

CEO ability and firm performance: Stock market and job market reactions

Tarun Mukherjee¹ · Huong Nguyen²

© Springer Science+Business Media New York 2017

Abstract Does the stock market and job market evaluate a CEO based on the performance of his/her previous employer? We answer this question by examining a sample of 48 CEOs who voluntarily resigned from old firms to obtain similar positions with new firms. Using a sample of CEOs that voluntarily resigned from S&P 500 firms during 2004–2012, we find that the stock market’s reactions to announcements of them resigning from old firms and being hired by new firms depend on how well the old firms had performed. The market is able to differentiate a “better” CEO from a “good” one by reacting more negatively when the former resigns and more positively when the former is hired by a new firm. Long-term performances of the firms that hire these executives are consistent with market expectations: the firms that hire the better-performing group are rewarded with significantly better long-term returns than the firms that hire the good-performing executives. It appears that the job market is at par with the stock market—the better group finds jobs much faster than the good group. We also find that better CEOs are more likely than good ones to have a Master’s (or higher) degree.

Keywords CEO ability and performance · CEO job market · Stock market reactions to CEO voluntary resignations

JEL Classification G00 · G30 · M12

✉ Tarun Mukherjee
tmukherj@uno.edu

Huong Nguyen
HNgyuen@umo.edu

¹ University of New Orleans, New Orleans, LA, USA

² University of Mount Olive, Mt Olive, NC, USA

1 Introduction

To what extent might a firm's performance be attributed to the ability of its CEO? Chang et al. (2010) broach this question and assert that the firm performance is indeed related to its CEO's ability. Specifically, they note that a) abnormal returns of the old firm in conjunction with the turnover announcement is negatively related to its pre-departure performance and the salary of its CEO; b) the CEO's subsequent success is positively related to his salary with and performance of the old firm; c) the post-turnover performance of the old firm deteriorates after the better-performing executives with higher salaries depart. The cumulative evidence leads Chang et al. to conclude these results "reject the view that differences in firm performance stem entirely from non-CEO factors such as the firms' assets, other employees, or "luck," and that CEO pay is unrelated to the CEO's contribution to firm value" (p.1633).

In this paper, we extend the Chang et al. (2010) paper in three ways. First, we examine if the stock market can make a finer cross-sectional distinction among CEOs based on the level of performance of the associated firms. In doing so, we divide CEOs with better-than-average abilities in two groups: the better-performing group and good-performing group. Second, assuming that the job market would be able to recognize the differential managerial talents, we hypothesize that the CEOs with better abilities would find the job faster and command a higher compensation package than their good counterparts. Finally, we examine if there is (are) any additional attribute(s) that differentiate the first group from the second.

We select from voluntary turnovers¹ those CEOs that voluntarily leave the jobs are managers with superior ability and CEOs that are fired are of inferior ability. Empirical research supports this premise. For example, Warner et al. (1988) find poor performance as a predictor of forced CEO turnover. In Panel A, Table 2 (page 14), Parrino et al. (2003) compare mean market-adjusted compound abnormal returns between the forced group and the voluntary group and report the abnormal returns for the first group are -30.22%, -10.77%, -10.43%, -15.65% respectively for the holding periods of (-7, 0), (-7, -4), (-3, -2), and (-1, 0) – all being significant at the 1% level. The returns for the same periods, are -1.67%, -.43%, -1.60%, and .23% for the voluntary turnover firms—only (-3, -2) return being significant at the 10% level.

Based on the empirically supported notion that voluntarily resigning CEOs are usually superior performers, we first divide these CEOs in two groups: "better" and "good" performers. Consistent with Chang et al. (2010) we hypothesize that a) abnormal returns of firms from which better CEOs (henceforth, Tier-1) departed would be more negative than those from which good CEOs (henceforth, Tier-2) departed; b) abnormal returns of firms that hired Tier 1 CEOs would be more positive than those that hired Tier-2 CEOs. We also examine if the long-term performance of the hiring firms is consistent with the short-term returns around hiring announcements: in other words, we test if the firms that hire Tier-1 managers would exhibit higher long-term post-hire performance than their Tier-2 counterparts.

¹ A CEO turnover is considered as voluntary when it occurs due to planned succession, retirement, voluntary resignation, stepping down, bad health, death, or interim replacement. An involuntary turnover occurs when a CEO is fired, forced to resign, or resigned due to scandal, accounting conflicts, and poor performance.

In the next stage of our analysis, we compare the elapsed time between the departures from old firms and arrivals at new firms of the two groups of CEOs. We also compare their compensation packages between the two groups. We hypothesize that the time elapsed would be shorter for CEOs in the better group and these executives would receive higher compensation than CEOs in the second group. Finally, we empirically investigate if any individual attribute(s) other than prior performance that distinguishes Tier-1 from Tier-2 CEOs.

Employing a sample of 48 voluntarily departing CEOs from S&P 500 firms during 2004–2012 and employing both parametric t-test and non-parametric Mann-Whitney test, we find our results to be consistent with our hypotheses: a) market reactions to departure announcements of the Tier-1 group are significantly more negative than those of departure announcements of the Tier-2 group; b) market reactions to hiring announcements of Tier-1 group are significantly more positive than those of the Tier-2 group; and c) in terms of long-term performances at hiring firms, the Tier-1 group outperforms the Tier-2 group. In regard to job market reaction, we find that a Tier-1 CEO finds the new job faster than a Tier-2 CEO. However, there is no significant difference in the compensation received by the two groups at the hiring firms. Finally, higher level of education (i.e., a graduate degree) is one attribute that separates Tier-1 CEOs from Tier-2 CEOs.

Section II discusses the sample, variables and data. Section III presents results, while Section IV provides summary and concluding remarks.

2 Sample, variables, and data

2.1 Sample

Our sample originates from the firms listed in the S&P 500 over 2004–2012. We collect the information about CEO turnovers with these firms from ExecuComp database. All CEO turnovers are cross-checked with the Wall Street Journal Index (WSJI) to identify the specific date of announcement as well as the reasons for resignation.

Table 1 presents the annual frequencies of CEO turnovers. There are 449 cases of CEO turnovers during this period, consisting of 432 cases of voluntary and 17 involuntary turnovers.² We drop 380 cases from the initial sample of voluntary turnovers because these turnovers are due to reasons (such as retirement, death, illness etc) other than securing equivalent positions in new firms. Of the remaining 52 cases, we drop 4 more CEOs who resigned from the old firms but did not seek employment as CEOs for one reason or another. Our final sample consists of the remaining 48 cases of voluntary turnovers (VTOs) and 17 cases of forced turnovers (FTOs). We further breakdown VTOs into two groups based on their long-term performances with the old firm: the Tier-1 group consists of those CEOs whose performance are above the median and Tier-2 CEOs belong in the below-median group: 28 firms are in the Tier 1 group and 20 firms belong to the Tier 2 group.

² A CEO turnover is considered as voluntary when it occurs due to planned succession, retirement, voluntary resignation, stepping down, bad health, death, or interim replacement. An involuntary turnover occurs when a CEO is fired, forced to resign, or resigned due to scandal, accounting conflicts, and poor performance.

Table 1 Frequencies of CEO turnovers—Forced vs. Voluntary

Years	Voluntary		Forced		Total Number
	Number	%	Number	%	
2004	61	91.04%	6	8.96%	67
2005	67	97.10%	2	2.90%	69
2006	58	95.08%	3	4.92%	61
2007	56	96.55%	2	3.45%	58
2008	61	96.83%	2	3.17%	63
2009	38	100.00%	0	0.00%	38
2010	35	94.60%	2	5.40%	37
2011	29	100.00%	0	0.00%	29
2012	27	100.00%	0	0.00%	27
Total	432	95.65%	17	4.35%	449

The sample is obtained by identifying any change in the set of individuals occupying the positions of Chief Executive Officer (CEO) for the S&P 500 firms included during the period 2004–2012. CEO changes are identified from ExecuComp database and confirmed in the Wall Street Journal, WSJ Index and the website www.spencerstuart.com. A CEO change is classified as a voluntary CEO turnover when it occurs due to planned succession, retirement, voluntary resignation, stepping down, bad health, death, or interim replacement. A forced turnover occurs when a CEO is fired, or resigned due to scandal, accounting conflicts, and poor performance

Admittedly, our sample size is too small to derive definitive conclusions based on the results. Although, we have taken measures to reduce the problems associated with small size by employing both parametric (t-test) and non-parametric (Mann-Whitney u-test), we must acknowledge the paper's limitations.

2.2 Variables

2.2.1 Measuring firm performance

In measuring a CEO's performance quality, we examine a 3-year performance history of the firm where the CEO was previously employed. In the tradition of existing studies (e.g., Smith 1990; Smith and Watts 1992; Denis and Denis 1995; Yermack 1996; Shin and Stulz 1998; Allgood and Farrell 2000; Palia 2000; Anderson and Reeb 2003 and Gottesman and Morey 2006), we employ both accounting and market measures of performance of a CEO's previous employer. Two of the measures are accounting-based——return on assets (ROA) and return on equity (ROE)——and the third one is market based——market to book (P/B). Extended definitions are provided below:

- **ROA** is earnings before interest, tax, depreciation, and amortization (EBITDA)³ over the book value of total assets.
- **ROE** is EBITDA over total equity at the start of the year,

³ Since operating income does not include taxes, dividends, or interest income received, nor any dividends paid to stockholders, it is argued to be less subjected to managerial manipulation and, therefore, a robust measure of changes in the operating performance of an organization (Smith 1990; Denis and Denis 1995).

- **P/B** is book value of assets plus market value of common stock less the book value of common equity divided by the book value of assets.

Jenter and Kanaan (2015) show that CEOs are fired after bad firm performance caused by factors beyond their control, for example, a decline in the industry performance. For this reason, we adjust all performance measures by subtracting the industry medians from the firm performance measures.

2.3 Job market variables

We hypothesize that Tier-1 CEOs will find the new job faster and command a larger compensation package than Tier-2 CEOs. These two variables are defined below:

TIME = Time elapsed between the resignation from the old firm and being hired by the new company;

COMP = Total annual compensation package consists of base salary, bonus, stock award and other compensations

2.4 CEO attributes

Kirkpatrick and Locke (1991) identify key traits that are associated with leaders: “drive (a broad term which includes achievements, motivation, ambition, energy, tenacity, and initiative); leadership motivation (the desire to lead but not to seek power as an end in itself); honesty and integrity; self-confidence (which is associated with emotional stability); cognitive ability; and knowledge of the business” (p. 43). However, it is difficult to predict whether a CEO has one or more of these traits as they are not measurable or observable ex-ante. Consequently, we turn to the CEO-ability literature that identifies factors that might contribute to a CEO’s success: education, tenure, age and gender. We empirically examine if all or any of these characteristics are (is) associated with the ability of a CEO.

- *Education*: Bhagat et al. (2010) propose that education could influence a CEO’s ability to perform in three ways. First, education provides the CEO with the knowledge about new techniques and concepts and how to apply them in the real world. Second, higher education can help the CEO solve and overcome challenges more quickly and intelligently. Finally, the social networks acquired in college and graduate school are helpful in professional development. However, they do not find a strong connection between the level of education of the CEO and his/her ability to perform. Nevertheless, we employ the level of education (**EDU**) as a possible contributor to a CEO’s chances for success. We use EDU as a binary variable that takes on a value of 1 if a CEO has a master’s degree or higher, and 0 otherwise.
- *Tenure*: Some scholars predict a positive relation between the numbers of years a CEO has served in this capacity prior to resigning (**TNUR**) and the firm’s performance. For example, Gabarro (1987); and Hambrick and Fukutomi (1991) argue that increased knowledge of the organization and superior ability to compete

actually allow CEOs with longer tenures to perform better. Wagner et al. (1984), Salancik and Pfeffer (1985), Boeker (1992); and Finkelstein and Hambrick (1995) provide an alternative argument as to why CEOs with long experience might perform better. They argue that poor performing CEOs are weeded out early and, consequently, stronger performers survive.

On the other hand, several studies raise the potential of a non-linear relationship between a CEO's tenure and the firm's performance. Miller and Shamsie (2001) conclude that managers' performance declines after 15 years in office due perhaps to their declining propensity to creativity. This view is shared by Katz (1982), Sonnenfeld (1988), Fernández-Aráoz et al. (1988), Hambrick et al. (1993); Miller (1991, 1994), and Walsh (1995), who suggest that executives who stay on the job too long become 'stale in the saddle'—overly committed to the status and thus less effective. We employ **TNUR**² to examine if a non-linear relation exists between the tenure of a CEO and the firm's performance.

- *Age*: Some researchers have proposed and studied possible linkages between a CEO's age and his/her chances of success. For example, Gibbons and Murphy (1992) suggest that the performance of a CEO varies with his/her career concerns which in turn vary with age. At younger age, the CEO is willing to take more chances to prove his/her worth to the firm. As the age advances, the CEO's career concerns increase initially but decline as the retirement approaches. Parrino et al. (2003) report that "older CEOs ... are less likely to be forced out" (page 40). Following Bhagat et al. (2010), we define age (**AGE**) as the age a CEO attains at the end of the fiscal year in which he/she resigns from the previous company. In order to see the combined impact of tenure and age on the firm performance, we also introduce an interactive term between AGE and TNUR.
- *Gender*: Blease et al. (2010) suggest that female executives are more likely than male executives to depart their positions voluntarily and less likely than men to depart voluntarily as firm size increases or board size decreases. This finding might have implications for a female's performance at the current employer. We employ gender (**GNDR**) as a dummy variable that takes on a value of 1 when the CEO is a male, 0 when CEO is a female. Table 2 provides definitions of the variables used in this paper.

3 Results

3.1 Are VTO CEOs better performers than FTO CEOs?

To examine whether original premise that VTO CEOs are in superior performers and FTO CEOs are generally poor performers, we perform several tests as reported below.

3.1.1 Performance—VTO firms vs. FTO firms

Table 3 compares VTO firms and FTO firms in terms of their performances as well as their CEO attributes.

Table 3 results show that although there is no significant difference in the industry-adjusted market-to-book of the two groups, industry-adjusted ROA and industry-

Table 2 Definitions of variables employed in the study

Variables	Definitions
ROE	EBITDA over total equity at the start of the year,
AdjROE	Firm's ROE <u>minus</u> Industry ROE
ROA	Earnings before interest, tax, depreciation, and amortization (EBITDA) over the book value of total assets.
AdjROA	Firm's ROA <u>minus</u> Industry ROA
P/B	The book value of assets plus market value of common stock less the book value of common equity divided by the book value of assets.
AdjP/B	Firm's price to book minus Industry price-to-book
EDU (education)	A dummy variable that takes on a value of 1 if a CEO has a master's degree or higher, and 0 otherwise.
TNUR (tenure)	The number of years a CEO has served in this capacity prior to resigning from the prior job.
AGE	The age a CEO attains at the end of the fiscal year in which he/she resigns from the previous company
GNDR (gender)	A dummy variable that takes on a value of 1 when the CEO is a male, 0 when CEO is a female.
TIME	The time elapsed between resignation from the old firm and being hired by a new firm
COMP	Total annual compensation package
SIZE	The book value of total assets for the fiscal year (million\$)
Tier-1	Includes all firms whose performance is above medium ROE of the entire sample.
Tier-2	Includes all firms whose performance is below median ROE of the entire sample.

Table 3 CEO Turnovers–Voluntary vs. Forced

Variables	VTO (1) Mean	FTO (2) Mean	DIFF (1)–(2) Mean
AdjROA	8.75	3.73	5.02**
AdjROE	5.53	3.01	2.52*
AdjP/B	2.50	2.10	0.40
EDU	0.78	0.75	0.03
AGE	55.07	54.96	0.11
TNUR	6.35	6.25	0.10
GNDR	0.90	0.91	-0.01
COMP, millions (\$)	11.78	12.44	-0.66*
SIZE, millions (\$)	81,698	80,895	803

***, **, * denote the significance level of 1%, 5%, 10%, respectively

This table compares the CEO as well as firm characteristics between CEOs who voluntarily resigned (VTO) and those that were forced to resign (FTO). AdjROA, AdjROE and AdjP/B are computed as follows: firm's average minus industry average. EDU, AGE, TNUR and GNDR, COMP and SIZE are defined in Table 2. Industry-adjusted firm performances are computed by subtracting the industry performance from the firm performance. The industry average is based on all firms that have the same 4-digit SIC code as the sample firm. Firm performances are measured by ROA, ROE and P/B. Return on assets (ROA): is earning before interest, tax, depreciation, and amortization (EBITDA) over the book value of total assets. Market-to-book ratio (P/B): The book value of assets plus market value of common stock less the book value of common equity divided by the book value of assets

adjusted ROE of the VTO firms are significantly higher than those of the FTO firms respectively at the 5% and 10% significance level. In spite of the lower performance, FTOs receive higher compensation than their VTO counterpart: higher compensation coupled with lower performance might be factors in these CFOs getting fired from the job.

3.1.2 Short-term market reaction to the news of departure: VTO firms vs. FTO firms

We hypothesize that the market would perceive the departure of VTO CEOs as bad news and the departure of the FTO CEOs as good news in anticipation of a replacement by a superior quality CEO. We compute short-term abnormal returns by employing a four factor model that includes the market risk premium (the spread between CRSP value-weighted market return and risk-free rate), SMB (the return spread between portfolios of small and big capitalization stocks), HML (the return spread between portfolios of high and low book-to-market stocks), and a momentum factor.

Table 4 presents abnormal returns related to the departure news of the two groups of CEOs. It reports CARs for the following windows: (0, 1), (-1, 1), (-2, 2), and (-3, 3). We perform t-tests as well as non-parametric Mann-Whitney U-tests when we compare the coefficients between any two groups. Since these two tests produce almost identical results in many cases, we mention both tests only when the results differ.

Table 4 Abnormal stock performance around CEO turnover announcement

Average daily abnormal stock return					
Event Day	VTO	FTO	Diff	Level of significance	
	(1)	(2)	(2)-(1)	t test	M-W u test
-3	-0.49%	-1.59%	-1.10%	N/S	N/S
-2	-0.41%	-1.01%	-0.6%	*	*
-1	0.21%	-0.32%	-0.53%	*	*
0	0.48%	0.75%	0.27%	N/S	N/S
1	0.30%	0.52%	0.22%	**	***
2	0.25%	0.41%	0.16%	**	***
3	0.19%	0.28%	0.09%	N/S	N/S
Mean cumulative abnormal stock return (CARs)					
Event window	VTO	FTO	Diff	Level of significance	
	(4)	(5)	(5)-(4)	t test	M-W u test
(0, 1)	-1.02%	2.16%	3.18%	*	**
(-1, 1)	-1.43%	2.56%	3.99%	N/S	N/S
(-2, 2)	-2.13%	3.08%	5.21%	N/S	N/S
(-3, 3)	-2.48%	3.96%	6.44%	*	**

***, **, * denote the significance level of 1%, 5%, 10%, respectively

M-W U TEST is the Mann-Whitney U test

This table reports abnormal stock returns for forced and voluntary CEO turnover firms three days before and three days after the announcement. Stock returns are adjusted by a four factor model that includes the market risk premium (the spread between CRSP value-weighted market return and risk-free rate), SMB (the return spread between portfolios of small and big capitalization stocks), HML (the return spread between portfolios of high and low book-to-market stocks), and a momentum factor. The total sample consists of 17 forced CEO turnovers and 48 voluntary CEO turnovers during 2004–2012. Day 0 is the day of announcement of resignation for voluntary and is the day of announcements of firing for forced. N/S stands for not significant

CARs for the VTOs are significantly negative (at the 10% level) for the (0, 1) and (-3, 3) windows, while the same for the FTOs for the (0, 1) and (-3, 3) windows are significantly positive (at the 10% level). The results are consistent with our expectations.

3.1.3 Post-departure long-term performances of old firms: VTO firms vs. FTO firms

Table 5 provides ROA, ROE, and P/B (all industry-adjusted) 1, 2, and 3 years after the departure announcements. Table 4 results imply that the stock market expects that the post-departure long-term performance of the FTO firms would improve in expectation of replacements by superior quality CEOs, while the market expects the performance of VTO firms to deteriorate in anticipation of replacements by inferior quality CEOs.

Table 5 confirms that the adjusted ROAs of the FTO group are significantly higher than those of the VTO group 1 year (at the 5% level) and 3 years (at the 10% level) after the departure, while the adjusted ROEs of the former are significantly higher for 2 and 3 years after the departure. Adjusted P/B is significantly higher (t-test at the 10% and u-test at the 5% levels) for the FTO group than the VTO group 3 years after the departure. Table 5 results are therefore consistent with those of Table 4.

To sum up, the cumulative results point to the superior ability of the VTO CEOs. In the next section, we test our main hypothesis that the stock market is able to differentiate not only between VTOs and FTOs, but also between Tier-1 and Tier-2 CEOs within the VTO group itself based on their pre-departure relative performance.

3.2 Performance—are Tier-1 firms better performers than Tier-2

We divide the VTO group into above-median and below-median subgroups based on their industry-adjusted ROA of their previous employers. We label the above-median group (“better”) as Tier-1 and the below-median group (“good”) as Tier-2. The industry-adjusted ROAs of Tier-1 and Tier-2 are 8.69 and 7.85 respectively. The industry-adjusted ROE (industry-adjusted P/B) of Tier-1 and Tier-2 are 3.75 (2.31) and 3.00 (2.11) respectively. The differences in the two tiers are statistically significant (at the 10% level) for adjusted ROA and adjusted P/B.

3.2.1 Abnormal returns around departure news

We hypothesize that if the market is able to differentiate among cross-sectional abilities, it would react more negatively when a Tier-1 CEO leaves the firm than when Tier-2 CEO does so. We compute abnormal short-term returns by employing the four-factor model as discussed above.

Table 6 presents cumulative abnormal returns around the departure announcements of Tier-1 and Tier-2 CEOs for the following four windows: (0, 1), (-1, 1), (-2, 2) and (-3, 3), with the announcement day being t-0.

Table 6 also shows that the CARs for Tier-1 departures for the (0, 1) and (-3, 3) windows are more negative than the CARs for Tier-2 departures. The differences in both cases are significant at the 5% level based on the t-test and at the 10% level based on the Mann-Whitney u-test.

Table 5 Changes in firm performance around CEO turnovers

Period	AdjROA				AdjROE				AdjM/B			
	FTO%	VTO%	Diff%	Level of significance	FTO%	VTO%	Diff%	Level of significance	FTO	VTO	Diff	Level of significance
	(1)	(2)	(1)-(2)	t test	(3)	(4)	(3)-(4)	t test	(5)	(6)	(5)-(6)	t test
(0, +Y1)	3.59	1.18	2.41	**	4.28	2.98	1.30	N/S	2.08	2.15	0.07	N/S
(0, +Y2)	4.67	1.95	2.72	N/S	5.87	3.66	2.21	*	2.31	2.21	0.10	N/S
(0, +Y3)	6.01	2.44	3.57	*	7.09	4.75	2.34	**	2.54	2.14	0.40	*
				***				N/S				N/S
				N/S				**				N/S
				*				**				**

***, **, * denote the significance level of 1%, 5%, 10%, respectively

M-W U TEST is the Mann-Whitney U test

This table reports firm performance over a three year window each before and after CEO announcement. A total of six windows comprise of the following: (-Y3,0), (-Y2,0), (-Y1,0) and (0,+Y1), (0,+Y2) (0,+Y3). There are a total of 17 forced and 48 voluntary CEO turnovers. Industry-adjusted firm performances are computed by subtracting the industry performance from the firm performance. The industry average is based on all firms that have the same 4-digit SIC code as the sample firm. Firm performances are measured by ROA, ROE and M/B. Day 0 is the day of announcement of resignation for voluntary and is the day of announcements of firing for forced. N/S stands for not significant

Table 6 Abnormal stock performance around the announcement of resignation from old firms

Average daily abnormal stock return					
Event Day	Tier 1-Firms	Tier-2 Firms	Diff	Level of significance	
	(1)	(2)	(1)–(2)	t test	M-W u test
-3	-0.57%	-0.39%	-0.18	*	*
-2	-0.35%	-0.26%	-0.09%	*	*
-1	0.25%	0.12%	0.13%	N/S	**
0	0.41%	0.30%	0.11%	N/S	N/S
1	0.53%	0.31%	0.22%	N/S	N/S
2	0.27%	0.10%	0.17%	N/S	N/S
3	-0.19%	-0.09%	-0.10%	*	*
Mean cumulative abnormal stock return (CARs)					
Event window	Tier 1-Firms	Tier-2 Firms	Diff	Level of significance	
	(3)	(4)	(3)–(4)	t test	M-W u test
(0, 1)	-1.01%	-0.7%	-0.31%	**	*
(-1, 1)	1.25%	0.90%	0.35%	N/S	N/S
(-2, 2)	2.20%	1.11%	1.09%	N/S	N/S
(-3, 3)	-2.80%	-1.21%	-1.59%	**	*

***, **, * denote the significance level of 1%, 5%, 10%, respectively

M-W U Test is the Mann-Whitney U test

This table reports abnormal stock returns for Tier-1 and Tier-2 firms three days before and three days after the resignation announcements (day = 0) of Tier-1 and Tier-2. The total sample consists of 48 firms—28 with Tier-1 and 20 with Tier-2. Tier-1 includes all firms whose performance is above the median of industry-adjusted ROA of the entire sample. Tier-2 includes all firms whose performance is below the median of industry-adjusted ROA of the entire sample. Abnormal stock returns are estimated using the four-factor model. N/S stands for not significant

3.2.2 Market reactions to the hiring news

If investors rate CEOs based on their prior performances, we hypothesize that the new firms that hire Tier-1 would be rewarded with higher positive returns than firms which hire Tier-2 CEOs. Table 7 presents CARs for (0, 1), (-1, 1), (-2, 2) and (-3, 3) windows.⁴ Consistent with our hypothesis, the CARs for all windows are higher for Tier-1 than Tier-2 firms. The differences are statistically significant for the first two windows at the 10% level (based on both t-test and u-test) and the third window at the 5% based on t-test and at the 10% level based on the Mann-Whitney test. The evidence implies that investors expect Tier-1 firms to perform at a higher level in the future than their Tier-2 counterpart.

3.2.3 Tier-1 and Tier-2 CEOs: Long-term performance of employing firms

Are long-term performances of the two groups consistent with the market expectations exhibited in abnormal returns in Table 7? In other words, do firms that hire Tier-1 CEOs outperform firms that hire Tier-2 CEOs? We hypothesize that, consistent with their performance at previous firms, Tier-1 firms are likely to outperform Tier-2 at the new firms as well.

⁴ Because some of the new firms are private, the sample size of firms who hire Tier 1-CEO is reduced by 6 to 22 and Tier 2-CEO is reduced by 2 to 18.

Table 7 Abnormal stock performance around the hiring announcement of the new firms

Average daily abnormal stock return					
Event Day	Tier-1 CEOs	Tier-2 CEOs	Diff	Level of significance	
	(1)	(2)	(1)–(2)	t test	M-W u test
-3	-0.33%	-0.52%	0.19%	N/S	N/S
-2	-0.30%	-0.39%	0.09%	N/S	N/S
-1	0.28%	0.11%	0.17%	**	*
0	0.64%	0.38%	0.26%	N/S	N/S
1	0.71%	0.22%	0.49%	*	*
2	0.38%	0.10%	0.28%	*	**
3	0.25%	0.08%	0.17%	N/S	N/S
Mean cumulative abnormal stock return (CARs)					
Event window	Tier-1 CEOs	Tier-2 CEOs	Diff	Level of significance	
	(4)	(5)	(4)–(5)	t test	M-W u test
(0, 1)	1.22%	0.8%	0.42%	*	*
(-1, 1)	1.35%	1.01%	0.34%	*	*
(-2, 2)	2.50%	1.26%	1.24%	**	*
(-3, 3)	3.40%	1.59%	1.81%	N/S	N/S

***, **, * denote the significance level of 1%, 5%, 10%, respectively

M-W U TEST is the Mann-Whitney U test

This table reports abnormal stock returns for Tier-1 and Tier-2 Firms three days before and three days after the hiring announcements of the Tier-1 and Tier-2 CEOs. Tier-1 includes all firms whose performance is above the median of industry-adjusted ROA of the entire sample. Tier-2 includes all firms whose performance is below the median of industry-adjusted ROA of the entire sample. Tier-1 CEOs are the ones that hired CEO from Tier-1 and Tier-2 CEOs are the ones that hired CEOs from Tier-2. The total sample consists of 40 firms with 22 Tier-1 CEOs and 18 Tier-2 CEOs. Day 0 is the day of announcement of new CEO hiring. Abnormal stock returns are estimated using the four-factor model. N/S stands for not significant

Table 8 compares the pre- and post-hiring industry-adjusted ROA, industry-adjusted ROE, and industry-adjusted P/B of the Tier-1 and Tier-2 groups. The table shows that both groups of firms (firms that hired Tier-1 vs. those hiring Tier-2 executives) were unprofitable (negative ROAs and ROEs as early as 3 years before the hiring). Firms that hired Tier-2 executives were performing worse than the Tier-1 hiring firms in all of the three years before hiring. However, both Tier-1 and Tier-2 groups turn the firms around after they are hired by new firms. Firms that hire Tier-1 significantly outperform the Tier-2 hiring firms: ROA is higher 1-year after at the 10% level and 3-year after at the 5% level. ROE is higher 1-year 2-year, and 3-year after at the 10%, 10% and 5% significance levels respectively. Additionally, one year after the hiring, Tier-1 firms improve their P/B significantly (at the 10% level) more than the firms that hire Tier-2 firms.

To sum up, the investors assess the abilities of executives based on their prior performances and react accordingly when they are hired. The market expectation becomes a reality when long-term performances of these firms are related to the perceived abilities of the hired executives.

3.3 Job market: Tier-1 vs. Tier 2

If the job market evaluates executive abilities in the same manner as the stock market, it is reasonable to expect that Tier-1 CEOs will be a) hired before and b) paid more than

Table 8 Comparison of Long-term Performances of the new firms Before and After Hiring

PERIOD	AdjROA				AdjROE				AdjM/B					
	Tier-1 CEOs	Tier-2 CEOs	Diff	Level of significance	Tier-1 CEOs	Tier-2 CEOs	Diff	Level of significance	Tier-1 CEOs	Tier-2 CEOs	Diff	Level of significance		
(1)	(2)	(1)-(2)	T TEST	M-W U TEST	(3)	(4)	(3)-(4)	T TEST	M-W U TEST	(5)	(6)	(5)-(6)	T TEST	M-W U TEST
(-Y3,0)	-10.11%	-11.58%	1.47%	N/S	-5.22%	-5.98%	0.76%	N/S	N/S	2.1	1.95	0.15	N/S	N/S
(-Y2,0)	-11.56%	-12.99%	1.43%	N/S	-6.01%	-6.00%	-0.01%	N/S	N/S	1.89	2	-0.11	N/S	N/S
(-Y1,0)	-11.98%	-13.52%	1.54%	*	-6.98%	-7.15%	0.17%	*	**	2.01	2.2	-0.19	N/S	N/S
(0,+Y1)	3.39%	1.02%	2.37%	*	3.39%	2.88%	0.51%	*	*	2.25	2.14	0.11	*	*
(0,+Y2)	4.55%	1.85%	2.70%	N/S	4.55%	3.55%	1.00%	*	**	2.3	2.23	0.07	N/S	N/S
(0,+Y3)	6.78%	2.12%	4.66%	**	6.48%	4.12%	2.36%	N/S	*	2.4	2.18	0.22	N/S	N/S

***, **, * denote the significance level of 1%, 5%, 10%, respectively

M-W U TEST is the Mann-Whitney U test

This table reports performance of the hiring firms over a three year window each before and after the appointments of CEOs. A total of six windows comprise of the following: (-Y3,0), (-Y2,0), (-Y1,0) and (0,+Y1), (0,+Y2) (0,+Y3). Tier-1 includes all firms whose performance is above the median of industry-adjusted ROA of the entire sample. Tier-2 includes all firms whose performance is below the median of industry-adjusted ROA of the entire sample. Tier-1 CEOs are the ones that hired CEO from Tier-1 and Tier-2 CEOs are the ones that hired CEOs from Tier-2. The total sample consists of 40 firms with 22 Tier-1 CEOs and 18 Tier-2 CEOs. Industry-adjusted firm performances are computed by subtracting the industry performance from the firm performance. The industry average is based on all firms that have the same 4-digit SIC code as the sample firm. Firm performances are measured by ROA, ROE and P/B. N/S stands for not significant

Tier-2 CEOs. We find that Tier-1 CEOs find the next job much faster than Tier-2 CEOs: the time elapsed between the two jobs is 4.49 months for the former and 8.62 months for the latter group. The time difference is significant at the 5% level. However, we do not find significant differences in the compensations received by the two groups.

3.4 Factors that might enhance an Executive's ability

As discussed before, four common attributes examined in the pertinent research are the executive's age (AGE), academic background (EDU), years of experience in the position (TNUR), and gender (GNDR). We employ $TNUR^2$ to examine if a non-linear relation exists between the tenure of a CEO and the firm's performance. In order to see the combined impact of tenure and age, if any, on the firm performance, we also introduce an interactive term between AGE and TNUR.

The final attribution model we use takes the following form:

$$D = \beta_0 + \beta_1 * EDU + \beta_2 * TNUR + \beta_3 (TNUR^2) + \beta_4 * AGE + \beta_5 * (AGE * TNUR) + \beta_6 * (GNDR) + \epsilon \dots \quad (1)$$

where D is the dummy which takes on the value of 1 if the executive is a Tier-1, and takes on the value of 0 if the executive is a Tier-2, and

- **EDU** = EDU is a binary variable that takes on a value of 1 if a CEO has a master's degree or higher, and 0 otherwise.
- **TNUR** = The number of years a CEO has served in this capacity prior to resigning
- **TNUR²** = To capture the potential non-linear relation between TNUR and the ability
- **AGE** = The age a CEO attains at the end of the fiscal year in which he/she resigns from the previous company.
- **GNDR** = A dummy variable that takes on a value of 1 when the CEO is a male, 0 when CEO is a female

The univariate results are shown in Panel A of Table 9, while regression results employing Eq. 1 are presented in Panel B of Table 9.

The univariate analyses (Table 9, Panel A) indicate that Tier-1 executives are more experienced than the Tier-2 group (at the 10% level), implying a positive relation between tenure and ability. This result is consistent with Wagner et al. (1984), Salancik and Pfeffer (1985), Gabarro (1987), and Hambrick and Fukutomi (1991), Boeker (1992); and Finkelstein and Hambrick (1995).

Panel B of Table 9 presents regression results. One attribute that stands out is the level of education: Tier-1 executives are more likely to have a Master's degree than their Tier-2 counterparts. This result is in agreement with the prediction of Bhagat et al. (2010).⁵ Coefficients for other variables, including tenure, age and gender are insignificant.

⁵ Bhagat et al. (2010), however, do not find any significant relation between education and the ability of an executive.

Table 9 CEO attributes

Panel A. Univariate Analysis

	Tier-1 (1)	Tier-2 (2)	DIFF (1)–(2)
Variables	Mean	Mean	Mean
AGE	55.42	54.61	0.81
TNUR	6.40	6.20	0.20*
GNDR	0.89	0.92	-0.03
EDU	0.80	0.73	0.07
COMP	11.89	12.33	-0.44

Panel B. Regression: the association between the ability and attribute

	Coefficient
Intercept	0.000381 <i>0.43</i>
EDU	0.00412* <i>1.90</i>
TNUR	0.00716 <i>0.41</i>
(TNUR) ²	0.00915 <i>0.23</i>
AGE	0.00311 <i>0.36</i>
TNUR*AGE	0.00347 <i>0.15</i>
GNDR	0.00559 <i>0.24</i>

Tier-1 includes all firms whose performance is above the median of industry-adjusted ROA of the entire sample. Tier-2 includes all firms whose performance is below the median of industry-adjusted ROA of the entire sample

Dependent variable is D-dummy variable which takes on the value of 1 if the firm belongs to Tier-1, and takes on the value of 0 if the firm belongs to Tier-2. Tier-1 includes all firms whose performance is above the median of industry-adjusted ROA of the entire sample. Tier-2 includes all firms whose performance is below the median of industry-adjusted ROA of the entire sample. T-statistics are reported in Italics

$$D = \beta_0 + \beta_1 * EDU + \beta_2 * TNUR + \beta_3 * (TNUR)^2 + \beta_4 * AGE + \beta_5 * (AGE * TNUR) + \beta_6 * GNDR + \varepsilon.$$

***, **, * denote the significance level of 1%, 5%, 10%, respectively. T-statistics are reported in Italics

4 Summary & conclusions

Do the stock market and job market measure a CEO’s ability based on the performance of the employing firm? If the answer yes, we would expect the market to react to the CEO’s departure from the old firm and appointment with a new firm in the following manner: a) negative market reactions would be higher when a CEO of higher ability departs than when a CEO of lower ability departs, and b) positive market reaction would be higher when the former is hired than when the latter is hired. If the job market assesses the ability of a CEO the same way as the stock market, we would expect the CEO with higher ability would find the next executive job sooner and command a higher salary than his lower ability counterpart. In this paper, we test these predictions. In addition, we explore if there is any measurable and observable attribute that might contribute to an executive’s level of success.

We select from S&P500 during 2004–2012 the firms that fired their CEOs and the firms that lost their CEOs via resignations. Our sample consists of 48 CEOs who voluntarily resigned to find a new job. We provide evidence to indicate that the stock market relates the performance of the employing firm to the ability of its CEO. The market assigns higher negative abnormal returns to departure of a higher-ability executive than to the departure of a lower-ability CEO. The abnormal returns are significantly higher for the hiring of first group than of the second one. The executives have not disappointed the market: the firms that hired the better-performing group are rewarded with significantly better long-term returns than the firms that hire the good-performing executives.

Additionally, we find that the job market reactions are consistent with stock market reactions: Tier-1 CEOs find new jobs significantly faster than Tier-2 CEOs. Finally, the level of education is an important factor that separates Tier-1 CEOs from Tier-2 CEOs: the former group is more educated (a Master's degree or better) than Tier-2 CEOs.

References

- Allgood S, Farrell K (2000) The effect of CEO tenure on the relation between firm performance and turnover. *J Financ Res* 23(3):373–390
- Anderson R, Reeb D (2003) Founding- family ownership and firm performance: evidence from the S & P 500. *J Financ* 58(3):1301–1330
- Bhagat S, Bolton B, Subramanian A (2010). CEO education, CEO turnover, and firm performance available at SSRN: <http://Ssrn.Com/Abstract=1670219> or doi:10.2139/ssrn.1670219
- Blease J, Elkinaway S, Stater M (2010) The impact of gender on voluntary and involuntary executive department. *Econ Inq* 48(4):1102–1118
- Boeker W (1992) Power and managerial dismissal: scapegoating at the top. *Adm Sci Q* 27:538–547
- Chang Y, Dasgupta S, Hilary G (2010) CEO ability, pay, and firm performance. *Manag Sci* 56(10):1633–1652
- Denis D, Denis D (1995) Performance changes following top management dismissals. *J Financ* 50:1029–1057
- Finkelstein S, Hambrick D (1995) Strategic leadership: top executives and their effects on organizations. West, New York
- Fernández-Arãoz C, Groysberg B, Nohria N (2009) The definitive guide to recruiting in good times and bad. *Harvard Business Review* 87(5), 74–84
- Gabarro J (1987) The dynamics of taking charge. Harvard Business School Press, Boston
- Gibbons R, Murphy K (1992) Optimal incentive contracts in the presence of career concerns: theory and evidence. *J Polit Econ* 100:468–505
- Gottesman A, Morey M (2006). Does a better education make for better managers? An empirical examination of CEO educational quality and firm performance. *Working paper*: <http://ssrn.com/abstract=564443>. *SSRN-id564443.pdf*
- Hambrick D, Fukutomi G (1991) The seasons of a CEO's tenure. *Acad Manag Rev* 16:719–742
- Hambrick D, Geletkanycz M, Fredrickson J (1993) Top executive commitment to the status quo: some tests of its determinants. *Strateg Manag J* 14:401–418
- Jenter D, Kanaan F (2015) CEO turnover and relative performance evaluation. *J Financ* 70(5):2155–2184
- Katz R (1982) The effects of group longevity on project communication and performance. *Adm Sci Q* 27:81–104
- Kirkpatrick S, Locke E (1991) Leadership: do traits matter? *Acad Manag Perspect* 5(2):48–60
- Miller D (1991) Stale in the saddle: CEO tenure and the match between organization and environment. *Manag Sci* 37:34–52
- Miller D (1994) What happens after success: the perils of excellence? *J Manag Stud* 31:325–358
- Miller D, Shamsie J (2001) Learning across the life cycle: experimentation and performance among the Hollywood studio heads. *Strateg Manag J* 22:725–745
- Palia D (2000) The impact of regulation on CEO labor markets. *J Econ* 31(1):165–179
- Parrino R, Sias RW, Starks LT (2003) Voting with their feet: institutional ownership changes around forced CEO turnover. *J Financ Econ* 68:3–46

- Salancik G, Pfeffer J (1985) The effects of ownership and performance on executive tenure in U.S. corporations. *Acad Manag J* 23:653–664
- Shin H, Stulz R (1998) Are internal capital market efficient? *Q J Econ* 113(2):531–552
- Smith A (1990) Corporate ownership structure and performance: the case of management buyouts. *J Financ Econ* 27:143–164
- Smith C, Watts R (1992) The investment opportunity set and corporate financing, dividend, and compensation policies. *J Financ Econ* 32:263–292
- Sonnenfeld J (1988) *The Hero's farewell: what happens when CEOs retire?* Oxford University Press, New York
- Wagner W, Pfeffer J, O'Reilly C (1984) Organizational demography and turnover in top management groups. *Adm Sci Q* 29:74–92
- Walsh J (1995) Managerial and organizational cognition. *Organ Sci* 6:280–321
- Warner J, Watts R, Wruck K (1988) Stock prices and top management changes. *J Financ Econ* 20:461–492
- Yermack D (1996) Higher market valuation of companies with a small board of directors. *J Financ Econ* 40: 185–211