 5% level, and the Pseudo R-Squire is lower than Un-weighted INDEX RANK I Z-score's.

Specifications (4)-(8) compare Un-weighted INDEX RANK I Z-scores with the other four performance measures as well as considering other CEO and firm characteristics. Log (Firm Age), Log (Firm Assets) and MTB are included in all specifications to control for firm growth and cyclicity. In line with findings in the previous section, firms bigger in size, higher in MTB and have a longer time in operation on average tend to be involved with turnovers, either forced or voluntary turnovers. Un-weighted INDEX RANK I Z-scores have the highest prediction power in terms of relatively higher Pseudo R-Squire compared with other single performance measures.

To sum up, CEO performance rankings for the un-weighted and longer terms sample have higher explanatory power than stock, operating, analyst forecast surprise and investment performance along; thus hypothesis two is further supported.

Table 5.7: Multinomial Logistic Regressions of Turnover III on Performance Measures and Un-weighted INDEX RANK I

This table reports coefficients from the multinomial logistic regressions of Turnover III dummy on performance measures and Un-weighted INDEX Rank I. Turnover III dummy is an indicator variable equal to 1 if the turnover is forced turnover, zero if the turnover is voluntary turnover and 2 if it was not involved with turnover events. CEOs are ranked based on Un-weighted AROA, ABHAR, EPS Surprise Indices, and M&A CARs mutually exclusively. Each CEO is ranked from best to worst for each metric, and the four (three if one is missing) measure rankings are averaged and re-ranked from 1 to bottom to construct the Un-weighted INDEX RANKI. Un-weighted AROA INDEX is the average of median industry-adjusted ROA over ten years or tenure if CEO tenure is less than ten years. Un-weighted ABHAR INDEX is the Annual median industry-adjusted Buy and Hold Abnormal Return. Un-weighted EPS Surprise INDEX = $(e_{t,k} - \hat{e}_{t,k}) / \text{absolute}(\hat{e}_{t,k})$, where $e_{t,k}$ is the actual Earnings Per Share (EPS) announcement for company k in quarter t, and $\hat{e}_{t,k}$ is the corresponding analyst forecasted EPS in quarter t. M&A CARs is SUM CARs of all deals over CEOs' tenure (maximum ten years). The requirements that at least five continuous years' AROA, at least 60 continuous months' ABHAR, and at least 20 continuous quarters' EPS Surprise before turnover events are imposed to ensure continuity. AROA and EPS Surprise are winsorized at the 1 and 99 percentile. For the control variables, Log (Firm Age) is the natural log of the number of year's firms in operations before turnover from Compustat. Log (Firm Assets) is the annual average natural log of inflation-adjusted Total Assets over CEO tenure (maximum ten years) from Compustat. MTB is the annual average market value of equity over book value of equity over CEO tenure (maximum ten years) from Compustat. Industry and year fixed effects are included in all regressions. N is the number of observations.. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	1	2	3	4	5	6	7	8
Turnover III=1 Forced Turnover								
Intercept	-1.6470	-1.8413	-1.4566	-10.0652	-10.6322	-9.9349	-10.3629	-11.4892
	0.9990	0.9990	0.9990	0.9940	0.9940	0.9940	0.9970	0.9980
Un-weighted INDEX	-0.3535***			-0.3493***				
RANK I Z-score	0.0030			0.0100				
Un-weighted AROA		-0.3570			-2.3723*			
INDEX		0.7460			0.0610			
Un-weighted ABHAR			-0.5772**			-0.5680*		
INDEX			0.0320			0.0520		
Un-weighted EPS							-0.4404	
Surprise INDEX							0.6100	
M&A CARs								0.7375
								0.4290
Log (Firm Age)				1.4354***	1.5055***	1.4526***	1.4878***	1.6568***
				0.0000	0.0000	0.0000	0.0000	0.0000
Log (Firm Assets)				0.4207***	0.4643***	0.4118***	0.4176***	0.4331***
				0.0000	0.0000	0.0000	0.0000	0.0000
MTB				0.1721***	0.1751***	0.1600***	0.0991	0.0962
				0.0040	0.0040	0.0090	0.1090	0.1810
Turnover III=0 Voluntary Turnover								
Intercept	14.7602	15.5254	14.17941	6.3788	6.1546	6.1219	7.7645	8.5252
	0.9800	0.987	0.975	0.9900	0.9900	0.9900	0.9940	0.9960
Un-weighted INDEX	0.0198			0.0369				
RANK I Z-score	0.7570			0.6090				
Un-weighted AROA		2.0680***			0.6982			
INDEX		0.0010			0.3380			
Un-weighted ABHAR			0.0461			0.0372		
INDEX			0.3960			0.5130		
Un-weighted EPS							-0.0799	
Surprise INDEX							0.8570	
M&A CAR								0.2824
								0.5860
Log (Firm Age)				1.9427***	1.9238***	2.0155***	1.9236***	1.7691***
				0.0000	0.0000	0.0000	0.0000	0.0000
Log (Firm Assets)				0.0831*	0.1113**	0.0712	0.0764	0.1220**
				0.0840	0.0240	0.1440	0.1250	0.0300
MTB				0.1626***	0.1646***	0.1556***	0.1652***	0.1418***
				0.0000	0.0000	0.0000	0.0000	0.0000
Turnover III=2 No Turnover				Base Outcome				
Industry & Year FE	Y	Y	Y	Y	Y	Y	Y	Y
N	2369	2321	2258	2368	2320	2257	2279	1648
Pseudo R ²	32.69%	33.00%	31.68%	41.26%	41.54%	40.52%	41.37%	40.66%

5.6 Top 100 CEOs by Weighted INDEX RANK I and Weighted INDEX RANK II

5.6.1 Top 100 CEOs by Weighted INDEX RANK I

Slow growth, shareholder activism, and political turmoil are the main reasons that most CEOs tend to focus on the short-term performance. Yet, top-performed CEOs still manage to train their sights on the long-term and deliver strong performance over many years. In this section, the top 100 CEO lists by Weighted INDEX Rank I and II reveal who they are.

To compile the list of the top 100 CEOs, I begin with the CEOs that at the end of 2009 were included in ExecuComp. To ensure a sufficient track record to evaluate, CEOs who had been on the job for less than five years are excluded. I then calculate four weighted performance metrics towards turnover year for each CEO over the past five years and post three years after stepping down. Finally, each CEO is ranked from best to worst for each metric equally and averaged the four rankings (three if anyone is missing) to obtain an overall financial rank. The overall rank is re-ranked from best to worst to generate Weighted INDEX RANK list I. Incorporating four metrics is a balanced and robust approach: While industry-adjusted operating and stock performance risk being skewed toward smaller companies, EPS surprise, and M&A CARs offset the skewness towards small firm. The final turnover sample consists of 139 forced turnover, 1433 voluntary and 1583 no turnover cases from 1992 to 2009. To test the variation of top CEO list across years, I construct the 2007 and 2008 lists following the same methodology.

After taking a longer perspective and more dimensions into account, the new CEO lists do bring to light certain hidden gems. Most of the top CEOs who delivered outstanding results year in and year out are not superstars and away from the glare of the cover stories. These quiet CEOs' success makes a persuasive argument for a new approach to evaluate CEOs. Firms in the top 100 lists tend to be smaller in size, which might subject to less short-term target pressure from public and shareholders. Information Technology firms take a large proportion in the list thank to high growth and because their CEOs are not normally penalised much for short-term failure. As seen from Table 5.8, the Weighted INDEX Rank I does not shift significantly since 2007. 2008 brought ten new CEOs onto the list, whereas 15 more new CEOs are ranked among top 10 for 2009. At the same time, 69 CEOs have made the list for the third year in a row. In fact, 2009's top three CEOs were all top three for 2008 and 2007, and Michel de Rosen of ViroPharma Inc. has earned the top spot for the third year in a

row. Michel held several CEO roles⁶⁹ before appointed as CEO and president of ViroPharma Inc. As an outsider, Michel replaced the company's founder Claude Nash when share price plummeting 70 percent due to the disappointing clinical study results and led the company to a big success. My list overlaps few with lists of the superstar CEOs or highest-paid CEOs, but do include some big names. Ranked as No.1 on 2010 Harvard Business Review's Top 100 CEO, Steven P. Jobs of Apple Inc. ranked 26th on Weighted CEO INDEX RANK I. Other big names, to name a few, who stay on the top list across three years include John P. Morgridge of Cisco Systems Inc., William H. Gates III of Microsoft Corp., Andrew S. Grove of Intel Corp. and Stephen M. Case of Time Warner Inc.

5.6.2 Top 100 CEOs by Weighted INDEX RANK II

Apart from generating continuously growing shareholder returns, to be ranked as top CEOs, they also have an important task to cultivate internal talent and pave the way for their successors. Success seems so hard to sustain, the most potent measure of CEOs' performance should go beyond their tenure and examine how well CEOs set companies up for success after departure, i.e., whether a CEO leaves behind a strong or a weak company. Top 100 CEOs by Weighted INDEX Rank II list in Table 5.9 comprise CEOs whose companies performed well not only during their tenure but also for the three years after their departure. To construct Weighted INDEX Rank II, I combine the Weighted INDEX Rank I (weighted at 70%) and Weighted INDEX Rank I_POST (weighted at 30%).

Given the restriction that CEOs on Weighted INDEX Rank II list have to involve with turnover events, there is 39 CEOs with three consistent year's top performance on Weighted INDEX Rank I also earned places on the Weighted INDEX Rank II list. Among them, Michel de Rosen of ViroPharma Inc. also earned the top spot for Top 100 CEOs by Weighted INDEX Rank II list. Achieved consistent superior performance before and after turnover, William H. Gates III of Microsoft Corporation ranked 11th in Weighted INDEX RANK list II. The rank of John P. Morgridge of Cisco Systems Inc. jumped to sixth place on Weighted INDEX RANK list II after taking into account the three years' superior post-turnover performance of his insider successors John T. Chambers, suggesting he did an excellent job in cultivating successors. In line with HBR's rank, his top-performed successors John T. Chambers earned No. 10 among the HBR top 100 CEO list.

⁶⁹ Michel de Rosen was CEO of Pharmuka (1983-1986), Rhône-Poulenc Fibres and Polymères (1988-1993), then CEO and chairman of Rhône Poulenc Rorer (1993-1999) before joining ViroPharma Inc.

Table 5.8 Top 100 CEOs by Weighted INDEX RANK I over the Three Year Period

This table presents the top 100 CEOs ranked by Weighted INDEX Rank I from 2007 to 2009. Weighted INDEX Rank I is constructed as follows. CEOs are required to have at least five years tenure, and their firms should have no less than five consecutive years' AROA before turnover years. At least three out of the four performance measure indices data should be available. Five years weighted and industry-adjusted AROA INDEX, ABHAR INDEX, EPS Surprise INDEX and M&A sum CARs are calculated accordingly. More weights are given to the most recent years' performance before the turnover. In specific, the performance Index is composited of 30% of measures in most recent year, 25% of 2 years prior, 20% of 3 years prior, 15% of four years prior and 10% of five years before the turnover. The same weights are applied to Weighted AROA, ABHR and EPS Surprise Indices. CEOs are then ranked based on weighted AROA, ABHAR, EPS Surprise performance Indices, and M&A CARs mutually exclusively, by which each CEO is ranked from best to worst for each metric, and the four (three if one is missing) measure rankings are averaged and re-ranked from 1 to construct the Weighted Index Rank I. CEO name and firm name are listed accordingly.

INDEX RANK I	2009		2008		2007	
	CEO NAME	FIRM NAME	CEO NAME	FIRM NAME	CEO NAME	FIRM NAME
1	Michel de Rosen	VIOPHARMA INC	Michel de Rosen	VIOPHARMA INC	Michel de Rosen	VIOPHARMA INC
2	Evan Jones	DIGENE CORP	Evan Jones	DIGENE CORP	Evan Jones	DIGENE CORP
3	Gary J. Sbona	VERITY INC	Gary J. Sbona	VERITY INC	Gary J. Sbona	VERITY INC
4	Thomas E. Gottwald	NEWMARKET CORP	Lonnie M. Smith	INTUITIVE SURGICAL INC	T. Kendall Hunt	VASCO DATA SEC INTL INC
5	Leonard Bell, M.D.	ALEXION PHARMACEUTICALS INC	Laurence Jay Korn	PDL BIOPHARMA INC	Martine A. Rothblatt	UNITED THERAPEUTICS CORP
6	Laurence Jay Korn	PDL BIOPHARMA INC	Edward V. Fritzky	IMMUNEX CORP	Lonnie M. Smith	INTUITIVE SURGICAL INC
7	Lonnie M. Smith	INTUITIVE SURGICAL INC	T. Kendall Hunt	VASCO DATA SEC INTL INC	Laurence Jay Korn	PDL BIOPHARMA INC
8	Robin Raina	EBIX INC	William R. McLaughlin	SELECT COMFORT CORP	Edward V. Fritzky	IMMUNEX CORP
9	Edward V. Fritzky	IMMUNEX CORP	Robert Delmont Kennedy	UNION CARBIDE CORP	William R. McLaughlin	SELECT COMFORT CORP
10	Timothy Joseph Barberich	SEPRACOR INC	Timothy Joseph Barberich	SEPRACOR INC	Robert Delmont Kennedy	UNION CARBIDE CORP
11	William R. McLaughlin	SELECT COMFORT CORP	Robert J. Doris	SONIC SOLUTIONS	Robert J. Doris	SONIC SOLUTIONS
12	Robert J. Doris	SONIC SOLUTIONS	Robin Raina	EBIX INC	Timothy Joseph Barberich	SEPRACOR INC
13	Robert Delmont Kennedy	UNION CARBIDE CORP	Philip M. Pead	PER-SE TECHNOLOGIES INC	Philip M. Pead	PER-SE TECHNOLOGIES INC
14	Wayne T. Hockmeyer	MEDIMMUNE INC	Stephen M. Case	TIME WARNER INC	Wayne T. Hockmeyer	MEDIMMUNE INC
15	Philip M. Pead	PER-SE TECHNOLOGIES INC	Wayne T. Hockmeyer	MEDIMMUNE INC	Robin Raina	EBIX INC
16	Stephen W. Bershad	AXSYS TECHNOLOGIES INC	Stephen W. Bershad	AXSYS TECHNOLOGIES INC	Stephen M. Case	TIME WARNER INC
17	Warren V. Musser	SAFEGUARD SCIENTIFICS INC	Warren V. Musser	SAFEGUARD SCIENTIFICS INC	Jen-Hsun Huang	NVIDIA CORP
18	Walter C. Herlihy, PhD.	REPLIGEN CORP	Walter C. Herlihy, PhD.	REPLIGEN CORP	Warren V. Musser	SAFEGUARD SCIENTIFICS INC
19	Stephen M. Case	TIME WARNER INC	Michael W. Bonney, B.A.	CUBIST PHARMACEUTICALS INC	John P. Morgridge	CISCO SYSTEMS INC
20	Reed Hastings	NETFLIX INC	John P. Morgridge	CISCO SYSTEMS INC	Michael J. Emmi	SYSTEMS & COMPUTER TECH CORP
21	Michael J. Emmi	SYSTEMS & COMPUTER TECH CORP	Michael J. Emmi	SYSTEMS & COMPUTER TECH CORP	Alphonse M. Lucchese	CONCERTO SOFTWARE INC
22	Richard C. Adkerson	FREEPORT-MCMORAN COP&GOLD	Alphonse M. Lucchese	CONCERTO SOFTWARE INC	Nicholas Csendes	ANSOFT CORP
23	Nicholas Csendes	ANSOFT CORP	Richard A. Meeusen	BADGER METER INC	Dennis M. Jones	JONES PHARMA INC
24	John P. Morgridge	CISCO SYSTEMS INC	Nicholas Csendes	ANSOFT CORP	Norman D. Schwartz	BIO-RAD LABORATORIES INC
25	Alphonse M. Lucchese	CONCERTO SOFTWARE INC	Steven P. Jobs	APPLE INC	Lawrence L. Garlick	REMEDY CORP

26	Steven P. Jobs	APPLE INC	Dennis M. Jones	JONES PHARMA INC	Steven P. Jobs	APPLE INC
27	Stephen N. Joffe	LCA VISION INC	Lawrence L. Garlick	REMEDY CORP	Stephen N. Joffe	LCA VISION INC
28	Joseph P. Keithley	KEITHLEY INSTRUMENTS INC	Leonard Bell, M.D.	ALEXION PHARMACEUTICALS INC	Clinton H. Severson	ABAXIS INC
29	Dennis M. Jones	JONES PHARMA INC	Stephen N. Joffe	LCA VISION INC	Joseph P. Keithley	KEITHLEY INSTRUMENTS INC
30	Einar W. Sissner	ALPHARMA INC -CL A	Joseph P. Keithley	KEITHLEY INSTRUMENTS INC	Einar W. Sissner	ALPHARMA INC -CL A
31	John F. Coyne	WESTERN DIGITAL CORP	Einar W. Sissner	ALPHARMA INC -CL A	Frank D. Guidone, Jr.	MEASUREMENT SPECIALTIES INC
32	Richard R. Woolcott	VOLCOM INC	John F. Coyne	WESTERN DIGITAL CORP	Michael J. Saylor	MICROSTRATEGY INC
33	Lawrence L. Garlick	REMEDY CORP	Gabriel Battista	TALK AMERICA HOLDINGS INC	James E. Cashman, III	ANSYS INC
34	Gabriel Battista	TALK AMERICA HOLDINGS INC	William B. Yarmuth	ALMOST FAMILY INC	Gabriel Battista	TALK AMERICA HOLDINGS INC
35	William B. Yarmuth	ALMOST FAMILY INC	Cyril C. Baldwin, Jr.	CAMBREX CORP	Richard A. Meeusen	BADGER METER INC
36	Ingrid Wiik	ALPHARMA INC -CL A	Ingrid Wiik	ALPHARMA INC -CL A	Cyril C. Baldwin, Jr.	CAMBREX CORP
37	Cyril C. Baldwin, Jr.	CAMBREX CORP	Mark C. Rohr	ALBEMARLE CORP	William H. Gates III	MICROSOFT CORP
38	William H. Gates III	MICROSOFT CORP	William H. Gates III	MICROSOFT CORP	Mark C. Rohr	ALBEMARLE CORP
39	Mark C. Rohr	ALBEMARLE CORP	John Edward Warnock	ADOBE SYSTEMS INC	Ingrid Wiik	ALPHARMA INC -CL A
40	William D. Morean	JABIL CIRCUIT INC	William D. Morean	JABIL CIRCUIT INC	William D. Morean	JABIL CIRCUIT INC
41	Philip Frey, Jr.	MICROSEMI CORP	Douglas W. Kohrs	AMERICAN MEDICAL SYSTEMS HLDS	Stephen W. Bershad	AXSYS TECHNOLOGIES INC
42	Thomas G. Wiggans	CONNETICS CORP	Marvin J. Gralnick	CHICOS FAS INC	John Edward Warnock	ADOBE SYSTEMS INC
43	John Edward Warnock	ADOBE SYSTEMS INC	Thomas G. Wiggans	CONNETICS CORP	Douglas W. Kohrs	AMERICAN MEDICAL SYSTEMS HLDS
44	Marvin J. Gralnick	CHICOS FAS INC	Dino A. Rossi	BALCHEM CORP -CL B	Walter C. Herlihy, PhD.	REPLIGEN CORP
45	Douglas W. Kohrs	AMERICAN MEDICAL SYSTEMS HLDS	Philip Frey, Jr.	MICROSEMI CORP	Marvin J. Gralnick	CHICOS FAS INC
46	Carol A. Bartz, PhD.	AUTODESK INC	Dale R. Olseth	SURMODICS INC	Zan Guerry	CHATTEM INC
47	Dale R. Olseth	SURMODICS INC	Carol A. Bartz, PhD.	AUTODESK INC	Thomas G. Wiggans	CONNETICS CORP
48	Jeffery S. Fraser	NIC INC	Andrew Rudd	BARRA INC	Philip Frey, Jr.	MICROSEMI CORP
49	Andrew Rudd	BARRA INC	Jeffery S. Fraser	NIC INC	Dale R. Olseth	SURMODICS INC
50	Carolyn J. Logan	SALIX PHARMACEUTICALS LTD	Zan Guerry	CHATTEM INC	Carol A. Bartz, PhD.	AUTODESK INC
51	Zan Guerry	CHATTEM INC	Christopher B. Begley	HOSPIRA INC	Robert A. Kotick	ACTIVISION INC
52	Keith G. Myers	LHC GROUP INC	David E. Maguire	KEMET CORP	Edward W. Stack	DICKS SPORTING GOODS INC
53	William M. Lasky	JLG INDUSTRIES INC	Leonard S. Schleifer	REGENERON PHARMACEUTICALS	Andrew Rudd	BARRA INC
54	Dino A. Rossi	BALCHEM CORP -CL B	Donald R. Sellers	SCICLONE PHARMACEUTICALS INC	Jeffery S. Fraser	NIC INC
55	Christopher B. Begley	HOSPIRA INC	Michael R. Gaulke	EXPONENT INC	William W. Smith, Jr.	SMITH MICRO SOFTWARE INC
56	Donald R. Sellers	SCICLONE PHARMACEUTICALS INC	Francis F. Lee	SYNAPTICS INC	Christopher B. Begley	HOSPIRA INC
57	David E. Maguire	KEMET CORP	William M. Lasky	JLG INDUSTRIES INC	David E. Maguire	KEMET CORP
58	Charles E. Sykes	SYKES ENTERPRISES INC	Joseph H. Scarlett, Jr.	TRACTOR SUPPLY CO	Donald R. Sellers	SCICLONE PHARMACEUTICALS INC
59	Michael R. Hsing	MONOLITHIC POWER SYSTEMS INC	Gordon M. Binder	AMGEN INC	Michael R. Gaulke	EXPONENT INC
60	David S. Seltzer	HI TECH PHARMACAL CO INC	Floyd D. Gottwald, Jr.	ALBEMARLE CORP	Reed Hastings	NETFLIX INC
61	Michael R. Gaulke	EXPONENT INC	H. Tom Buelter	ON ASSIGNMENT INC	Francis F. Lee	SYNAPTICS INC
62	Michael W. Bonney, B.A.	CUBIST PHARMACEUTICALS INC	William J. Cadogan	ADC TELECOMMUNICATIONS INC	Joseph H. Scarlett, Jr.	TRACTOR SUPPLY CO
63	John R. Gibson	AMERICAN PACIFIC CORP	John R. Irwin	ATWOOD OCEANICS	Dino A. Rossi	BALCHEM CORP -CL B
64	Joseph H. Scarlett, Jr.	TRACTOR SUPPLY CO	Norman D. Schwartz	BIO-RAD LABORATORIES INC	Gordon M. Binder	AMGEN INC

65	Francis F. Lee	SYNAPTICS INC	Robert Mehrabian	TELEDYNE TECHNOLOGIES INC	John R. Irwin	ATWOOD OCEANICS
66	Donald E. Brown, M.D.	INTERACTIVE INTELLIGENCE GRP	John R. Gibson	AMERICAN PACIFIC CORP	William J. Cadogan	ADC TELECOMMUNICATIONS INC
67	Kenneth D. Tuchman	TELETECH HOLDINGS INC	David A. Duffield	PEOPLESOFT INC	William M. Lasky	JLG INDUSTRIES INC
68	Gordon M. Binder	AMGEN INC	Theodore M. Solso	CUMMINS INC	David P. Yeager	HUB GROUP INC -CL A
69	Floyd D. Gottwald, Jr.	ALBEMARLE CORP	James C. Morgan	APPLIED MATERIALS INC	Floyd D. Gottwald, Jr.	ALBEMARLE CORP
70	William J. Cadogan	ADC TELECOMMUNICATIONS INC	Jen-Hsun Huang	NVIDIA CORP	David A. Duffield	PEOPLESOFT INC
71	Aaron D. Todd, III	AIR METHODS CORP	David D. Stevens	ACCREDO HEALTH INC	Sudhir Steven Singh	CONCUR TECHNOLOGIES INC
72	Jen-Hsun Huang	NVIDIA CORP	Andrew S. Grove	INTEL CORP	H. Tom Buelter	ON ASSIGNMENT INC
73	H. Tom Buelter	ON ASSIGNMENT INC	Joseph D. Rupp	OLIN CORP	Robert Mehrabian	TELEDYNE TECHNOLOGIES INC
74	John R. Irwin	ATWOOD OCEANICS	William W. Smith, Jr.	SMITH MICRO SOFTWARE INC	John R. Gibson	AMERICAN PACIFIC CORP
75	Theodore M. Solso	CUMMINS INC	Thomas G. Cigarran	HEALTHWAYS INC	Donald E. Brown, M.D.	INTERACTIVE INTELLIGENCE GRP
76	David A. Duffield	PEOPLESOFT INC	Christopher T. Seaver	HYDRIL CO	David D. Stevens	ACCREDO HEALTH INC
77	James C. Morgan	APPLIED MATERIALS INC	Reed Hastings	NETFLIX INC	James C. Morgan	APPLIED MATERIALS INC
78	David D. Stevens	ACCREDO HEALTH INC	Russell A. Gullotti	NATIONAL COMPUTER SYS INC	Theodore M. Solso	CUMMINS INC
79	Thomas G. Cigarran	HEALTHWAYS INC	Aaron D. Todd, III	AIR METHODS CORP	David R. Mueller	COMAIR HOLDINGS INC
80	Andrew S. Grove	INTEL CORP	Henry L. Nordhoff	GEN-PROBE INC	Thomas G. Cigarran	HEALTHWAYS INC
81	John R. Ambroseo, Ph.D.	COHERENT INC	David R. Mueller	COMAIR HOLDINGS INC	Christopher T. Seaver	HYDRIL CO
82	Christopher T. Seaver	HYDRIL CO	Donald E. Brown, M.D.	INTERACTIVE INTELLIGENCE GRP	Andrew S. Grove	INTEL CORP
83	Rodney C. Sacks	MONSTER BEVERAGE CORP	James E. Cashman, III	ANSYS INC	Russell A. Gullotti	NATIONAL COMPUTER SYS INC
84	Russell A. Gullotti	NATIONAL COMPUTER SYS INC	Dwight C. Schar	NVR INC	Rene Champagne	ITT EDUCATIONAL SERVICES INC
85	Henry L. Nordhoff	GEN-PROBE INC	Anthony M. Marlon	SIERRA HEALTH SERVICES	Henry L. Nordhoff	GEN-PROBE INC
86	Frederick J. Rowan, II	CARTER'S INC	David P. Yeager	HUB GROUP INC -CL A	Dwight C. Schar	NVR INC
87	Robert E. Harmon	HARMON INDUSTRIES INC	Robert E. Harmon	HARMON INDUSTRIES INC	Anthony M. Marlon	SIERRA HEALTH SERVICES
88	James F. Halpin	COMPUSA INC	Sudhir Steven Singh	CONCUR TECHNOLOGIES INC	Robert E. Harmon	HARMON INDUSTRIES INC
89	Leonard S. Schleifer	REGENERON PHARMACEUTICALS	Frederick J. Rowan, II	CARTER'S INC	Edward L. Gallup	IMMUCOR INC
90	Anthony M. Marlon	SIERRA HEALTH SERVICES	Rene Champagne	ITT EDUCATIONAL SERVICES INC	Frederick J. Rowan, II	CARTER'S INC
91	David R. Mueller	COMAIR HOLDINGS INC	James Hagedorn	SCOTTS MIRACLE-GRO CO	Kendrick B. Melrose	TORO CO
92	Kendrick B. Melrose	TORO CO	Kendrick B. Melrose	TORO CO	Louis E. Silverman	QUALITY SYSTEMS INC
93	Edward L. Gallup	IMMUCOR INC	Edward L. Gallup	IMMUCOR INC	John B. Carrington	WEBSense INC
94	Jean Madar	INTER PARFUMS INC	John B. Carrington	WEBSense INC	C. Michael Armstrong	AT&T CORP
95	John S. Marr, Jr.	TYLER TECHNOLOGIES INC	Louis E. Silverman	QUALITY SYSTEMS INC	Sterling L. Williams	STERLING SOFTWARE INC
96	Rene Champagne	ITT EDUCATIONAL SERVICES INC	C. Michael Armstrong	AT&T CORP	James F. Halpin	COMPUSA INC
97	Bruce P. Bickner	DEKALB GENETICS CORP -CL B	James F. Halpin	COMPUSA INC	Walter E. Boomer	ROGERS CORP
98	Thomas N. Urban	PIONEER HI-BRED INTERNATIONAL	Sterling L. Williams	STERLING SOFTWARE INC	Rodney Smith	ALTERA CORP
99	James Hagedorn	SCOTTS MIRACLE-GRO CO	James L. Herbert	NEOGEN CORP	Robert P. LoCasio	LIVEPERSON INC
100	Sterling L. Williams	STERLING SOFTWARE INC	Eran Broshy	INVENTIV HEALTH INC	Edward P. Campbell	NORDSON CORP

Table 5.9 Top 100 CEOs by Weighted INDEX RANK II and their Performance

This table presents the top 100 CEOs ranked by Weighted INDEX Rank II. Weighted INDEX Rank II is composed of 70% of pre-turnover and 30% of post-turnover weighted performance indices. Pre-turnover indices construction is described in Table 5.8. For post-turnover weighted performance indices, three years weighted and industry-adjusted AROA INDEX, ABHAR INDEX, EPS Surprise INDEX and M&A sum CARs after CEOs' stepping down are calculated, and at least three out of the four indices data should be available. More weights are given to the most recent years' performance after turnover. In specific, the post-turnover operating performance index is composited of 50% of most recent year AROA post turnover, 30% of 2 years post and 20% of 3 years post turnover AROA. The same weights are applied to Weighted ABHR and EPS Surprise performance indices. CEOs are then ranked based on weighted AROA, ABHAR, EPS Surprise performance Indices, and M&A CARs mutually exclusively, by which each CEO is ranked from best to worst for each metric, and the four (three if one is missing) measure rankings are averaged and re-ranked from 1 to construct the Weighted INDEX Rank I_POST. Weighted Index Rank II is composed of 70% of Weighted INDEX Rank I and 30% of Weighted INDEX Rank I_POST. CEO, firm name and individual performance indices over and post CEO tenure are listed.

RANK	CEO NAME	FIRM NAME	PERFORMANCE OVER TENURE				PERFORMANCE POST TENURE			
			AROA INDEX	ABHAR INDEX	EPS SURPRISE INDEX	M&A CAR	AROA INDEX	ABHAR INDEX	EPS SURPRISE INDEX	M&A CAR
1	Michel de Rosen	VIROPHARMA INC	51.9%	145.9%		14.9%	51.1%	50.9%	-37.0%	-8.3%
2	Gary J. Sbona	VERITY INC	28.0%	110.8%	42.4%	24.0%	23.7%	-27.3%	9.9%	6.1%
3	Alphonse M. Lucchese	CONCERTO SOFTWARE INC	29.7%	43.2%	21.9%		28.9%	36.0%	43.2%	
4	Ingrid Wiik	ALPHARMA INC -CL A	38.8%	20.8%	60.5%	16.6%	41.2%	33.6%	30.5%	
5	Robert Delmont Kennedy	UNION CARBIDE CORP	27.1%	51.3%	21.3%	14.7%	33.5%	22.0%	6.4%	
6	John P. Morgridge	CISCO SYSTEMS INC	39.0%		13.3%	11.1%	38.2%		6.5%	1.4%
7	Andrew Rudd	BARRA INC	32.0%	43.3%	8.2%	12.6%	37.6%	129.6%	27.3%	
8	Timothy Joseph Barberich	SEPRACOR INC	35.1%	34.4%	56.8%		40.9%	-1.4%	16.8%	-8.8%
9	Laurence Jay Korn	PDL BIOPHARMA INC	20.4%	83.2%	41.0%		22.0%	20.0%	0.2%	
10	Einar W. Sissner	ALPHARMA INC -CL A	32.4%		17.0%	7.7%	35.0%		0.4%	18.6%
11	William H. Gates III	MICROSOFT CORP	44.6%	69.7%	9.0%	5.4%	49.8%	30.4%	8.1%	-2.9%
12	Robert J. Doris	SONIC SOLUTIONS	15.9%	90.2%		23.1%	21.6%	-29.1%	25.5%	-5.7%
13	Wayne T. Hockmeyer	MEDIMMUNE INC	29.9%	136.3%	37.7%	2.4%	42.4%	-6.5%	9.3%	-3.3%
14	Warren V. Musser	SAFEGUARD SCIENTIFICS INC	14.6%	72.6%		25.6%	20.6%	-15.3%		21.1%
15	Philip Frey, Jr.	MICROSEMI CORP	10.5%	72.3%		36.0%	9.7%	102.7%	11.6%	-4.7%
16	Stephen M. Case	TIME WARNER INC	23.9%	161.8%	16.6%		23.6%	-2.8%	11.3%	
17	Cyril C. Baldwin, Jr.	CAMBREX CORP	26.3%	52.0%		4.1%	30.6%	24.7%	3.6%	-2.9%
18	John Edward Warnock	ADOBE SYSTEMS INC	46.5%	99.0%	7.5%		57.5%	-2.6%	9.0%	5.9%
19	William D. Morean	JABIL CIRCUIT INC	17.4%	242.6%	10.1%	13.0%	17.7%	7.8%	2.3%	28.8%
20	David A. Duffield	PEOPLESOFT INC	22.9%	67.0%	10.2%	2.3%	27.9%	47.0%	31.2%	-12.7%
21	Timothy Koogle	YAHOO INC	27.2%	175.8%	48.3%	-25.5%	29.6%	52.6%	22.6%	4.9%
22	Henry L. Nordhoff	GEN-PROBE INC	47.5%	28.5%	15.2%	1.7%	45.1%	29.2%	8.5%	2.5%
23	Michael R. Gaulke	EXPONENT INC	19.8%	38.9%	15.4%		22.1%	21.6%	11.3%	

24	Marvin J. Gralnick	CHICOS FAS INC	34.9%	90.4%	6.7%	10.9%	37.1%	13.1%	2.6%	
25	Douglas W. Kohrs	AMERICAN MEDICAL SYSTMS HLDS	23.6%		24.7%	4.2%	25.3%		2.6%	-20.9%
26	Dale R. Olseth	SURMODICS INC	30.4%	57.5%	12.9%	3.8%	42.0%	11.1%	-1.7%	2.2%
27	Frederick J. Rowan, II	CARTER'S INC	9.2%		32.4%	8.2%	8.7%		77.8%	2.3%
28	Carol A. Bartz, Ph.D.	AUTODESK INC	26.6%	50.6%	34.8%	0.9%	27.8%	3.4%	5.1%	-5.2%
29	Edward L. Gallup	IMMUCOR INC	57.1%	143.1%	5.1%	1.2%	63.2%	36.0%	11.3%	-25.1%
30	Edward P. Campbell	NORDSON CORP	17.6%	30.1%	13.8%	5.2%	18.8%	30.5%	11.3%	2.4%
31	Andrew S. Grove	INTEL CORP	28.9%	55.9%	4.9%	8.4%	29.7%	72.7%	4.3%	-25.6%
32	King P. Kirchner	UNIT CORP	10.7%	43.1%		6.6%	13.3%	19.7%		11.4%
33	Douglas E. Swanson	OIL STATES INTL INC	15.9%	28.0%	13.7%	3.8%	17.6%	51.5%	14.0%	8.8%
34	Richard J. LaPorte	CAPTARIS INC	35.9%	48.1%	4.8%		39.7%	20.4%	20.7%	
35	Gordon M. Binder	AMGEN INC	59.5%	62.8%	5.2%		60.0%	18.2%	1.4%	-5.5%
36	Joseph H. Scarlett, Jr.	TRACTOR SUPPLY CO	11.2%	86.7%	19.7%		11.8%	20.5%	-2.2%	7.9%
37	Robert Kamerschen	ADVO INC	37.3%	35.9%	5.6%		46.2%	41.2%	6.0%	
38	William R. Chaney	TIFFANY & CO	11.4%	37.4%	13.1%		12.8%	103.9%	13.2%	7.0%
39	Robert E. Harmon	HARMON INDUSTRIES INC	16.5%	45.1%	28.5%	-0.1%	16.8%	3.7%	54.5%	
40	Thomas G. Cigarran	HEALTHWAYS INC	10.8%	116.9%	15.7%		14.0%	24.3%	3.9%	
41	Floyd D. Gottwald, Jr.	ALBEMARLE CORP	37.3%	35.6%	7.0%	9.0%	36.3%	-2.5%	2.3%	1.0%
42	Kendrick B. Melrose	TORO CO	18.4%	49.8%	27.5%	-1.0%	18.7%	5.9%	19.0%	
43	Dwight C. Schar	NVR INC	35.8%	29.3%	9.4%		34.0%	10.0%	10.0%	
44	Albert P. L. Stroucken, Ph.D.	FULLER (H. B.) CO	41.6%	28.9%	18.3%	-1.1%	43.8%	16.6%	9.6%	
45	John F. Keane	KEANE INC	37.4%	44.8%	5.0%	2.9%	45.3%	29.4%	6.8%	-10.1%
46	Sidney W. Emery, Jr.	MTS SYSTEMS CORP	23.5%	28.2%	11.1%		24.5%	10.9%	16.7%	0.8%
47	Allen J. Lauer	VARIAN INC	20.6%		5.8%	12.7%	20.6%		6.8%	-1.2%
48	Steven J. Lee	POLYMEDICA CORP	23.1%	51.8%	5.6%		28.4%	47.9%	2.4%	
49	Frank P. Popoff	DOW CHEMICAL	26.7%	20.5%	23.1%		31.7%	27.6%	1.5%	1.5%
50	James Brian Ferguson	EASTMAN CHEMICAL CO	43.5%	24.4%	11.1%	-1.2%	41.2%	52.0%	14.0%	8.3%
51	George H. Conrades	AKAMAI TECHNOLOGIES INC	4.8%	191.2%	23.7%	4.2%	13.7%	90.6%	4.8%	-0.6%
52	David E. Maguire	KEMET CORP	15.7%	61.3%	14.9%		14.8%	2.8%	-46.4%	2.7%
53	Louis E. Silverman	QUALITY SYSTEMS INC	33.6%	38.2%	7.1%		35.5%	34.1%	-5.7%	
54	G. Kirk Raab	GENENTECH INC	20.9%	20.9%	21.6%		26.5%	20.8%	9.9%	
55	Stephen N. Joffe	LCA VISION INC	12.5%	114.9%	44.7%		18.8%	-27.4%	-28.2%	
56	Rene Champagne	ITT EDUCATIONAL SERVICES INC	31.9%	32.1%	9.4%		32.0%	-2.7%	11.4%	
57	James C. Morgan	APPLIED MATERIALS INC	13.2%	41.4%	21.8%	4.6%	7.6%	-7.4%	19.5%	-4.2%
58	Bernard J. Couillaud	COHERENT INC	13.4%	66.5%	6.3%	8.1%	12.9%	6.0%	39.4%	-4.9%
59	Matthew E. Massengill	WESTERN DIGITAL CORP	17.2%	59.2%	31.6%	-19.5%	19.2%	37.5%	15.0%	-0.4%
60	Howard B. Witt	LITTELFUSE INC	15.8%	27.3%	17.0%	5.7%	15.5%	7.0%	8.4%	-3.4%
61	Ben T. Harris	GENESCO INC	8.8%	40.5%	26.2%		11.3%	-2.1%	38.8%	2.8%
62	Rodney Smith	ALTERA CORP	24.4%	67.1%	4.8%	5.1%	27.0%	10.7%	3.1%	

63	Thomas N. Urban	PIONEER HI-BRED INTERNATIONL	20.9%	36.8%	10.2%		22.0%	31.4%	-28.0%	
64	Thomas R. Pledger	DYCOM INDUSTRIES INC	20.7%	123.1%		-2.3%	21.6%	15.9%	6.8%	-14.2%
65	H. Tom Buelter	ON ASSIGNMENT INC	48.2%	57.6%	5.5%		50.1%	-21.1%	-23.2%	-0.5%
66	William J. Cadogan	ADC TELECOMMUNICATIONS INC	13.7%	49.1%	8.5%	32.5%	10.3%	-24.8%	10.3%	
67	John B. Carrington	WEBSense INC	15.0%	43.9%	11.4%		13.0%	-8.6%	10.1%	-3.0%
68	Robert F. Spoerry, Dipl. Masch	METTLER-TOLEDO INTL INC	22.4%	31.5%	7.0%		24.3%	19.8%	7.8%	
69	Donald George Fisher	GAP INC	22.4%	41.5%	4.1%		19.4%	56.1%	6.4%	
70	Walter E. Boomer	ROGERS CORP	37.8%	31.9%	10.5%	1.9%	40.0%	-4.4%	3.0%	
71	Robert A. Davies III	CHURCH & DWIGHT INC	41.1%	26.1%	10.8%	-2.2%	42.6%	25.7%	9.5%	0.0%
72	John S. Brinzo	CLIFFS NATURAL RESOURCES INC	26.8%	48.8%	2.2%		33.6%	70.1%	5.0%	
73	James D. Armstrong	JDA SOFTWARE GROUP INC	19.0%	35.0%	40.4%	-3.9%	14.7%	-4.3%	37.0%	-3.4%
74	Richard A. Aurelio	VARIAN SEMICONDUCTOR EQUIPMT	11.1%	28.6%	27.4%		7.2%	41.3%	3.1%	
75	C. B. Rogers, Jr.	EQUIFAX INC	17.7%	31.1%	4.5%	7.4%	19.2%	41.2%	3.2%	
76	Douglas V. Smith	LUFKIN INDUSTRIES INC	22.6%	45.1%	2.6%		25.2%	38.7%	12.2%	0.4%
77	Martin H. Loeffler	AMPHENOL CORP	22.1%	35.4%	5.1%	1.3%	22.5%	32.9%	6.2%	
78	Fred M. Butler	MANITOWOC CO	12.3%	45.0%	7.9%	0.6%	15.7%	37.7%	3.3%	44.4%
79	William H. Rastetter	BIOGEN IDEC INC	36.3%	48.8%	2.4%		34.5%	29.1%	0.5%	2.1%
80	Wendell P. Hurlbut	ESTERLINE TECHNOLOGIES CORP	9.9%	51.6%	17.5%	2.7%	11.9%	17.9%	-1.7%	-1.9%
81	Christopher A. Kuebler	COVANCE INC	17.9%	42.7%	5.1%		18.7%	32.6%	1.6%	3.8%
82	Eric J. Crown	INSIGHT ENTERPRISES INC	20.1%	69.1%	9.3%	-5.5%	23.9%	22.8%	3.7%	18.4%
83	Darwin Deason	AFFILIATED COMPUTER SERVICES	22.1%		3.4%	13.4%	27.7%		0.6%	1.1%
84	Charles B. Wang	CA INC	35.8%	29.6%	2.1%		39.3%	64.7%	23.6%	
85	Richard M. Levy, Ph.D.	VARIAN MEDICAL SYSTEMS INC	28.5%	31.3%	9.9%	0.2%	29.6%	5.2%	7.8%	-6.5%
86	Robert J. O'Toole	SMITH (A O) CORP	9.1%	26.0%	21.8%	2.8%	7.2%	18.9%	18.7%	5.0%
87	James B. Perry	ARGOSY GAMING CO	13.3%	41.7%	25.6%	-3.5%	9.7%	37.8%	6.4%	
88	Lawrence J. Mosner	DELUXE CORP	28.8%		3.3%	4.4%	23.4%		9.3%	-0.8%
89	Anthony L. Andersen	FULLER (H. B.) CO	27.2%	26.8%	5.5%	3.7%	29.7%	21.1%	4.2%	
90	Matthew Szulik	RED HAT INC	4.4%	32.0%	17.3%	33.2%	4.1%	35.2%	14.4%	-7.0%
91	James W. Bagley	LAM RESEARCH CORP	14.2%	17.2%	25.5%		18.1%	28.4%	12.0%	0.3%
92	Mark C. Smith	ADTRAN INC	18.5%	42.8%	8.8%		20.6%	-2.3%	2.2%	
93	William S. Kellogg	KOHL'S CORP	14.1%	68.5%	3.5%		13.2%	52.0%	7.7%	
94	Clark A. Johnson	PIER 1 IMPORTS INC/DE	12.3%	65.0%	6.0%		16.1%	25.2%	3.6%	
95	Louis V. Gerstner, Jr.	INTL BUSINESS MACHINES CORP	29.9%	43.3%	2.2%	9.0%	29.2%	0.0%	3.0%	-3.6%
96	John P. Jones, III	AIR PRODUCTS & CHEMICALS INC	44.2%	29.5%	2.3%	3.1%	45.8%	21.7%	2.4%	3.9%
97	David Schwartz	BIO-RAD LABORATORIES INC	21.7%	54.9%		-8.3%	24.8%	3.0%	12.7%	7.5%
98	Scott M Niswonger	FORWARD AIR CORP	26.0%	31.9%	6.9%		24.9%	-1.7%	5.2%	
99	Pete M. Nicholas	BOSTON SCIENTIFIC CORP	27.6%	39.8%	2.2%	5.7%	25.5%	-27.3%	6.2%	7.7%
100	Terry D. Growcock	MANITOWOC CO	12.2%	57.3%	9.6%		15.5%	16.3%	-14.7%	

5.7 Conclusion

The main research objectives in chapter three and four are to define long-term successful CEO Champions and examine their successors; whereas this chapter mainly aims at constructing effective measurement indices to rank CEOs, current or left ones, by their long-term performance. With methodology in chapter three and four improved, chapter five employs five-year-prior weighted performance indices. Five years are utilised to both reflect variance across time and performance over the long term. The new ranking system aims at improving Harvard Business Review's ranking method and encouraging the board of directors, analysts and shareholders to evaluate CEOs based on long-term performance from various dimensions. Similar to HBR's ranking, this study does reveal hidden gems, who are away from the glare of the cover stories and successfully manage relatively smaller firms amongst the top 1500 firms in the U.S over the five years period.

HBR's performance metrics mainly focus on stock returns, i.e., country-adjusted company returns, industry-adjusted company returns, and market capitalization change. However, HBR's method is substantially improved in this study by introducing not only stock performance metric but also operating, investment and EPS surprise performance metrics. The diverse dimensions ensure that CEOs ranked on the top have created value for firms' shareholders in every respect. Also, the innovative ranking method provides the board of directors with a new judgemental approach to CEO evaluation and reward system. Apart from creating value for their firms over their tenure, CEOs have another vital task to cultivate and pave the way for their successors. Thus, in the separate ranking, CEOs' three-year post turnover weighted performance is also taken into account for the overall rankings. The top 100 CEO lists are presented to reveal the successful CEOs who create value for the past five years, and for prior and post the turnovers, respectively. From the tests of logistic regressions and multinomial logistic regressions of forced turnovers on single performance measures and CEO rankings, CEO performance ranking is found to negatively and significantly associated with a forced turnover dummy, suggesting hypothesis one that higher ranked CEOs are less likely to be forced out is supported. Also, CEO ranking measure has better prediction power than other forced turnover models with single performance measure, i.e., AROA, ABHAR, M&A CARs and EPS Surprise, indicating hypotheses two is supported. The results combined demonstrate the weighted performance ranking in this study is a better ranking method than HBR's stock returns focus method and the single performance measures.

Part III Conclusion and Research Outlook

6 Conclusion and Further Research

6.1 Summary and Conclusion of the Thesis

This thesis has studied several aspects of CEO turnover events and CEO performance measurements. In Chapter 2, the general literature on firm performance around CEO turnover and potential measures in defining successful CEOs are reviewed, with a particular focus on firm performance in defining successful CEOs. The review also explains how board quality, corporate governance, and CEO succession plan may affect managerial successions. Moreover, it highlights the potential key drivers of successful replacement.

Based on the theoretical foundations of the literature, the second part of this thesis presents three in-depth empirical analyses of CEO Champions' replacement and CEO rankings. Chapter three examines whether corporate boards manage to replace successful CEOs with equally (or even superior) capable successors who manage to drive their companies to continuous success. Also, whether successors' performance relies on that of their predecessors'. I construct two measure indices to define champion CEOs. From Huson et al. (2004)' improved management hypothesis, poor firm performance could result from either poor manager quality or bad luck. Thus, successors' performance after a forced turnover is expected to increase due to either the anticipated increase in manager quality or the reversion of bad luck. The same applies to champions' departure, and the performance of their successors are expected to reverse due to luck reversion. Besides, growth cyclicity and priorities diversion may also lead to champions' successors' performance reversion. On the other hand, champions' successors are expected to be able to sustain the above average performance, i.e., better predecessors tend to be replaced by better successors based on the CEO Champions effective replacement conjecture, remaining influence conjecture, and legacy conjecture. The results show that CEO Champions' successors outperform non-champions' successors. Although champion' successors cannot sustain their predecessors' performance in the univariate framework due to luck reversion, growth cyclicity and priorities diversion, they tend to generate as superior operating performance as their predecessors after controlling for growth cyclicity in the multivariate framework. Also, predecessors' legacy significantly affects successors' performance in voluntary turnover events. As a result, corporate boards are able to replace CEO Champions effectively.

Chapter 4 explores under what circumstances successors tend to outperform their champion predecessors and examines the conflicting arguments regarding the relation between insider

dummy and successful replacement. There is a divergence of views on the relations between firm performance and insider origin since replacement by insiders can either suggest good succession plans or increased managerial entrenchment; thus, the second analysis in this thesis explores whether insider or outsider successors are more likely to replace their champion predecessors successfully. It documents a robust negative relation between insider dummy and successful replacement, indicating that outsiders are more apt to replace champion predecessors effectively.

In line with the reputational capital view of directorships, the busy board is found to have better capability to replace champion CEOs successfully. This finding reinforces the argument that busy boards tend to have valuable experience while sitting on different boards simultaneously. The firms operated by champions require less monitor but broader visions and more strategic direction than other firms. Champion predecessors are more likely to be reappointed to the board, and their successors are more likely to sustain the continuous success. Champion founders' successors are demonstrated to have better performance improvement, indicating that champion founders are less likely to be entrenched.

The final empirical analysis focuses on constructing two weighted performance-based measurement indices to build top 100 CEO lists, which can be applied to rank CEOs who have stepped down or still in office. Compared with HBR's CEO ranking method, I employ more firm performance dimensions and impose more restrictions. The innovative ranking measures provide corporate boards with valuable reference, which can prompt directors to restore poor performance proactively by hiring new CEOs and reward CEO Champions. Results from the logistic regressions and multinomial logistic regression of turnover on single performance measures and CEO ranking show that CEO ranking is negatively and significantly associated with a forced turnover dummy. This result indicates that higher ranked CEOs are less likely to be forced out. Most importantly, I test CEO rankings in forecasting forced turnover events, and CEO ranking is demonstrated to have better prediction power than other forced turnover models with single performance measure.

6.2 Implications for Finance Practice

This study provides the board of directors with a new method to rank CEOs and evaluate CEOs' performance from eight various respective. Evaluated by rankings of industry-adjusted operating, stock performance, EPS surprise, and investment performance, CEOs qualified in the list are more likely to generate great value for their shareholders and meet the

majority expectations from investors, analysts and shareholders. As the results from this study indicated, CEOs with worse rankings are more likely to be forced out due to poor performance. The Top 100 CEO lists can be updated on an annual basis and published to the public for the Board of Directors' reference and for CEOs' self-evaluation purposes.

6.3 Research Limitations

Some limitations should be noted in this dissertation. First, the actual performance measurements employed by the board of directors to evaluate CEOs are unobservable to the public, and this "soft" information is critical in assessing and firing CEOs (**Cornelli, Kominek, and Ljungqvist, 2013**). Selecting available performance measurements to evaluate CEOs is vital in this study and choosing the wrong measures might distort the results. Stock returns are widely used by most studies (HBR focus mainly on stock performance). However, it tends to be a problematic measure of CEO performance since share prices are forward-looking and incorporate investors' expectation and assessment of the firm. Also, there is overvaluation or undervaluation issue involved with stock returns. **Engle, Hayes, and Wang (2003)** argue that accounting measurements should be weighted more heavily and market-based performance should receive less weight in turnover decisions when accounting returns are relatively more precise and highly correlated with stock returns. Stock returns tend to capture many factors and contain many noises which are not related to current CEO's performance. This partially explains why stock returns show different results from other three performance measures in the univariate analysis of performance comparisons of champions and their successors. The adverse effect of choosing inappropriate measures have been partially mitigated by constructing two different measure indices using eight different measurements in this study. The beat % method should be free of firm size effect, and the issue relates to noises in the stock returns. Moreover, the main sample in this study includes the voluntary succession events that occurred amongst S&P 1500 firms, which restricts the scope of this study to CEOs of relatively large companies with U.S. headquarter. Finally, this dissertation cannot and does not attempt to understand the impact of macroeconomic conditions, but instead controls for them through the fixed effect of the hiring year for each CEO.

As **Weisbach (1995)** suggested, CEO turnovers are essential events for firms since they lead to reversals of poor prior decisions. In specific, CEOs are more likely to be fired for poor performance, and voluntary restructurings tend to follow poor performance (**John, Lang and Netter, 1992**). However, CEO turnover is endogenous and partially determined by the firm's

performance, and the econometric evidence of reversals could merely reflect the endogeneity of turnover. For investment performance, the reversals in firm performance might be consistent with firms making an optimal acquisition and divestiture decisions independent of any management successions. Firms might divest poorly performing divisions and CEOs might be fired merely because firms realised that acquisitions are not value-maximizing and should be sold. The same endogeneity issue might apply to champions' voluntary leave. The superior performance over champions' tenure might reflect the greater operating or financial synergies at the earlier stage of the acquisitions, which might be deteriorating during their successor's tenure. The endogeneity issue should have been further addressed.

6.4 Discussion on potential issues

6.4.1 Endogeneity concerns

Although the findings of this study are informative, it is open to multiple interpretations. Companies of CEO Champions perform well even after them stepping down, and the relatively good performance after turnovers could be attributed to either the board of directors' replacement decisions or the legacy of departing champions. Champions' legacy could lead to better performance regardless of successors' quality. Another possible driver is the endogeneity between successful firms and good CEOs, i.e., successful companies will seek to hire better quality CEOs and, similarly, capable candidates will aim to become the CEOs at successful firms. Another potential endogeneity issue in this study is omitted variables concern. Control variables have been demonstrated to be varied across studies on CEO turnover and firm performance; thus, the potential for omitted variables and endogeneity biases are present in most CEO turnover studies. The same concerns apply to this study. CEO turnover event itself is also endogenous and partially determined by firm performance. The poor operating and stock performance tends to lead to a forced turnover, and performance is more likely to be improved after the forced turnover event. It seems CEO turnover leads to the reversal of poor performance; however, the econometric evidence of reversals could merely reflect the endogeneity of turnover events. The same applies to the investment performance. Reversals in firm investment performance might be consistent with firms making an optimal acquisition and divestiture decisions independent of management successions.

The selected style hypothesis proposed by **Fee, Hadlock, and Pierce (2013)** suggest that causal managerial-style effects are deliberately selected by the board to induce the

corporation to move in a particular direction. However, firms may select new CEOs precisely when they have decided to make other changes. On the other hand, better quality successors are more likely to seek a career in more successful firms. Given the endogeneity of CEO selection, it is difficult to identify separately the effect of a new CEO on firm policies and the effect of the board's directive for the firm to pursue a new direction, i.e., it is unclear whether any altered firm choices are the reflection of the style of the new CEO or the board would instruct the new CEO to make prescribed changes no matter who is the successor. Previous studies tried to circumvent these issues arising from endogeneity concerns by focusing on CEO unexpected deaths since the exit of the departing CEO and need for replacement are exogenous (**Johnson et al., 1985; Sala, 2010; Bennedsen et al., 2008**). Other research study turnover events involved with age-based natural retirements as exogenous turnovers (e.g., **Denis and Denis, 1995**). These turnover events can shed more lights on whether CEO style plays an independent role in firm policies.

Fee et al. (2013) also study exogenous CEO departures to circumvent endogeneity concerns, and their finding is consistent with the causal relationship between style and firm policies and with the board's anticipation of these effects in their choice of replacement. Their documented evidence implies this study that the board of directors is likely to select one CEO who fit the company's strategies and may continue to do so to select the successor. This behaviour further implies that the underlying mechanism governing firm policies should reflect the economic factors at the board or firm level, rather than at the CEO level. This study intends to circumvent endogeneity concerns and focus only on exogenous CEO departures, i.e., voluntary turnover events. Although **Fee et al. (2013)** did not identify any CEO style on firm policies for the whole exogenous CEO departures sample, this study provides insightful results by focusing on management changes of the top-performers among exogenous CEO departures. However, the continuous superior performance might attribute to the endogenous between excellent board choices in successful firms and successful CEO's career choices. The ambiguity of the source of the continuous success after turnover events should have been resolved. This endogenous issue could have been solved by studying the matched successful CEO sample without turnover events. In specific, one possible solution is to match pairs of successful CEOs' companies that do not have turnovers with the CEO Champions' sample. The matching criteria would serve to show that these companies have been similar regarding CEOs characteristics and performance up until the point of the turnovers. The differences in their performance after turnover events can then be measured

and compared. If successors of champions are found to outperform incumbent CEOs, the continuous success can be attributed to the newly appointed CEOs. On the other hand, it will demonstrate that legacy is not significant enough to maintain super performance if successors underperform incumbent CEOs. The outcome will be uninformative if the performance comparisons are similar since performance may persist because either the successor has been capable or the legacy is strong enough to sustain super performance momentum.

6.4.2 Performance measures bias concerns

This study constructs unique CEO performance measures and rankings, which are based on long-term firm performance from different dimensions. Performance measures aim at capturing the value created for shareholders over CEOs' tenure. However, constraining top CEOs with a high ranking of AROA, ABHR, EPS Surprise and MA CARs may lead the author to select firms with relatively smaller size within S&P 1500. Whereas the second ranking method (AROA2, ABHR2, EPS Surprise2 and MA CARs2) based only on how many times beat control sample or analyst forecasts should be free from this issue. Although size is controlled in the regression framework, it is ideal to create an unbiased ranking in the first place. In detail, earnings are more volatile for smaller firms; therefore smaller firms with good performance are more likely to be in the top of the performance distribution, i.e., within the top performers, earnings volatility is in favour of the smaller companies. Earnings surprises are more likely for firms suffering from more information asymmetry between management and investors. Small firms and extra-large firms may suffer more from the information asymmetry, with the former due to secrecy and the latter due to the sheer size or institutional complexity. It is a well-documented fact that fewer analysts follow small firms; and thus, smaller firms with less attention tend to be misvalued. Mergers and acquisitions are more likely for a small number of firms. Literature suggests that the majority of acquisitions can be attributed to a small group of serial acquirers. The fewer the number of deals performed by a CEO, the less likely it is to judge the CEO's quality in investment decisions. Overall, it seems that not accounting for size has created classification issues and it could lead to spurious results. The same may hold for other factors, such as growth opportunities (value-growth) and momentum (stock-market component). The potential approach to solving this size induced issue is to control for size in the measurements. Fama and French's 25 size and book-to-market portfolio BHAR measurements (FF-BHAR) could have been chosen as alternatives to replace industry-adjusted BHAR. However, FF-BHAR did not control for industry, which is widely and commonly controlled in CEO turnover study. For operating

performance, although most turnover literature used industry-adjusted ROA, **Barber and Lyon (1996)**'s control group ROA may also be considered to control for mean reversion. In specific, adjust ROA for the median ROA of a control group of firms that are from the same industry and have similar prior operating performance ($\pm 10\%$ ROA) in each fiscal year. By adjusting similar prior operating performance, the degree of earnings volatility should have been restricted, which may avoid selecting smaller firms. For investment performance, investment efficiency could be a potential alternative to MA sum CARs.

On the other hand, there might be the persistent difference in practices across firms due to specific unobservable factors, which might be correlated with the manager fixed effects. It implies that manager fixed effects should have been separated from firm fixed effects to study individual CEO's performance (**Bertrand and Shoar, 2003**). However, this study focuses on voluntary turnovers, with 80% CEO successors are promoted within. The effect of managers on corporate practices cannot be estimated separately from their firm fixed effects for these insiders. Also, top executives are not randomly allocated to the firms. Thus, the firm fixed effect is not controlled in this study.

6.5 Suggestions for Further Research

Several results presented in this thesis can be extended and developed further in different ways. This section describes possible directions of future research based on the findings of the empirical analyses.

6.5.1 Underinvestment and CEO Turnover

Chapter three has demonstrated that corporate boards did an excellent job in replacing CEO Champions who delivered superior investment performance over their tenure. Also, **Mitchell and Lehn (1990)** and **Lehn and Zhao (2006)** find evidence that CEOs could be penalised for making value-decreasing acquisition decisions and the corporate board can successfully replace the value-destroying CEOs. However, the agency problems of managerial underinvestment tend to be understated by the board, while those of overinvestment have been overstated. Under efficient contracting prediction theory, once board found underinvestment, they tend to increase performance-based compensation to motive CEO to increase investment (**Baxamusa, 2012**). On the other hand, **Yim (2013)** argues that under/overinvestment is driven by age effect. In specific, CEOs tend to invest more in the earlier stage and reduce investment in the later stage of their tenure due to age-varying incentives. Both young and old CEOs who initiate more M&A deals (even bad deals) are less

likely to be fired, compared to non-bidders. Firms with above average level investment opportunities that managed by old CEOs could suffer from massive underinvestment problem (Serfling, 2012). There are contradictory findings in Pan et al.'s (2016) that CEOs tend to disinvest at the beginning of their tenure and increase investment (CAPEX, M&A) in the later years during their term of office. Given the recent debate about age effect and overstate/understate of CEOs' underinvestment, it would be important to examine whether corporate boards (internal control mechanisms) tend to penalise underinvestment? If yes, how corporate boards penalise the underinvestment? Is forced CEO turnover mainly driven by underinvestment, overinvestment or bad investment? Underinvestment/Overinvestment (the proxy for CEO optimism) is measured in Campbell, Gallmeyer, Johnson, Rutherford, and Stanley (2011)'s as the firm's industry-adjusted⁷⁰ investment level that maximises firm's value. Low-optimism CEOs are CEOs manage companies with investment rates in the bottom quintile of their industry, while high-optimism CEOs are CEOs manage firms with investment rates in the top quintile of their industry. They find that CEO optimism is the main determinant for forced CEO turnover, which infers that under/overinvestment could be the main determinant for a forced turnover as well.

6.5.2 CEO Champions as Successors

Another interesting extension of the evidence shown in Chapter 3 would be to analyse the CEO sample who held CEO roles in more than one organisations. Among these CEOs, champions can be identified by examining firm performance over their tenure. It would be important to test whether CEO Champions who have stepped down but re-appointed as other firms' CEOs tend to sustain their superior performance in new organisations with different culture sets.

6.5.3 CEO Ranking with Investment Efficiency

Chapter 5 has constructed CEO rankings by using four firm performance in various dimensions. I impose the requirement that at least three out of four measures should be available to mitigate the fact that some CEOs might not initiate any M&A deals during their tenure. To improve this, the M&A sum CARs can be replaced by investment efficiency measures. To construct investment efficiency measures, a model which predicts firm investment levels can be built. The residuals from the model are the proxy for inefficient

⁷⁰ To compare with the industry average investment level: subtract the firm's investment (CAPEX, M&A, R&D/Sales, % Change in Assets) from the median/mean 3-digit SIC industry investment to measure the under/overinvestment (Baxamusa, 2012).

investment for the firm. The data are from the Compustat Annual file from 1980 to 2003 (**Richardson**⁷¹, 2006). His measure uses an accounting-based framework to estimate new investment as the difference between total investment and investment required for maintenance of assets in place. On the other hand, **Hubbard (1998)** only use capital expenditures as a proxy for investment, which is frequently utilised in the literature. By using industry-adjusted operating, stock performance, EPS surprise and investment efficiency as metrics to construct the rankings, CEOs should have all four performance measures data available to be qualified in the list. The improved Top 100 CEO lists can be updated on an annual basis and published to the public.

⁷¹ Total new Investment in a given firm-year is the sum of capital expenditures (item 128), R&D expenditures (item 46), and acquisitions (item 129) minus sales of PPE (item 107) and depreciation and amortization (item 125) multiplied by 100 and scaled by average total assets (item 6) from Compustat.

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Appendix

Appendix A: Variable Definition

Variables	Definition
PANEL A: CEO CHARACTERISTICS	
AGE (YEARS)	Age of the CEO in the year of hiring (successors) or leaving (predecessor).
TENURE (YEARS)	Tenure of the CEO served as CEO in the firm. Tenure (year) for successors is estimated from the date they became CEO until the last day in our dataset for those who have not left office until 31 Dec 2012.
SALARY	Salary is the Salary item from ExecuComp
BONUS	Bonus is the Bonus item from ExecuComp
TOTAL COMPENSATION	TDC1 item from ExecuComp, which comprises of salary, bonus, other annual compensation, the total value of restricted stock granted, the total value of stock options granted (using black-scholes), long-term incentive payouts, and all other total compensation.
COMPENSATION (%)	The ratio of total compensation (TDC1) to the firm's total assets (AT from Compustat) at the fiscal years of their departure (appointment).
FEMALE (%)	An indicator variable equal to 1 if the CEO is female and zero if the CEO is male from ExecuComp.
FOUNDER (%)	An indicator variable equal to 1 if the predecessor is (co-) founders of the firm and zero otherwise.
REMAIN_BOARD (%)	An indicator variable equal to 1 if the predecessor still served on the board after departure.
REMAIN_CHAIR (%)	An indicator variable equal to 1 if the predecessor still served as chairman after departure.
INSIDER (%)	An indicator variable equal to 1 if the successor holds other managerial position (s) in the firm for no less than one years before becoming CEOs (Huson et al., 2004). INSIDER is the proxy for a succession plan.
SERVEYEAR	Number of years that insider successors hold other managerial positions in the firms before becoming CEOs.
CHAIRMAN DUALITY (%)	An indicator variable equal to 1 if the CEO is also chairman of the BoD and zero otherwise.
SAMEDATE	An indicator variable equal to 1 if the turnover announcement dates and successors' hire announcement dates are the same dates. SAMEDATE is the proxy for a succession plan.
PANEL B: FIRM CHARACTERISTICS	
ASSETS	Total assets (in millions) from Compustat.
SALES	Sales (in millions) from Compustat.
MKTCAP	Common shares outstanding (in millions) multiplied by fiscal year end stock price from Compustat.
MARKET-TO-BOOK	The market value of equity over book value of equity from Compustat. The market-to-book ratio has been winsorized at 1% and 99% level. Calculated as the market value of equity plus book value of current

Q	liabilities and long-term debt divided by book value of equity plus book value of current liabilities and long-term debt from Compustat. Q has been winsorized at 1% and 99% level.
GASSETS	Annual average Growth in Assets
GSALES	Annual average Growth in Sales
GMARKETCAP	Annual average Growth in Market capitalization
GMARKET-TO-BOOK	Annual average Growth in Market-to-Book ratio
GQ	Annual average Growth in Q
FIRST1	First1 is one year before the first fiscal year when predecessors take office (maximal ten years before turnover).
TENURE1	Tenure1 is over predecessors' tenure or 10 years if their tenure exceeds ten years.
TURNOVER	Turnover is one year before the fiscal year predecessors stepped down.
FIRST2	First2 is one year before the fiscal year successors take office .
TENURE2	Tenure2 is over successors' tenure (maximum 10 years)
LAST	Last is one year before successors' (estimated) tenure end year (maximal ten years after a turnover).

PANEL C: CEO PERFORMANCE MEASUREMENTS

AROA	Annual median industry-adjusted ROA, which is the average of median industry-adjusted ROA over CEO tenure (maximum ten years). 2-digit Compustat SIC code is used (1-digit Compustat SIC code is used if the 2-digit code is missing) and firms in my sample are excluded from calculating the industry median ROA for the same 2-digit (1-digit) Compustat SIC code and same year as sample firms. Following Barber and Lyon (1996), ROA is calculated as Operating Income after Depreciation divided by the average of the Beginning period and Ending period Total Assets. AROA is winsorized at the 1 and 99 percentile.
ABHAR	Annual median industry-adjusted Buy and Hold Abnormal Return $BHAR_i = BHR_i - BHR_{ind}$, Where BHR_i is the buy and hold return of firm i over CEO's tenure (maximum 10 years), and BHR_{ind} is the median buy and hold return of all firms in the same industry (same 2-digit Compustat SIC code or 1-digit if 2-digit code is missing) for the same period. $BHAR_i$ is then annualised to get annual median industry-adjusted BHAR. The requirement that at least five consecutive years' stock return before the turnover and at least one year's stock return after a turnover is imposed to ensure continuity and the final stock performance sample is 1522 cases. Compustat SIC code was used across all databases to do industry-adjusted analysis since more than 36% of the classifications between Compustat and CRSP disagree at the 2-digit level and Compustat matched samples are more powerful than CRSP matched samples in detecting abnormal performance (Kahle and Walkling, 1996). Also, the main sample is derived from Execucomp, and major performance measurement is AROA.

EPS SURPRISE	Earnings Per Share Surprise over CEO's tenure (maximum ten years) = $(e_{t,k} - \hat{e}_{t,k}) / \text{absolute}(\hat{e}_{t,k})$, where $e_{t,k}$ is the actual Earnings Per Share (EPS) announcement for company k in quarter t , and $\hat{e}_{t,k}$ is the corresponding analyst forecasted EPS in quarter t . In specific, analyst forecasted EPS is the median forecast from all analysts those made a forecast in the last 90 days before firms' earning announcement. If an analyst made multiple forecasts during this period, the most recent one is taken. Similarly, the requirement that at least five consecutive years' EPS Surprise before the turnover and at least one year's EPS Surprise after a turnover was imposed to ensure continuity and the final EPS Surprise sample is 1498 cases. EPS Surprise is winsorized at the 1 and 99 percentile.
M&A CARs	SUM CARs of all deals made by predecessors (successors) over their tenure (maximum ten years). Following Brown & Warner (1985), acquisition Cumulative Abnormal Returns (CARs) are calculated over (-1, +1) window using CRSP value-weighted index (the value-weighted return on all NYSE, AMEX, and NASDAQ stocks). Market model parameters were estimated over (-250,-15) window relative to the acquisition announcement day.
AROA2	The number of years where AROA is positive divided by the corresponding total number of years.
ABHAR2	The number of years (months in chapter 5) where ABHAR is positive divided by the corresponding total number of years (months in Chapter 5).
EPS SURPRISE2	The number of years (quarters in chapter 5) where EPS Surprise is positive divided by the corresponding total number of years (quarters in chapter 5).
M&A CARs2	The number of deals made by predecessors (successors) over their tenure or 10 years before (after) the turnover if their tenure exceeds ten years which have positive CARs divided by the corresponding total number of deals.

PANEL D: CEO CHAMPIONS VARIABLES

AVG RANKING1	To identify CEO Champions, all predecessors in the voluntary turnover sample are first ranked based on the four performance measures (AROA, ABHAR, EPS Surprise and M&A CARs) mutually exclusively. I require that each CEO should have data for at least any three of the four measures. By doing this, champion CEOs are not limited to those who have to initiate M&A deals during their tenure, and it gives 1371 turnover cases. I rank each CEO—from 1 (best) to 1371 (worst)—for each metric and get the AVG RANKING1, which is the average of the four (three if anyone is missing) performance measurements' rankings.
AVG RANKING2	To identify CEO Champions, all predecessors in the voluntary turnover sample are first ranked based on the four performance measures (AROA2, ABHAR2, EPS Surprise2 and M&A CARs2) mutually exclusively. Each CEO should have data for at least any three of the four measures. I rank each CEO—from 1 (best) to 1371 (worst)—for each metric and get the AVG RANKING2, which is the average of the four (three if anyone is missing) performance measurements' rankings.
MEASURES INDEX ONE	AVG RANKING1 is re-ranked from 1 to 1371 to create CEO Champion Measures Index One.
MEASURE INDEX TWO	AVG RANKING2 is re-ranked from 1 to 1371 to create CEO Champion Measures Index Two.

CEO CHAMPION LEAGUE I	Top tercile performed (458) CEOs ranked by Measures Index One.
CEO CHAMPION LEAGUEII	Top tercile performed (458) CEOs ranked by Measure Index Two.

PANEL E: MAIN INDEPENDENT VARIABLES

CHAMPION I/II	Dummy variable equals to 1 if the predecessor is one of the top-tercile performed CEOs ranked by Measures Index One/Two, 0 otherwise.
SUCCESSOR	Dummy variable equals to 1 if the CEO is a successor, 0 otherwise.
CHAMPION I/II'S SUCCESSOR	Dummy variable equals to 1 if the incoming CEO is champion league I/II CEO's successor, 0 otherwise.
LOG (FIRM AGE)	The natural log of the number of years firms in operations from Compustat.
LOG (FIRM ASSETS)	The annual average natural log of inflation-adjusted Total Assets over predecessors' and successors' tenure (max ten years) around turnover from Compustat. The annual CPI Data for inflation calculation are from Bob Shiller's Web site (www.irrationalexuberance.com/index.htm).
GSALES	The annual average inflation-adjusted growth in sales over predecessors' and successors' tenure (max ten years) around turnover from Compustat.
MTB	The annual average market value of equity over book value of equity over predecessors' and successors' tenure (max ten years) around turnover from Compustat.
PRE	The pre-turnover predecessors Measures Index One z-scores. I transfer Measures Index One into z-scores since ranks are discrete data. After transferring into normally distributed continuous data, I can use t statistics to interpret the results. The opposite number of z-scores is used to ensure that larger Z-scores reflect better CEOs' performance.
SIZE	Board size, which is the total number of directors sitting on the board from RiskMetrics Director one year before the turnover events.
INDEP	Board of director independence percentage, which is the percentage of independent directors sitting on the board relative to the firm's total directors from RiskMetrics one year before the turnover events.
BUSY	Busy board dummy, which is an indicator variable equal to 1 if more than 50% independent directors serve on three or more boards from RiskMetrics Director one year before the turnover events.
GINDEX	GIM index equals the sum of 24 anti-takeover provisions following Gompers, Ishii and Metrick (2003), from RiskMetrics Governance one year before the turnover events.
EINDEX	Entrenchment index, defined as the sum of six anti-takeover provisions following Bebchuk, Cohen, and Ferrell (2005) and downloaded from the shared datasets on Bebchuk's Harvard Law School profile. Data on the Entrenchment Index 1990-2006 is available at http://www.law.harvard.edu/faculty/bebchuk/data.shtml . All the corporate governance variables are matched with the turnover sample one year before the turnover and filled with the missing data using nearest available data.
OWNER	Average stock ownership of all directors sitting on the board from RiskMetrics one year before the turnover events.
ΔAGE	CEO age difference in the year of hiring (successors), leaving

	(predecessor)
ΔTENURE	Post-pre turnover years the CEO served as CEO in the firm.
ΔDUALITY	Post-pre turnover CEO also served as chairman.
ΔCOMPENSATION	Post-pre turnover the ratio of total compensation to the firm's total assets at the fiscal years of their departure (appointment).
ΔASSETS	Changes in annual average Ln (Assets) around turnover over predecessors' and successors' tenure (max ten years).
ΔGSALES	Changes in the annual average growth in sales around turnover over predecessors' and successors' tenure (max ten years).
ΔMTB	Changes in the annual average market value of equity over book value of equity around turnover over predecessors' and successors' tenure (max ten years).

PANEL E: MAIN DEPENDENT VARIABLES

MEASURES INDEX ONE (Z-SCORES)	AVG RANKING1 is re-ranked from 1 to 1371 to create CEO Champion Measures Index One. Measures Index One is transferred into z-scores since ranks are discrete data. After transferring into normally distributed continuous data, t statistics can be used to interpret the results.
MEASURE INDEX TWO (Z-SCORES)	AVG RANKING2 is re-ranked from 1 to 1371 to create CEO Champion Measures Index Two. Measures Index Two is transferred into z-scores since ranks are discrete data. After transferring into normally distributed continuous data, t statistics can be used to interpret the results.
REPLACE	REPLACE is coded to take the value of one if successors are also ranked among the top 458 CEOs following the same ranking methodology as their champion predecessors, suggesting that successors have successfully replaced their predecessors by inhering the championship among their peers.
BEAT	BEAT is coded to take the value of one if the successor who ranked among the top 458 CEOs following the same ranking methodology as champions beat predecessor' rank, suggesting that the successor has successfully replaced the champion predecessor by achieving a higher rank among the peers.
TURNOVER I	An indicator variable equal to 1 if the turnover is a forced turnover, and zero if the turnover is a voluntary turnover or it was not involved with turnover events.
TURNOVER II	An indicator variable equal to 1 if the turnover is a forced turnover, and zero if the turnover is a voluntary turnover.
TURNOVER III	An indicator variable equal to 1 if the turnover is a forced turnover, zero if the turnover is a voluntary turnover, and 2 if it was not involved with turnover events.

Panel G: CEO RANKINGS

WEIGHTED AROA INDEX	Weighted Industry-adjusted Returns on Assets of CEOs over the past five years. AROA Index is composited of 30% of most recent year AROA before the turnover, 25% of 2 years prior, 20% of 3 years prior, 15% of four years prior and 10% of five years before the turnover.
WEIGHTED ABHAR INDEX	Weighted Industry-adjusted Buy-and-Hold Abnormal Returns of CEOs over the past five years. ABHAR Index is composited of 30% of most recent year ABHAR before the turnover, 25% of 2 years prior, 20% of 3 years prior, 15% of four years prior and 10% of five years before the turnover.
WEIGHTED EPS SURPRISE INDEX	Weighted EPS SURPRISE of CEOs over the past five years. EPS

	<p>SURPRISE INDEX is composited of 30% of most recent year EPS SURPRISE before the turnover, 25% of 2 years prior, 20% of 3 years prior, 15% of four years prior and 10% of five years before the turnover.</p>
M&A CARs	<p>SUM CARs of all deals made by CEOs over past five years. Following Brown & Warner (1985), acquisition Cumulative Abnormal Returns (CARs) are calculated over (-1, +1) window using CRSP value-weighted index (the value-weighted return on all NYSE, AMEX, and NASDAQ stocks). Market model parameters were estimated over (-250,-15) window relative to the acquisition announcement day.</p>
WEIGHTED INDEX RANK I	<p>CEOs are ranked based on AROA, ABHAR, EPS Surprise performance Indices, and M&A CARs mutually exclusively. Each CEO is ranked from best to worst for each metric, and the four (three if one is missing) measure rankings are averaged and re-ranked from 1 to bottom to construct the WEIGHTED INDEX RANKI.</p>
WEIGHTED AROA INDEX_POST	<p>Weighted Industry-adjusted Returns on Assets of CEOs 3 years after turnover. AROA INDEX_POST is composited of 50% of most recent year's AROA post turnover, 30% of 2 years post and 20% of 3 years post turnover.</p>
WEIGHTED ABHAR INDEX_POST	<p>Weighted Industry-adjusted Buy-and-Hold Abnormal Returns of CEOs 3 years after turnover. ABHAR INDEX_POST is composited of 50% of most recent year's ABHAR post turnover, 30% of 2 years post and 20% of 3 years post turnover.</p>
WEIGHTED EPS SURPRISE INDEX_POST	<p>Weighted EPS Surprise of CEOs 3 years after turnover. EPS SURPRISE INDEX_POST is composited of 50% of most recent year's EPS SURPRISE post turnover, 30% of 2 years post and 20% of 3 years post turnover.</p>
M&A CAR_POST	<p>SUM CARs of all deals made by CEOs 3 years after turnover. Cumulative Abnormal Returns (CARs) are calculated over (-1, +1) window using CRSP value-weighted index. Market model parameters were estimated over (-250,-15) window relative to the acquisition announcement day.</p>
WEIGHTED INDEX RANK I_POST	<p>CEOs are ranked based on AROA, ABHAR, EPS Surprise Indices_POST, and M&A CARs_POST mutually exclusively. Each CEO is ranked from best to worst for each metric, and the four (three if one is missing) measure rankings are averaged and re-ranked from 1 to bottom to construct the INDEX RANKI_POST.</p>
WEIGHTED INDEX RANK II	<p>Index Rank II is built in a similar way as Index Rank I but also take into account post turnover firm performance. Index Rank II is 70% weighted for pre-five years' Index Rank I and 30% weighted for post three years' Index Rank I_POST.</p>
UN-WEIGHTED AROA INDEX	<p>Annual median industry-adjusted ROA, which is the average of median industry-adjusted ROA over past ten years or tenure. 2-digit Compustat SIC code is used (1-digit Compustat SIC code is used if the 2-digit code is missing) and firms in the sample are excluded from calculating the industry median ROA for the same 2-digit (1-digit) Compustat SIC code and same year as sample firms. AROA is winsorized at the 1 and 99 percentile.</p>

UN-WEIGHTED ABHAR INDEX	Annual median industry-adjusted Buy and Hold Abnormal Return $BHAR_i = BHR_i - BHR_{ind}$, Where BHR_i is the buy and hold return of firm i over past ten years or tenure and BHR_{ind} is the median buy and hold return of all firms in the same industry (same 2-digit Compustat SIC code or 1-digit if 2-digit code is missing) for the same period. $BHAR_i$ is then annualised to get annual median industry-adjusted BHAR.
UN-WEIGHTED EPS SURPRISE INDEX	Earnings Per Share Surprise = $(e_{t,k} - \hat{e}_{t,k}) / \text{absolute}(\hat{e}_{t,k})$, where $e_{t,k}$ is the actual Earnings Per Share (EPS) announcement for company k in quarter t , and $\hat{e}_{t,k}$ is the corresponding analyst forecasted EPS in quarter t . In specific, analyst forecasted EPS is the median forecast from all analysts those made a forecast in the last 90 days before firms' earning announcement. If an analyst made multiple forecasts during this period, the most recent one is taken. The EPS Surprises over the past ten years or tenure are winsorized at the 1 and 99 percentile.
UN-WEIGHTED AROA2 INDEX	The number of years where UN-WEIGHTED AROA is positive divided by the corresponding total number of years.
UN-WEIGHTED ABHAR2 INDEX	The number months where UN-WEIGHTED ABHAR is positive divided by the corresponding total number of months.
UN-WEIGHTED EPS SURPRISE2 INDEX	The number of quarters where UN-WEIGHTED EPS Surprise is positive divided by the corresponding total number of quarters.
M&A CARs 2	The number of deals made by predecessors (successors) over their tenure or 10 years before (after) the turnover if their tenure exceeds ten years which have positive CARs divided by the corresponding total number of deals.
UN-WEIGHTED INDEX RANK I	All CEOs are ranked from 1 to bottom based on ten years (or tenure) un-weighted AROA, ABHAR, EPS Surprise Indices and M&A CARs mutually exclusively. The average rank of the four (three if anyone is missing) is re-ranked from 1 to bottom to construct UN-WEIGHTED INDEX RANK I.
UN-WEIGHTED INDEX RANK II	All CEOs are ranked from 1 to bottom based on ten years (or tenure) un-weighted AROA2, ABHAR2, EPS Surprise2 Indices and M&A CARs2 mutually exclusively. The average rank of the four (three if anyone is missing) is re-ranked from 1 to bottom to construct UN-WEIGHTED INDEX RANK II.

Appendix B: Additional Results on Performance Comparisons

Table B.1: Average Rankings, Measures Indices Comparisons for Champions and Bottom-performed CEOs

This table compares the Measure Indices for Champion CEOs, and Bottom terciles performed CEOs. AVG RANKING1 is the average ranking of the first four (three if anyone is missing) measures (AROA, ABHAR, EPS Surprise and M&A CARs). AVG RANKING1 was then re-ranked from 1 to 1371 to create CEO Champion Measures Index One. AVG RANKING2 is the average ranking of the four (three if anyone is missing) beat percentage performance measures (AROA2, ABHAR2, EPS Surprise2 and M&A CARs2). AVG RANKING2 was then re-ranked from 1 to 1371 to create CEO Champion Measure Index Two. Thus, I got two sets of Champion CEOs' sample (458 CEOs each) ranked by either to what extent or how many times they beat peers or expectations. Champion CEOs' are then compared with bottom terciles performed CEOs and their successors accordingly. Mean difference tests are based on t-test, and median difference tests are based on Wilcoxon-test ***, ** and * represent significance at the 1%, 5%, and 10% level, respectively.

		Predecessor				Successor				Predecessor-Successor			
		AVG RANKING1	Measures Index One	AVG RANKING2	Measure Index Two	AVG RANKING1	Measures Index One	AVG RANKING2	Measure Index Two	AVG RANKING1	Measures Index One	AVG RANKING2	Measure Index Two
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(1)-(5)	(2)-(6)	(3)-(7)	(4)-(8)
Champion CEOs	mean	375	230	331	230	522	520	509	562	-147***	-291***	-178***	-333***
	median	398	230	350	230	486	474	472	518	-88***	-244***	-122***	-288***
	n	458	458	458	458	458	458	458	458				
		(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(9)-(13)	(10)-(14)	(11)-(15)	(12)-(16)
Bottom Terciles	mean	767	915	710	915	690	769	633	748	76***	146***	76***	167***
	median	744	915	677	915	677	815	610	772	67***	100***	67***	143***
	n	913	913	913	913	913	913	913	913				
		(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(17)-(21)	(18)-(22)	(19)-(23)	(20)-(24)
All Terciles	mean	636	686	583	686	634	686	592	686	2	0	-9	0
	median	615	686	568	686	591	686	558	686	25	0	10	0
	n	1371	1371	1371	1371	1371	1371	1371	1371				
Top- Bottom	mean	-392***	-686***	-378***	-686***	-168***	-249***	-124***	-186***	-224***	-437***	-254***	-499***
	median	-346***	-686***	-327***	-686***	-190***	-342***	-138***	-255***	-155***	-344***	-190***	-431***

Table B.2: Regressions of EPS Surprise on Champions and Successors for Champion League I and II

This table reports the coefficients from cross-sectional regressions of EPS Surprise on Champion League I & II dummy, successor dummy and champion I & II's successor dummy. $EPS\ Surprise = (e_{t,k} - \hat{e}_{t,k}) / \text{absolute}(\hat{e}_{t,k})$, where $e_{t,k}$ is the actual Earnings Per Share (EPS) announcement for company k in quarter t, and $\hat{e}_{t,k}$ is the corresponding analyst forecasted EPS in quarter t. Champion League I (II) is the 458 top tercile performed CEOs ranked by Measure Index (One) Two. Champion I (II) dummy is a dummy variable equals to 1 if the predecessor is one of the top tercile performed CEOs ranked by Measure Index (One) Two, 0 otherwise. Champion I (II)'s successor is a dummy variable equals to 1 if the incoming CEO is champion CEO's successor, 0 otherwise. Successor dummy is a dummy variable equals to 1 if the CEO is a successor, 0 otherwise. Log (Firm Age) is the natural log of the number of year's firms in operations from Compustat. Log (Firm Assets) is the annual average natural log of inflation-adjusted Total Assets over predecessors' and successors' tenure (max ten years) around turnover from Compustat. The annual CPI Data for inflation calculation is from Bob Shiller's Web site (www.irrationalexuberance.com/index.htm). GSALES is the annual average inflation-adjusted growth in sales over predecessors' and successors' tenure (max ten years) around turnover from Compustat. MTB is the annual average market value of equity over book value of equity over predecessors' and successors' tenure (max ten years) around turnover from Compustat. Industry and year fixed effects are included in all regressions. N is the number of observations and Adj. R² is the adjusted R-square. P-values are reported below regression estimates and are calculated using heteroscedasticity- and clustered-consistent standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)		(6)	(7)	(8)	(9)	(10)
Y=EPS Surprise	All CEOs Pre+Post	Pre	Post	Champions &Top successors	Champions & Their successors	Y=EPS Surprise	All CEOs Pre+Post	Pre	Post	Champions &Top successors	Champions & Their successors
Intercept	0.0058	-0.0036	0.0813	0.4703***	0.3522***	Intercept	0.0452	0.0626	0.0854	0.1624*	0.0819
	0.9090	0.9400	0.3470	0.0000	0.0020		0.3980	0.2320	0.3100	0.0710	0.3950
Successor=1	0.0287***			0.0467***	-0.0241**	Successor=1	0.0207**			0.0507***	-0.0043
	0.0010			0.0000	0.0410		0.0250			0.0000	0.6890
Champion I=1	0.0799***	0.0941***				Champion II=1	0.0325***	0.0385***			
	0.0000	0.0000					0.0000	0.0000			
Champion I's Successor	-0.0632***		0.0058			Champion II's Successor	-0.0355***		-0.0080		
	0.0000		0.7140				0.0060		0.5390		
Log (Firm Age)	-0.0227**	-0.0180*	-0.0283	-0.0444***	-0.0226	Log (Firm Age)	-0.0273**	-0.0253**	-0.0294*	-0.0273**	-0.0115
	0.0450	0.0870	0.1210	0.0020	0.2080		0.0160	0.0240	0.0960	0.0370	0.5130
Log (Firm Assets)	0.0117***	0.0095***	0.0132**	-0.0050	-0.0048	Log (Firm Assets)	0.0101***	0.0058**	0.0135***	-0.0087***	-0.0073*
	0.0000	0.0000	0.0100	0.1700	0.2940		0.0010	0.0260	0.0080	0.0030	0.0990
GSALES	0.0081	0.0100	0.0159	0.0053	0.0015	Growth in Sales	0.0065	0.0037	0.0165	0.0194	0.0007
	0.2990	0.1430	0.3420	0.8720	0.8570		0.3870	0.5830	0.3200	0.5830	0.9260
MTB	0.0050***	-0.0009	0.0091***	-0.0055***	-0.0004	MTB	0.0072***	0.0029**	0.0096***	-0.0026**	0.0042*
	0.0030	0.5290	0.0010	0.0070	0.8590		0.0000	0.0500	0.0000	0.0470	0.0610
Industry & Year FE	Y	Y	Y	Y	Y	Industry & Year FE	Y	Y	Y	Y	Y
N	2621	1311	1310	878	886	N	2621	1311	1310	871	872
Adj R ²	7%	21%	4%	14%	5%	Adj R ²	6%	14%	4%	17%	5%

Table B.3: Regressions of EPS Surprise2 on Champions and Successors for Champion League I and II

This table reports the coefficients from cross-sectional regressions of EPS Surprise on Champion League I & II dummy, successor dummy and champion I & II's successor dummy. EPS Surprise2 is the number of years where EPS Surprise is positive divided by the corresponding total number of years. Champion League I (II) is the 458 top tercile performed CEOs ranked by Measure Index (One) Two. Champion I (II) dummy is a dummy variable equals to 1 if the predecessor is one of the top-tercile performed CEOs ranked by Measure Index (One) Two, 0 otherwise. Champion I (II)'s successor is a dummy variable equals to 1 if the incoming CEO is champion CEO's successor, 0 otherwise. Successor dummy is a dummy variable equals to 1 if the CEO is a successor, 0 otherwise. Log (Firm Age) is the natural log of the number of years firms in operations from Compustat. Log (Firm Assets) is the annual average natural log of inflation-adjusted Total Assets over predecessors' and successors' tenure (max ten years) around turnover from Compustat. The annual CPI Data for inflation calculation is from Bob Shiller's Web site (www.irrationalexuberance.com/index.htm). GSALES is the annual average inflation-adjusted growth in sales over predecessors' and successors' tenure (max ten years) around turnover from Compustat. MTB is the annual average market value of equity over book value of equity over predecessors' and successors' tenure (max ten years) around turnover from Compustat. Industry and year fixed effects are included in all regressions. N is the number of observations and Adj. R² is the adjusted R-square. P-values are reported below regression estimates and are calculated using heteroscedasticity- and clustered-consistent standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% level, respectively.

	(1)	(2)	(3)	(4)	(5)		(6)	(7)	(8)	(9)	(10)
Y=Y=EPS Surprise2	All CEOs Pre+Post	Pre	Post	Champions & Top successors	Champions & Their successors	Y=EPS Surprise2	All CEOs Pre+Post	Pre	Post	Champions & Top successors	Champions & Their successors
Intercept	0.3914*** 0.0000	0.4943*** 0.0000	0.3563*** 0.0000	0.6946*** 0.0000	0.6304*** 0.0000	Intercept	0.4530*** 0.0000	0.5882*** 0.0000	0.3770*** 0.0000	0.5615*** 0.0000	0.5816*** 0.0000
Successor=1	0.0423*** 0.0000			0.0472*** 0.0000	-0.0464*** 0.0000	Successor=1	0.0426*** 0.0000			0.0888*** 0.0000	-0.0415*** 0.0000
Champion I=1	0.1214*** 0.0000	0.1294*** 0.0000				Champion II=1	0.1132*** 0.0000	0.1201*** 0.0000			
Champion I's Successor	-0.0905*** 0.0000		0.0250** 0.0360			Champion II's Successor	-0.0846*** 0.0000		0.0220* 0.0590		
Log (Firm Age)	-0.0162 0.1080	-0.0306*** 0.0070	-0.0060 0.6640	-0.0512*** 0.0010	-0.0329** 0.0470	Log (Firm Age)	-0.0243** 0.0190	-0.0432*** 0.0000	-0.0092 0.5000	-0.0411*** 0.0010	-0.0498*** 0.0050
Log (Firm Assets)	0.0239*** 0.0000	0.0195*** 0.0000	0.0287*** 0.0000	0.0156*** 0.0010	0.0139*** 0.0070	Log (Firm Assets)	0.0208*** 0.0000	0.0144*** 0.0000	0.0279*** 0.0000	0.0077* 0.0580	0.0104** 0.0490
GSALES	0.0097 0.2740	0.0042 0.6290	0.0197 0.1680	0.0459 0.4740	0.0123 0.2950	Growth in Sales	0.0084 0.3650	-0.0006 0.9420	0.0196 0.1640	0.1105*** 0.0010	0.0127 0.4040
MTB	0.0009 0.6660	-0.0059*** 0.0060	0.0043 0.1340	-0.0028 0.2140	-0.0003 0.9200	MTB	0.0026 0.2000	-0.0031 0.1440	0.0045 0.1100	-0.0017 0.4010	0.0014 0.6590
Industry & Year FE	Y	Y	Y	Y	Y	Industry & Year FE	Y	Y	Y	Y	Y
N	2621	1311	1310	878	886	N	2621	1311	1310	871	872
Adj R ²	15%	25%	9%	15%	12%	Adj R ²	15%	25%	9%	27%	13%

Table B.4: Decile Table of CEO Performance Measurements over Ten Years

This table compares 1786 predecessors with their corresponding successors using four performance measurements, i.e., AROA, ABHAR, EPS Surprise and M&A CARs. All predecessor CEOs are ranked based on these four performances mutually exclusively and then split into deciles. AROA is the average of median industry-adjusted ROA over ten years or the tenure if CEO tenure is less than ten years. ABHAR is the Annual median industry-adjusted Buy and Hold Abnormal Return. The requirement that at least five consecutive years' stock return before the turnover and at least one year's stock return after a turnover is imposed to ensure continuity and the final stock performance sample is 1522 cases. Earnings Per Share Surprise (EPS Surprise) = $(e_{t,k} - \hat{e}_{t,k}) / \text{absolute}(\hat{e}_{t,k})$, where $e_{t,k}$ is the actual Earnings Per Share (EPS) announcement for company k in quarter t , and $\hat{e}_{t,k}$ is the corresponding analyst forecasted EPS in quarter t . I imposed the requirement that at least five consecutive years' EPS Surprise before the turnover and at least one year's EPS Surprise after turnover to ensure continuity and the final EPS Surprise sample is 1498 cases. M&A CARs are SUM CARs of all deals made by predecessors (successors) over their tenure or 10 years before (after) the turnover if their tenure exceeds ten years. I report results where AROA and EPS Surprise are winsorized at the 1 and 99 percentile. Mean difference tests are based on t-test, and median difference tests are based on Wilcoxon-test ***, ** and * represent significance at the 1%, 5%, and 10% level, respectively.

		Predecessor				Successor				Successor-Predecessor							
		AROA	ABHAR	EPS Surprise	M&A CARs	AROA	ABHAR	EPS Surprise	M&A CARs	AROA	ABHAR	EPS Surprise	M&A CARs				
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(5)-(1)	(6)-(2)	(7)-(3)	(8)-(4)				
90--100	mean	32.04%	295.0%	26.25%	27.44%	28.50%	9.2%	10.27%	1.68%	-3.54%	***	-285.78%	***	-15.98%	***	-25.76%	***
	median	30.37%	125.0%	22.89%	21.36%	32.17%	5.5%	10.14%	2.39%	1.81%		-119.48%	***	-12.75%	***	-18.97%	***
	n	178	152	149	104	178	152	149	67								
80--90	mean	17.84%	59.7%	12.04%	9.95%	13.33%	10.4%	7.78%	0.75%	-4.51%	***	-49.37%	***	-4.26%	*	-9.19%	***
	median	17.56%	57.7%	11.76%	9.90%	12.41%	5.3%	8.30%	0.79%	-5.16%	***	-52.43%	***	-3.46%	***	-9.11%	***
	n	179	152	150	104	179	152	150	62								
70--80	mean	12.33%	39.9%	7.55%	5.45%	10.17%	16.3%	4.08%	0.79%	-2.16%	***	-23.54%	***	-3.47%		-4.66%	***
	median	12.40%	39.6%	7.36%	5.43%	9.23%	11.5%	5.85%	1.58%	-3.17%	***	-28.11%	***	-1.51%	*	-3.86%	***
	n	179	152	150	104	179	152	150	71								
60--70	mean	8.81%	29.4%	4.95%	3.07%	7.54%	10.5%	4.92%	-0.56%	-1.27%	**	-18.92%	***	-0.03%		-3.63%	***
	median	8.74%	29.0%	4.93%	3.06%	7.31%	7.7%	4.74%	0.15%	-1.43%	***	-21.32%	***	-0.19%		-2.91%	***
	n	178	153	150	104	178	153	150	60								
50--60	mean	6.25%	22.3%	3.11%	1.10%	4.39%	13.8%	5.06%	1.04%	-1.86%	***	-8.53%	***	1.95%		-0.06%	
	median	6.38%	22.1%	3.17%	1.08%	4.51%	8.7%	2.95%	0.71%	-1.87%	***	-13.37%	***	-0.21%		-0.38%	
	n	179	152	150	104	179	152	150	60								
40--50	mean	3.93%	16.9%	1.64%	-0.52%	2.92%	10.2%	1.72%	-0.53%	-1.02%	*	-6.62%	***	0.08%		-0.01%	
	median	3.91%	16.8%	1.63%	-0.59%	2.31%	6.3%	2.53%	0.63%	-1.60%	***	-10.52%	***	0.90%	***	1.22%	**
	n	179	152	150	104	179	152	150	68								
30--40	mean	1.99%	11.8%	0.32%	-1.84%	1.94%	12.6%	2.01%	-0.99%	-0.05%		0.77%		1.69%		0.85%	
	median	2.01%	11.8%	0.32%	-1.83%	1.03%	8.8%	2.11%	-0.20%	-0.98%	***	-3.05%	**	1.80%	***	1.63%	***
	n	178	153	150	104	178	153	150	64								
20--30	mean	0.56%	7.0%	-1.82%	-3.91%	0.52%	8.7%	1.90%	-1.05%	-0.04%		1.74%		3.71%	***	2.85%	***
	median	0.53%	7.0%	-1.64%	-3.71%	0.54%	5.2%	1.54%	-1.27%	0.02%		-1.78%		3.19%	***	2.44%	***
	n	179	152	150	104	179	152	150	75								
10--20	mean	-0.63%	2.0%	-5.98%	-7.67%	0.22%	11.1%	2.45%	0.01%	0.85%	*	9.15%	***	8.44%	***	7.68%	***
	median	-0.60%	1.6%	-5.69%	-7.54%	-0.24%	5.9%	3.80%	-0.03%	0.36%	***	4.32%	***	9.49%	***	7.51%	***
	n	179	152	150	104	179	152	150	74								
0--10	mean	-7.09%	-6.8%	-24.78%	-23.74%	-6.35%	14.1%	-5.69%	-2.23%	0.74%		20.98%	***	19.09%	***	21.51%	***
	median	-3.19%	-3.6%	-19.56%	-19.45%	-1.90%	7.6%	0.83%	-1.91%	1.29%	***	11.20%	***	20.39%	***	17.54%	***
	n	178	152	149	104	178	152	149	75								
All cases	mean	7.60%	47.67%	2.33%	0.93%	6.31%	11.69%	3.45%	-0.15%	-1.29%	***	-35.98%	***	1.12%		-1.08%	*
	median	5.04%	19.47%	2.31%	0.23%	3.36%	6.71%	3.74%	0.36%	-1.68%	***	-12.75%	***	1.42%	***	0.13%	
	n	1786	1522	1498	1040	1786	1522	1498	676								

Table B.5: Decile Table of Beat Percentage Performance Measurements over Ten Years

This table compares 1786 predecessors with their corresponding successors using another four performance measurements related to table 2, i.e., AROA2, ABHAR2, EPS Surprise2 and M&A CARs2. Measurements in Table 2 captured the extent to which predecessors and successors performed while measurements in this table value how many times the returns or surprises are positive. All predecessors are ranked based on these four performance measures mutually exclusively, and then split into deciles. AROA Beat% (AROA2) is the number of years where IAROA is positive divided by the corresponding total number of years. ABHAR Beat% (ABHAR2) is the number of years where ABHAR is positive divided by the corresponding total number of years. EPS Surprise Beat% (EPS Surprise2) is the number of years where EPS Surprise is positive divided by the corresponding total number of years. M&A CARs Beat% (M&A CARs2) is the number of deals made by predecessors (successors) over their tenure or 10 years before (after) the turnover if their tenure exceeds ten years which have positive CARs divided by the corresponding total number of deals. Mean difference tests are based on t-test, and median difference tests are based on Wilcoxon-test ***, ** and * represent significance at the 1%, 5%, and 10% level, respectively.

		Predecessor				Successor				Successor-Predecessor							
		AROA2	ABHAR2	EPS Surprise2	M&A CARs2	AROA2	ABHAR2	EPS Surprise2	M&A CARs2	AROA2	ABHAR2	EPS Surprise2	M&A CARs2				
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(5)-(1)	(6)-(2)	(7)-(3)	(8)-(4)				
90--100	mean	100.00%	94.11%	86.03%	100.00%	51.58%	69.99%	69.92%	58.88%	-48.42%	***	-24.13%	***	-16.11%	***	-41.12%	***
	median	100.00%	90.00%	85.00%	100.00%	50.00%	70.00%	73.91%	60.00%	-50.00%	***	-20.00%	***	-11.09%	***	-40.00%	***
	n	430	158	149	240	430	158	149	133								
80--90	mean		85.86%	75.23%			62.16%	65.68%				-23.69%	***	-9.55%	***		
	median		85.71%	75.00%			66.67%	66.67%				-19.05%	***	-8.33%	***		
	n		160	150			160	150									
70--80	mean	90.00%	80.00%	69.39%	77.63%	44.78%	59.24%	63.07%	54.44%	-45.22%	***	-20.76%	***	-6.32%	***	-23.19%	***
	median	90.00%	80.00%	69.23%	75.00%	40.00%	60.00%	65.00%	50.00%	-50.00%	***	-20.00%	***	-4.23%	***	-25.00%	***
	n	157	176	138	72	157	176	138	52								
60--70	mean	80.00%	76.24%	64.74%	65.17%	43.02%	60.08%	62.52%	54.59%	-36.98%	***	-16.16%	***	-2.22%		-10.58%	***
	median	80.00%	75.00%	64.86%	66.67%	40.00%	61.25%	66.03%	58.33%	-40.00%	***	-13.75%	***	1.16%		-8.33%	**
	n	179	94	174	112	179	94	174	69								
50--60	mean	70.00%	70.32%	60.19%	55.92%	39.95%	58.38%	59.06%	48.47%	-30.05%	***	-11.94%	***	-1.13%		-7.45%	
	median	70.00%	70.00%	60.00%	56.35%	30.00%	60.00%	60.00%	47.22%	-40.00%	***	-10.00%	***	0.00%		-9.13%	
	n	207	240	136	32	207	240	136	26								
40--50	mean		66.67%	55.51%	49.95%		59.64%	60.64%	51.94%			-7.03%	***	5.13%	***	1.99%	
	median		66.67%	55.26%	50.00%		60.00%	61.65%	50.00%			-6.67%	***	6.39%	***	0.00%	**
	n		115	152	169		115	152	116								
30--40	mean	60.00%	60.59%	50.86%	36.16%	38.41%	54.98%	59.68%	50.99%	-21.59%	***	-5.60%	***	8.82%	***	14.83%	***
	median	60.00%	60.00%	51.28%	33.33%	30.00%	58.57%	61.54%	50.00%	-30.00%	***	-1.43%	**	10.26%	***	16.67%	***
	n	232	192	153	120	232	192	153	90								
20--30	mean	50.00%	56.50%	45.53%	23.49%	33.94%	56.67%	56.38%	49.76%	-16.06%	***	0.17%		10.86%	***	26.27%	***
	median	50.00%	57.14%	45.71%	25.00%	30.00%	60.00%	57.92%	50.00%	-20.00%	***	2.86%		12.20%	***	25.00%	***
	n	175	72	150	61	175	72	150	50								
10--20	mean	35.40%	50.00%	39.30%		30.23%	56.01%	53.04%		-5.16%	***	6.01%	***	13.75%	***		
	median	40.00%	50.00%	39.74%		20.00%	55.56%	54.55%		-20.00%	***	5.56%	***	14.81%	***		
	n	215	165	146		215	165	146									
0--10	mean	9.95%	36.31%	28.16%	0.00%	16.44%	53.57%	52.16%	48.24%	6.49%	***	17.26%	***	24.00%	***	48.24%	***
	median	10.00%	40.00%	29.41%	0.00%	10.00%	57.14%	52.40%	50.00%	0.00%	*	17.14%	***	22.98%	***	50.00%	***
	n	191	150	150	234	191	150	150	140								
All cases	mean	66.14%	68.20%	57.50%	50.86%	39.01%	59.04%	60.25%	52.58%	-27.13%	***	-9.15%	***	2.75%	***	1.72%	
	median	70.00%	70.00%	57.89%	50.00%	30.00%	60.00%	62.50%	50.00%	-40.00%	***	-10.00%	***	4.61%	***	0.00%	
	n	1786	1522	1498	1040	1786	1522	1498	676								

The End