Shareholder Perceptions of the Changing Impact of CEOs: Market Reactions to Unexpected CEO Deaths, 1950 – 2009

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ABSTRACT

Research summary:
Despite a number of studies highlighting the important impact CEOs have on firms, several theoretical and methodological questions cloud existing findings. This study takes an alternative approach by examining how shareholders' perceptions of CEO significance have changed over time. Using an event study methodology and a sample of 240 sudden and unexpected CEO deaths, we show that absolute (unsigned) market reactions to these events in U.S. public firms have increased markedly between 1950 and 2009. Our results indicate that shareholders act in ways consistent with the belief that CEOs have become increasingly more influential in recent decades.

Managerial summary:
With CEOs facing increased scrutiny and receiving ever increasing pay packages, substantial debate exists about their overall contribution to firm outcomes. While prior research has sought to calculate the proportion of firm outcomes attributable to the CEO, this study takes an alternative approach by using the 'wisdom of the crowds' to assess how shareholders think about the importance of CEOs. Our study finds that shareholders, perhaps the most financially motivated stakeholder, view CEOs as increasingly important drivers of firm outcomes, good and bad, versus their peers from decades earlier. Notably, market reaction to the unexpected death of a CEO has increased steadily over the last six decades highlighting the importance of succession planning and supporting, at least partially, the increased compensation given today's top executives.

INTRODUCTION

The question of how much Chief Executive Officers (CEOs) matter to company performance continues to be a source of profound interest to general audiences and scholars alike (Hambrick and Finkelstein, 1987; Khurana, 2002; Lieberson and O'Connor, 1972; see Wangrow, Schepker, and Barker, 2015, for a recent review). A recent study in this domain provocatively argued that the impact of U.S. public company CEOs has increased substantially over the last six decades and is greater today than ever before (Quigley and Hambrick, 2015). This study showed that the 'CEO effect' – the proportion of variance in firm performance that can be statistically attributed to CEO-level factors, once other categorical influences have been accounted for (Mackey, 2008) – rose significantly between 1950 and 2009. In explaining this finding, these authors took as a

well-documented given the concomitant claim that 'attributions of CEO significance increased greatly in recent decades' (Quigley & Hambrick, 2015: 821-822).

Although these results are intriguing, Quigley and Hambrick's (2015) study provides little direct support for the claim that stakeholder attributions of CEO significance have risen over time. In fact, several streams of research suggest that much more evidence is needed before we can accept claims of a monotonic rise in general perceptions of executive significance, especially when those claims arise from stakeholders such as the media, who may be implicitly incentivized to exaggerate the importance of public figures (Sinha, Inkson, and Barker, 2012).

First, the 1970s and 1980s marked the genesis of a number of highly-influential research programs in organizational science, such as resource dependence (Pfeffer and Salancik, 1978) and neoinstitutionalism (DiMaggio and Powell, 1983), which ascribed little agency to individual managers. The most extreme of these – population ecology in its original form (Hannan and Freeman, 1977) – depicted firm success as nearly a random outcome. Other scholars have argued that, even if managers as a group matter (i.e., explain a non-trivial proportion of performance variance), individual managers may be relatively indistinguishable (e.g., Pfeffer, 1977; Mukunda, 2012). Powerful homogenizing organizational forces bias firms toward attracting, selecting, and retaining individuals that share similar characteristics and levels of fit (Schneider, 1987). These pressures intensify as individuals rise through the ranks of an organization. If the context does indeed subsume the individual (Davis-Blake and Pfeffer, 1989), even outside CEO hires will rapidly embrace the norms, values, and practices of a firm. Thus, if at the culmination of the selection process, a board's preferred candidate were unable to be installed as CEO, one could argue that a comparable individual – with a similar background, decision-making style, overall effectiveness, and, therefore, a similar firm-level impact – would be available instead.

Second, assumptions of rising executive significance may be driven by powerful contextual biases. Recent growth in fascination with CEOs could reflect individuals' tendencies to shift focus toward or away from leaders in accordance with certain cyclical changes. In an extension of attribution theory, Meindl, Ehrlich, and Dukerich (1985) found that the 'romance of leadership' was closely related to economic trends and firm performance. That is, when firm performance or the economy is strong, media coverage is more focused on leaders regardless of their actual impact. Similarly, in a study of the prevalence of CEO coverage in large newspapers, Hamilton and Zeckhauser (2004) found a cyclical pattern seemingly driven by economic trends. For instance, while emphasizing the media's growing inclination to highlight the importance of executives, Khurana (2002: 75) noted that a single CEO appeared on the cover of just one issue of *BusinessWeek* in 1981, while CEOs appeared on more than one-third of covers in 1999. While this suggests notable growth in the attention given to CEOs, expanding Khurana's (2002) sample to include all issues from 1950 to 2009 reveals much more variation. In fact, in this expanded dataset, the peak focus on CEOs did not occur in the late 1990s, but rather in the early 1950s, when nearly 60percent of the covers featured a single CEO.[1]

Amplifying these potential theoretical concerns are several empirical limitations of CEO effect studies, including the large amount of unexplained variance that is often reported (Mackey, 2008), confounding of firm, industry, and CEO effects (Hambrick and Quigley, 2014), and other econometric shortcomings of variance decomposition analysis more generally (Brush and Bromiley, 1997; Fitza, 2014). In response to these concerns, authors have proposed refinements, such as focusing on CEOs who have led multiple firms (Mackey, 2008) or measuring the CEO effect 'in context' (Hambrick and Quigley, 2014). Although these refinements offer benefits, they face the same fundamental challenge: they evaluate the impact of

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[1] Counts of CEOs appearing on *BusinessWeek* covers from 1950-2009 available upon request.

CEOs in a backward-looking manner, whereby a portion of a panel of firm-level performance variance is retrospectively credited to the agency of corporate leaders. Further highlighting the need for an alternative approach, the two most recent papers on this topic, both published in *Strategic Management Journal*, alternatively argue that: CEOs matter greatly, with their influence having increased substantially over time (Quigley and Hambrick, 2015); and CEOs matter little, as the measured effect size is mostly the result of random chance (Fitza, 2014).

To effectively address these theoretical and empirical challenges, we examine the issue of rising attributions of CEO importance from a unique perspective. First, to minimize the likelihood of contextual biases, and to account for the possibility of heterogeneous perspectives across stakeholder groups, we focus specifically on the actions of public company shareholders. We assume that actors who are more directly and financially linked to the successes and failures of firms will tend to offer a more independent and trustworthy source of information regarding changing attributions of CEO significance. Second, to account for the possibility that candidates for the CEO role are potentially interchangeable, we focus on individual CEO successions. If CEOs are indeed interchangeable, we should see mostly insignificant responses to these events. Finally, to account for many of the econometric concerns with variance decomposition, and the broader challenges inherent in evaluating perceived CEO effectiveness within-tenure (Graffin, Boivie, and Carpenter, 2013), we examine changes in shareholders' perceptions of CEO impact via their contemporaneous responses to unplanned, exogenous successions – sudden CEO deaths. We focus on unexpected deaths because these events provide the cleanest possible test of the collective opinion of shareholders concerning the relative impact of particular executives at a given point in time. Reactions to non-sudden deaths, although informative, will tend to be muted because shareholders' opinions are likely to have been at least partially priced into the market

value of firms prior to the death (McWilliams and Siegel, 1997). In summary, our study investigates the following research question: *'How have U.S. public company shareholders' reactions to sudden CEO deaths changed over time?'*

BACKGROUND AND HYPOTHESIS

One of the most widely-noted business trends in the latter decades of the twentieth century was an increased fascination with CEOs (Hambrick *et al*., 2005). Starting in the 1960s and 1970s, gathering great momentum in the 1980s, and continuing into the 2000s, there were many signs of observers' escalating convictions about the potency of business leaders. Celebrity CEOs such as Jack Welch and Michael Eisner became widely known to the public (Khurana, 2002), executive compensation rose precipitously (Frydman and Saks, 2010), executive search firms became more prominent, and boards increasingly began to target charismatic CEOs from outside the firm when making hiring decisions (Murphy and Zabojnik, 2004). However, as noted above, little work has examined the issue of rising CEO importance from the perspective of those stakeholders that seemingly have the most to gain or lose by betting correctly on the existence of such a phenomenon – public company shareholders. In light of academic evidence suggesting managers may have, at most, a peripheral role in influencing firm outcomes (DiMaggio and Powell, 1983), and other research suggesting that many stakeholder groups can be influenced by cyclical biases (Meindl *et al*. 1985), perhaps economically-minded observers like shareholders have had a more pessimistic view of the growing importance of individual executives. Alternatively, perhaps substantive macro-economic changes – such as the rise of investor captialism, an increasingly dynamic business environment, and an expanded menu of legitimate organizational forms (Hambrick *et al*., 2005) – have persuaded market participants that executives have indeed become increasingly able to impart their own idiosyncratic stamps on their firms. In either case,

we argue that an examination of shareholder perceptions provides the key to a fuller

understanding of changing attributions of CEO significance.

Shareholder perceptions of CEO impact: Evidence from unexpected deaths

Extant research suggests that shareholder perceptions of CEO impact will be revealed by market

reactions to unexpected CEO successions, especially CEO deaths. Although all successions offer

an opportunity for market participants to evaluate outgoing and incoming executives, many are

planned in advance (or at least anticipated) (Shen and Cannella, 2003), diluting the response at

the time of departure. Research on executive deaths has typically focused on how these events

impact performance valence (i.e., whether there is a positive or negative reaction), with mixed

findings. In an early study, Johnson *et al*. (1985) analyzed market reactions to unexpected deaths

of strategic leaders, finding relatively few general effects in the initial days following the death.

Similarly, in a series of studies, Worrell and colleagues (Worrell and Davidson, 1987; 1989;

Worrell *et al*., 1986) found little evidence of a unidirectional effect of executive deaths on

overall market returns; however, certain characteristics (e.g., insider succession following death)

were associated with directed returns. In addition, both Worrell *et al*. (1986) and Etebari,

Horrigan, and Landwehr (1987) found a significant negative reaction to sudden deaths (although

see Larson (1999) for disconfirming evidence in smaller firms). Finally, Hayes and Schafer

(1999) compared market reactions to CEOs leaving for another firm with those from unexpected

deaths. In line with their premise that CEOs leaving for another firm would be perceived, in

general, to be more capable than the average CEO who passed away, these authors found that

CEO exits to other firms were associated with relatively more negative market responses.

  Although these results are somewhat nuanced, several revealing patterns emerge. First,

while the overall mean market reaction to CEO death in any given sample is often near zero,

there can be large positive or negative reactions for individual CEOs. Second, at least part of the

reaction is generally seen to be a direct judgment of the passing CEO's ability to impact firm

outcomes, and, simultaneously, an implicit evaluation of the likelihood that a replacement CEO

will perform similarly (cf. Coleman, 2011). For instance, Johnson *et al.* (1985: 152) described

large positive and negative market reactions as 'evidence that the (*ex ante*) value of the deceased

incumbent differs from that of the anticipated replacement manager.' Shareholder views of CEO

impact are therefore driven by the combination of an executive's perceived capabilities and their

level of managerial discretion, or latitude of action (Hambrick and Finkelstein, 1987).

In low-discretion situations (Hambrick and Finkelstein, 1987) – where executives are

perceived to have little impact on firm outcomes, and the market expects that a CEO will be

replaced by a comparably-constrained peer – one should expect a negligible reaction to the death

of a CEO, or perhaps a small negative response due to the temporary disruption caused by

succession. In contrast, in high-discretion situations – where executives have a pronounced

opportunity to influence firm outcomes both for good and for ill – the market response is likely

to be more substantial. If a CEO was viewed as highly capable, and the market perceives that the

firm is unlikely to find a similarly-effective replacement, a large negative reaction should occur

(Johnson *et al*., 1985). Alternatively, if a passing CEO was seen by shareholders as having been

responsible for destroying shareholder wealth – whether through questionable decision-making,

an inability to hire and retain top talent, or even rampant and guileful self-interest – a large

positive reaction should occur (Hayes and Schaefer, 1999). In this case, the market is making a

judgment that even an average 'replacement-level' CEO would be preferable.

In sum, over the last several decades, scholars have noted broad, albeit unsystematic,

evidence of a growing fascination with U.S. CEOs in the business and general press, implying a

parallel increase in attributions of CEO importance to their firms. If shareholders possess similar views regarding increased CEO significance, we expect to see these perceptions manifested in situations where market participants are forced to make a rapid judgment regarding the relative influence of a particular CEO, such as when one dies unexpectedly. Therefore, we hypothesize:

> *Hypothesis 1: Absolute (unsigned) market reactions to unexpected CEO deaths have increased significantly over time in U.S. public firms between 1950 and 2009.*

METHODS

Sample

Our sample comprised U.S. public company CEOs who died unexpectedly while in office between 1950 and 2009. We began by searching the obituary listings for each year in Standard and Poor's (S&P) annual Register of Corporations, Directors, and Executives; The Wall Street Journal; The New York Times; and the listing of executive deaths published by Etebari *et al*. (1987). Because the 'CEO' title was not commonly used in the earliest years of our sample, we initially included all deceased executives with the titles of CEO, president, or chair(man) of the board. Our initial sample comprised 2099 executive deaths. We then eliminated 872 individuals from privately-held firms, 568 individuals who were not CEO at the time of death, 19 duplicates, five deaths that occurred outside our 60-year sample frame, and four incorrectly-reported deaths. These filters resulted in a revised initial sample of 631 CEO deaths.

We then used additional sources, including ProQuest, Lexis-Nexis, Mergent Web-Reports, company announcements, obituaries, and other newspaper coverage to confirm the date and cause of each death. We coded a death as being unexpected when it occurred 'instantaneously or within a few hours of an abrupt change in the person's previous clinical state' (Nguyen and Nielsen, 2010: 553). Thus, accidents or medical conditions not previously identified, which resulted in the sudden death of an executive (the same day), were coded as

unexpected. In addition, unless additional information suggested otherwise, deaths explicitly

reported as being 'sudden' or 'unexpected' were coded as such in our sample. However, we did

exclude all deaths that could have reasonably been anticipated by the market. For example, if a

CEO had an accident or experienced an acute medical event (e.g., a heart attack), but survived

for a day or more before passing, the CEO was removed from the sample. Similarly, if the death

was caused by a disease that is commonly identified weeks, months, or even years before death

occurs, such as cancer, the individual was removed from our sample. CEO deaths accompanied

by vague descriptions of the cause of death, such as 'short illness' or 'long illness,' or no

description, were also removed from the sample. In every case of unexpected death, we

undertook extensive searches to ensure that no related illnesses had been reported in the weeks or

months preceding death. Using these criteria we eliminated 246 non-sudden deaths, 78 cases

where no obituary could be found, and 67 with no description or where the cause and timing of

death were unclear. The final sample comprised 240 CEOs that died unexpectedly in office.[2]

Measures and analyses

To test H1, we conducted an event study (McWilliams and Siegel, 1997) using Eventus from the

Wharton Research Data Service (WRDS). Event studies are used to calculate the market reaction

to the release of new information – in this case, the unexpected death of a CEO. Strictly

speaking, of course, market participants may not only be responding to the event itself, but also

to their expectations of how the event will be perceived by other market participants (hence

Keynes's (1936: 156) famous dictum that participants in financial markets are concerned with

'anticipating what average opinion expects the average opinion to be'). In turn, researchers in

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[2] To ensure coding reliability, two authors independently coded 100 randomly-selected cases into three categories: sudden, not-sudden, or unclear cause/timing. Cohen's (1960) Kappa for this procedure was 0.93, suggesting high reliability (Landis and Koch, 1977). Of the 240 deaths in our final sample, 200 had medical causes, 34 were accidental, and 6 were suicides/homicides. A complete list of deaths, causes, and dates is available upon request. See Supplementary Analyses section for market responses to CEO deaths using a range of alternative samples.

finance and economics have argued over the extent to which market prices are largely accurate, if noisy, reflections of underlying fundamental values, or complex, interactive indicators of observers' higher-order expectations about other observers' higher-order expectations (e.g., Cespa and Vives, 2012; Fama *et al*., 1969). Although we do not claim that every market reaction to a CEO death is likely to be a precise measure of the underlying 'true' value of the event, we do contend that, over many such events across more than a half-century, these market reactions should reveal substantive, meaningful information about our phenomenon of interest.

Consistent with prior work, Eventus generated a predictive model estimating the expected market returns for each firm had the event not occurred. The estimation model used all trading data from the year prior to and ending 30 days before the event itself (i.e., between 255 and 30 trading days prior to the event). Expected returns were then subtracted from the actual market return in order to generate an unexpected, or abnormal, return. Notably, there was a small but significant negative reaction on the event day (mean abnormal return = -0.92%, $p < .01$), while abnormal returns were non-significant for the five days leading up to the event, suggesting the sample did indeed contain unexpected events (Coleman, 2011). We calculated cumulative abnormal returns (CARs) for each of the following event windows: 0 to 0 days, 0 to 1 day, 0 to 3 days, and 0 to 5 days (where 0 represents the day of the event). These CARs therefore represent the market's reaction to an unexpected CEO death (McWilliams and Siegel, 1997).

We then ran several tests to determine, as predicted by Hypothesis 1, whether the absolute market reaction to CEO deaths increased between 1950 and 2009. First, similar to Quigley and Hambrick's (2015) approach of comparing the CEO effect across time, we split the sample of 240 death events into three 20-year periods (1950-1969, 1970-1989, and 1990-2009). We then compared the three sub-sample dispersions using a variance test (sdtest in Stata), to see

if there was a significantly greater dispersion in the more recent sub-sample.[3]

Second, we conducted a multivariate analysis. For this test, we converted each signed CAR to its absolute value (|CAR|) and used this as a dependent variable in a Tobit regression (Friedman and Singh, 1989). To minimize the possibility that our results were being driven by CEO-specific factors, especially related to power, we controlled for *founder status* (binary), *CEO age* (in years), *CEO tenure* (in years), *firm revenue* (logged), and past performance extremeness (*absolute value of industry-adjusted ROA*) prior to the event. We also included industry dummies (using 2-digit SIC codes) and controlled for whether a new CEO had been appointed. Our independent variable was a counter representing the year in our sample (from 1 to 60). We Winsorized (Dixon, 1960) all continuous variables (including |CAR|) at the 1 and 99 percent levels (our results were robust to the elimination of this step). Accounting and other firm-level data used in this analysis were taken from Compustat. Data for 32 firms were not available, resulting in a sample of 208 events for our secondary test of H1.[4] Hypothesis 1 will therefore receive further support if the year counter in our multivariate regression is positively significant.

RESULTS

Table 1 reports descriptive statistics and correlations for the variables used in our study. Tables 2a and 2b show changes in |CAR|, and CAR standard deviation across the three time periods for several event windows. Before testing H1, we examined whether the mean CAR (i.e., the average *signed* reaction to a CEO death) changed over time. It did not. For each event window, two-tailed t-tests showed no significant difference across the three time periods. Thus, the market

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[3] An alternative approach is to convert each CAR to its absolute value and then run a t-test to determine if the mean |CAR| has increased in later periods. While our results are largely robust to this approach (as reported in Table 2a), doing so creates an inverted J-shaped distributions (in essence, the right half of a normal distribution), which violates the normality assumption of the t-test. The variance comparison is a more valid test of our hypothesis.
[4] Although missing firms tended to be smaller with slightly lower performance, the CAR and |CAR| of included and missing cases were not significantly different.

has not, in general, viewed unexpected CEO deaths more positively or negatively in more recent periods. Moving to Table 2a, recall Hypothesis 1 predicted that absolute market reactions to CEO deaths have increased in magnitude between 1950 and 2009. We do see evidence that the mean absolute CAR has increased over time. For the (0, 3) event window, mean absolute CAR increased from 3.02 percent (period 1: 1950-1969) to 5.22 percent (period 2: 1970-1989) to 7.89 prcent (period 3: 1990-2009). T-tests showed that the differences between periods 1 and 2, between periods 2 and 3, and between periods 1 and 3 were all significant. The (0, 1) event window, which provides a highly conservative test, shows similar results. Mean absolute CAR increased from 2.35 to 4.99 to 6.41 percent. For this window, the differences between periods 1 and 2 and between periods 1 and 3 were significant, although the difference between periods 2 and 3 was not. Figure 1 illustrates the increase in absolute CAR over time, based on rolling 20-year periods.[5]

---Tables 1, 2 and 3, and Figure 1 about here---

As noted above, though, CAR standard deviations provide a better test of H1. Table 2b shows that we found strong support for our hypothesis using this test. For example, the CAR standard deviation for the (0, 3) window increased from 0.040 (period 1) to 0.070 (period 2) to 0.111 (period 3), with the differences between all periods being significant. The results for the (0, 1) window were similar; the CAR standard deviation increased from 0.032 to 0.069 to 0.093.

Finally, Table 3 reports our multivariate test of H1. Models 2 and 4 show that a continuous indicator representing year (Year Counter) in our sample was a positively significant predictor of absolute CAR for the (0, 1) ($\beta = 0.09$, $p < 0.001$) and (0, 3) windows ($\beta = 0.08$, $p < 0.001$). In terms of effect size, using the (0, 3) window, the magnitude of absolute market

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[5] This Figure is based on rolling 20-year periods, such that the first point represents mean absolute reaction for 1950-1969, the second points represents 1951-1970, and so on, while the final point represents 1990-2009.

reaction to an unexpected CEO death increased by 0.08 percentage points each year – slightly

less than 5 percentage points over our 60-year sample. The average firm in our sample had a

market capitalization of $1.3 billion (in 2009 dollars). Thus, over the course of 60 years, the shift

in market value caused by an unexpected CEO death increased by approximately $65 million (in

2009 dollars). Overall, therefore, we found support for H1.

Supplementary analyses

We ran a series of supplementary analyses to evaluate the robustness of our core findings. See

Table 4 for a summary of these tests.[6] The first row shows our original results. Initial market

reactions are based mostly on shareholders' expectations of the relative effectiveness of the

passing CEO vis-à-vis the expected replacement, with greater CEO impact over time being

reflected in larger positive or negative reactions. If this logic is correct, we should also see an

increased absolute market response over time to the naming of the successor, an event that

allows shareholders to re-evaluate their prior expectations. To test this, we examined the market

reaction to the appointment of the new CEO (if the appointment occurred within 45 days of the

predecessor's death). This test revealed a similar pattern, in that the mean |CAR| and CAR

dispersion rose steadily from 1950-1969 to 1990-2009 (Table 4; row 2). We then examined

market reactions during an event window from the date of death up to the date of new CEO

appointment (a maximum of 45 days post-death). Once again, the absolute market reaction rose

consistently (Table 4; row 3). Taken together, these analyses support our premise that market

participants tended to see unexpected CEO transitions as increasingly noteworthy events.

<div align="center">--- Tables 4 and 5 about here---</div>

Next, we examined two other events from our original sample where we expected to see less

substantial reactions. First, we assessed reactions to the deaths of non-CEO board-chairs, on the

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[6] Detailed results of all supplementary analyses are available upon request.

assumption that this position is likely to be seen as less influential (see Table 4; row 4). Second, we assessed reactions to non-sudden deaths of incumbent CEOs, on the assumption that some of the market response would already have been priced into the market values of firms (see Table 4; row 5 (data were available for 203 of these events)). The non-trivial market reactions in both samples suggest that these were seen as salient events, but, as expected, responses were muted when compared to sudden CEO deaths. However, our results for Hypothesis 1 continued to hold even when we included sudden and non-sudden deaths in our sample (see Table 4; row 6).

Finally, we examined our data in more detail based on CAR valence. Table 5 illustrates the number of positive and negative CARs for each period, along with the mean (signed) CAR for each of the two groups. In each period there were fewer positive CARs than negative CARs (42% of all CARs were positive). However, positive CAR reactions tended to be larger on average than negative CAR reactions, suggesting that a negative evaluation of a passing CEO (i.e., a positive change in the firm's market value following CEO death) may be more salient to market participants than a positive evaluation (cf. Taylor, 1991).

DISCUSSION

In this study, we introduced a distinct and informative approach to the question of whether there has been an increase in attributions of CEO significance over time, based on the contemporaneous responses of U.S. public company shareholders to unexpected CEO deaths. Using a sample of market reactions to 240 unexpected CEO deaths between 1950 and 2009, and several different evaluation techniques, we provided robust evidence that shareholders have viewed individual CEOs as increasingly impactful over this 60-year time frame. The overall magnitude or dispersion of market reactions – that is, the size of the reactions, positive or negative, but without regard to the actual sign – to the deaths of CEOs was significantly larger in

more recent periods. More generally, we outlined an empirical approach that provides a robust

assessment of shareholder perceptions of the impact of CEOs. In doing so, we offer an

alternative to retrospective allocation of CEO performance attributions common in CEO effect

studies, and, because our sample comprised CEO transitions that were unplanned, one that can

account for the counterfactual possibility of replacement by an equally-capable peer.

One possible alternative explanation for our results is that an increased market response

to CEO deaths could simply be a manifestation of a general trend toward larger market responses

to all types of unusual events. However, research suggests that markets have not grown

substantially more volatile in terms of proportional changes (e.g., Schwert, 2002). We also

considered the possibility that market reactions to unexpected CEO deaths might differ recently

because boards are becoming more active in firing poorly performing CEOs (Kaplan, 2008). In

other words, we might expect to see fewer large positive reactions (as fewer bad CEOs would be

passing away). In our sample, however, positive reactions are most common (as a percentage of

cases) in the final 20-year period (see Table 5). Finally, some suggest that firms are becoming

increasingly aware of the need to establish and update CEO succession plans (e.g., Miles and

Bennett, 2009). This possibility should work against our findings, though, as a greater prevalence

of CEO succession plans should reduce the average market reaction to unexpected successions.

The results of our study have several research implications. Probably the most interesting

concerns the contrasting views on the impact of senior executives held by academics and market

participants in the not-too-distant past. As discussed above, the 1970s and 1980s saw the rise of

research (e.g., population ecology) that ascribed little agency for managers. The actions of U.S.

shareholders, though, suggest they either weren't aware of these claims or that they discounted

them. Not only did shareholders act in ways consistent with a belief in the agency of individual

CEOs, their actions implied that they believed agency had actually risen in previous decades.

Our results also shed light on research into the ways in which CEOs are able to affect corporate outcomes. Work on managerial discretion (Shen and Cho, 2005; Wangrow *et al.*, 2015) has considered both latitude of actions – the range of strategic choices at the disposal of CEOs (Finkelstein and Boyd, 1998) – and latitude of objectives – the capacity of a CEO to engage in opportunism and self-dealing (Williamson, 1963). Authors have expressed skepticism regarding whether recent legislative and structural governance changes (e.g., Sarbanes-Oxley) have indeed helped to restrict CEO opportunism as intended (Bednar, 2012). However, whether U.S. CEOs' actual latitude of objectives has risen or fallen, company shareholders clearly perceive that CEOs' latitude of actions has escalated substantially.

In fact, it may be possible that some of the constraints and incentives that have been put in place to minimize opportunism are themselves responsible for greater latitude of action. For instance, the growing prevalence of stock options and incentive-based compensation seems to be making CEOs 'swing for the fences' more (Sanders and Hambrick, 2007; Wowak, Mannor, and Wowak, 2015). In other words, because CEOs are increasingly incentivized to aim for big hits but are not fully penalized for the misses, executives have become more likely to drive their firms toward large strategic changes, with attendant implications for overall success and failure. In line with this idea, whereas prior work has treated latitude of objectives and latitude of actions orthogonally, future studies may benefit from using our approach to develop a more nuanced picture of the links between these two different forms of managerial discretion.

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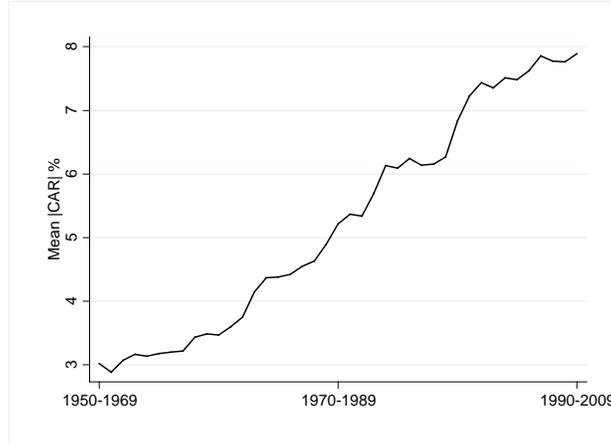
Figure 1: Mean |CAR| (0, 3 days) following CEO deaths, 1950-2009 -- Rolling 20-year periods

Table 1: Descriptive statistics and correlations

	Mean	S.D.	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. |(0, 0) CAR|	2.76	3.67	----								
2. |(0, 1) CAR|	4.25	4.05	0.59	----							
3. |(0, 3) CAR|	4.94	4.58	0.41	0.69	----						
4. |(0, 5) CAR|	5.80	5.81	0.36	0.61	0.75	----					
5. Founder	0.25	0.43	0.23	0.24	0.21	0.27	----				
6. Age	60.65	9.38	-0.17	-0.19	-0.12	-0.10	0.04	----			
7. |Industry-adj. ROA|	0.07	0.13	0.19	0.15	0.28	0.21	0.18	-0.09	----		
8. CEO tenure	12.61	10.75	-0.00	0.03	0.06	0.07	0.47	0.46	-0.07	----	
9. Revenue (Natural log)	5.05	1.92	-0.22	-0.22	-0.24	-0.25	-0.22	0.01	-0.45	-0.08	----
10. New CEO appointed	0.28	0.45	0.18	0.27	0.32	0.22	0.13	-0.25	0.22	-0.16	-0.01

N=240 for variables 1-4, and 208 for variables 5-10

Table 2a: |CAR| mean comparisons

Event Window	Mean |CAR| %			t-test p-values (2-tail)		
	Period 1 1950-1969	Period 2 1970-1989	Period 3 1990-2009	Comparing Period 1-2	Comparing Period 2-3	Comparing Period 1-3
(0, 0) CAR	1.41	3.63	4.00	0.000 ***	0.696	0.001 ***
(0, 1) CAR	2.35	4.99	6.41	0.000 ***	0.145	0.000 ***
(0, 3) CAR	3.02	5.22	7.89	0.000 ***	0.013 *	0.000 ***
(0, 5) CAR	4.01	6.17	8.74	0.008 **	0.063 +	0.000 ***
N	85	85	70			

+p < .1, *p < .05, **p < .01, ***p < .001

Table 2b: CAR dispersion comparisons

Event Window	CAR standard deviations			Variance comparison p-values (2-tail)		
	Period 1 1950-1969	Period 2 1970-1989	Period 3 1990-2009	Comparing Period 1-2	Comparing Period 2-3	Comparing Period 1-3
(0, 0) CAR	0.019	0.062	0.072	0.000 ***	0.192	0.000 ***
(0, 1) CAR	0.032	0.069	0.093	0.000 ***	0.007 **	0.000 ***
(0, 3) CAR	0.040	0.070	0.111	0.000 ***	0.000 ***	0.000 ***
(0, 5) CAR	0.058	0.087	0.133	0.000 ***	0.000 ***	0.000 ***
N	85	85	70			

+p < .1, *p < .05, **p < .01, ***p < .001

Table 3: Tobit models predicting |CAR|

	(0, 1 days)		(0, 3 days)	
	(1)	(2)	(3)	(4)
Founder CEO	0.76	0.20	0.25	-0.00
	(0.91)	(0.87)	(1.03)	(0.96)
CEO age	-0.06	-0.06	-0.00	-0.00
	(0.04)	(0.04)	(0.04)	(0.04)
|Industry-adjusted ROA|	0.39	-3.34	4.53	1.39
	(2.42)	(2.76)	(2.80)	(3.17)
CEO tenure	0.01	0.02	0.04	0.04
	(0.03)	(0.03)	(0.04)	(0.04)
Revenue (natural log)	-0.59***	-0.68***	-0.57**	-0.62**
	(0.17)	(0.18)	(0.18)	(0.19)
New CEO appointed	1.56*	0.20	3.00***	1.89**
	(0.73)	(0.77)	(0.67)	(0.70)
Industry Dummies	Included		Included	
Year counter (1-60)		0.09***		0.08***
		(0.02)		(0.02)
Constant	19.36***	17.56***	11.47***	9.80***
	(2.41)	(2.24)	(2.29)	(2.31)
Observations	208	208	208	208

+$p < .1$, *$p < .05$, **$p < .01$, ***$p < .001$
Standard errors in parentheses

TABLE 4: Mean |CAR| and CAR standard deviation for alternative analyses

	N	Mean |CAR| (%)			CAR standard deviation		
		1950-1969	1970-1989	1990-2009	1950-1969	1970-1989	1990-2009
1. Unexpected CEO death (0, 3)	240	3.03	5.22	7.89	0.040	0.070	0.111
2. New CEO appointed (0, 3)	225	2.76	4.93	7.16	0.038	0.069	0.105
3. Death to new CEO (0, max 45)	225	5.45	10.11	13.11	0.081	0.151	0.182
4. Chair death (0, 3)	266	2.44	4.38	4.29	0.024	0.056	0.078
5. CEO Death Not Sudden (0, 3)	203	2.44	4.81	4.54	0.022	0.048	0.053
6. All CEO deaths (0, 3)	443	2.77	5.01	6.44	0.024	0.048	0.069

Table 5: Positive versus negative CARs (0, 3 days) following CEO death

	1950-1969		1970-1989		1990-2009		1950-2009 (All)	
	N	Mean CAR (%)	N	Mean CAR (%)	N	Mean CAR (%)	N	Mean CAR (%)
Positive CARs	37	3.45	32	6.14	31	8.54	100	5.89
Negative CARs	48	-2.69	53	-4.66	39	-7.37	140	-4.74
All Cases	85	-0.02	85	-0.60	70	-0.33	240	-0.31