THE BURDEN OF CELEBRITY: THE IMPACT OF CEO CERTIFICATION CONTESTS ON CEO PAY AND PERFORMANCE

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We used the results from *Financial World*'s widely publicized certification contest, CEO of the Year, to investigate the impact of such contests on firm performance and executive compensation. A certification contest ranks actors on performance criteria that key stakeholders accept as credible and legitimate. We found that certified CEOs received higher compensation than noncertified CEOs when performance was high but lower remuneration when performance was poor. Although certifications appear to generate positive abnormal returns when they are first announced, the longer-term impact of CEO certifications appears to be negative.

Scholars have noted that it is often difficult to determine whether a firm's performance is driven by the excellence of its top management team or by general economic and organizational conditions that bear little relation to managerial competence (e.g., Bok, 1993; Holmstrom, 1982; March, 1984). Evidence does exist suggesting that top managers have particular "styles" that are associated with both financial (e.g., Bertrand & Schoar, 2003) and organizational (Finkelstein & Hambrick, 1996) policies. As Holmstrom (1982) argued, however, attributions of managerial ability are noisy and difficult to make because organizational performance is affected not only by the local decisions of management, but also by systematic risk factors operating at the industry and organizational levels. A firm's current good fortune may be the result of a favorable industry environment or of the foresight of managers who have since left the organization. Conversely, poor performance may stem from uncontrollable economic downturns or corporate de-

terioration inherited from predecessors. These attributional difficulties are compounded by the fact that top managers may, indeed, have only a limited impact on their firm's performance (Lieberson & O'Connor, 1972; Salancik & Pfeffer, 1977). Even further complicating the matter is research suggesting that managers tend to rationalize past events so as to cast their actions in the best possible light. This research has shown that poor company performance is often blamed on uncontrollable external events while good performance is credited to the foresight and quality of management (Bettman & Weitz, 1983; Salancik & Meindl, 1984). The uncertainties surrounding the impact of top managers on their firms imply that it is quite difficult to evaluate managerial effects in an isolated and individualized context.

Under these conditions of evaluative uncertainty, organizational research suggests that social devices are often invented at a collective level as a means to assess the abilities of actors by creating a competency ordering among them. Recent research has suggested that the media may play an important role in constructing such orderings by publicizing and interpreting organizational performance information (Deephouse, 2000; Johnson, Ellstrand, Daily, & Dalton, 2005; Pollock & Rindova, 2003; Rao, Greve, & Davis, 2001). Indeed, media-based

interpretations are sometimes embedded in certification contests through which actors are evaluated relative to one another in such a way that strong performers are identified and capture the endorsements of reputable third parties (Rao, 1994; Scott, 1994). By a "certification contest," we mean a competition in which actors in a given domain are ranked on the basis of performance criteria that key stakeholders accept as credible and legitimate. Such contests are common in many organizational settings and have important effects upon an actor's reputation. *Fortune,* for instance, annually ranks companies for public reputation, and *U.S. News and World Report* publishes a highly influential ranking of business schools.

Certification contests are useful measures of status in organizational communities because they combine many individual judgments on uniform criteria, thus enabling summary comparisons among rated actors (e.g., Fombrun, 1996; Rao, 1994). Fombrun (1996) suggested that stakeholders prefer organizations to be publicly evaluated even if the evaluative criteria are not completely comprehensive. The resulting rankings are important because of the behavioral effects that they have on organizations and their stakeholders (e.g., Elsbach & Kramer, 1996). Indeed, it is particularly important in uncertain environments for judgments to be made on quality. It is in such environments that certification contests are most likely to arise.

Prior research on certification has focused on the link between organizational quality rankings and organizational outcomes such as survival and performance (Rao, 1994). In this article, we extend this literature by examining the certification of individual managers and its effects on both organization- and individual-level outcomes. In particular, we examine the impact of a well-known certification contest in the managerial realm that identifies star CEOs. We first investigate whether firms can gain value by employing a top executive whom expert observers have anointed as a star performer. On the one hand, there is good reason to believe that employing a star CEO could be valuable to a firm. As Fombrun (1996) noted, having a highly recognized CEO at the helm may reassure stakeholders that the firm's future prospects are bright and, in turn, enhance the firm's ability to attract higher-quality employees, increase its leverage over suppliers, and gain better access to needed capital. On the other hand, some arguments in the management literature suggest that CEO star status has other consequences for firms, such as managerial over-confidence and hubris, that may have detrimental effects on future performance. We investigate these possibilities here.

We also investigate how being anointed as a star influences important personal outcomes for the CEO involved—specifically, his or her total compensation. Frank and Cook (1995) suggested that a "winner-take-all" compensation effect exists among corporate executives, in that being certified as a star CEO has important positive effects on annual compensation over and above any actual performance differences between stars and non-stars. Moreover, research has also suggested a "Matthew effect" (Merton, 1968) whereby high-status actors receive greater rewards than other actors for performing similar or even identical tasks (Podolny, 1993; Rao, 1994).

At the same time, however, we also examine whether there is a personal dark side to being recognized as a high-status actor. Fombrun (1996) suggested that being publicly identified as a star carries with it the "burden of celebrity." If the CEO certification process creates expectations that future firm performance will be high, CEOs may suffer negative outcomes if these expectations are not met. This effect is theoretically important because there is a good deal of evidence that CEO pay and corporate performance are only loosely coupled (e.g., Bebchuk & Fried, 2004; Tosi & Gomez-Mejia, 1989). CEO certification contests may be one social mechanism that has evolved to "recouple" CEO pay and performance.

To explore these issues, we used the results from a widely publicized annual contest conducted by the magazine *Financial World* from 1975 through 1996 that identified exemplary CEOs by surveying over 1,000 peer CEOs and business analysts each year. The contest provided a visible and public assessment of the general esteem accorded to corporate leaders by experts who served on their boards, competed against them daily, and bought and sold their companies' stock. CEOs were rated on a variety of financial and nonfinancial criteria and then ranked on the basis of these ratings. The magazine then awarded selected CEOs bronze, silver, or gold medals, according to their rankings.[1] The results of the contest were publicized in *Financial World's* March issue each year, and a dinner was organized in New York City annually to honor the medal winners.

THEORY AND HYPOTHESES

The uncertainty surrounding top managers' impact on the performance of firms has stimulated a

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[1] In each year, 1 gold, 10–12 silver, and about 175 bronze medals were awarded. See a more detailed account of the process in our methods section.

good deal of scholarly interest in the symbolic aspects of senior leadership (e.g., Pfeffer, 1981) under the assumption that the actions of CEOs are embedded within a socially constructed system of interpretations and opinions (e.g., Hayward, Rindova, & Pollock, 2004; Khurana, 2002). Some research has approached this topic from the perspective of managers constructing self-attributions for corporate performance (e.g., Bettman & Weitz, 1983; Salancik & Meindl, 1984) and has shown that managers tend to externalize failure and to internalize success. Other research has focused on the interpretations of external actors such as the business press (e.g., Chen & Meindl, 1991; Hayward et al., 2004; Meindl, Erlich, & Dukerich, 1985) and corporate boards (e.g., Khurana, 2002; Wade, Porac, & Pollock, 1997) and has demonstrated that these interpretations are similarly subject to a number of cognitive and political influences. These influences aside, however, the impact of top managers on firm performance must be assessed for very practical reasons and must be factored into any number of personnel decisions, not the least of which is how to compensate top managers for their contributions to their firms. Researchers studying the symbolic aspects of senior leadership have largely overlooked these pragmatic issues, an oversight that raises questions about the extent to which personnel decisions are independent of the contributions of management or are linked in predictable ways to management quality.

Organizational researchers have argued that, under conditions of evaluative uncertainty, one mechanism by which the capabilities of social actors are assessed is certification contests and endorsements from reputable third parties (Rao, 1994; Scott, 1994). Wiley and Zald (1968) argued, for instance, that public accreditation enhances organizational survival and access to resources. Similarly, Wilson (1985) suggested that a firm could lower its cost of capital by having reputable auditors certify its financial statements. Singh, Tucker, and House (1986) found that voluntary social service organizations that received a registration number and were listed in the *Community Directory of Metropolitan Toronto* enjoyed greater legitimacy and were less likely to fail. And studying the early auto industry, Rao (1994) found that organizations whose automobiles won speed and reliability contests had improved chances of survival. In all of these contexts, being certified in an uncertain environment served as a signal that an actor was of high quality and likely to survive in the long run.

CEO Certifications and Firm Performance

Certification contests that identify high-performing CEOs may play a similar role in the corporate governance arena. Research on governance has shown that financial markets do attend to who occupies the executive positions in public corporations (e.g., Worrell, Davidson, & Glascock, 1993). Thus, employing a publicly certified CEO might be expected to yield tangible performance benefits to a firm by signaling that the CEO is of high quality and likely to add economic value to the company. In this vein, Deephouse argued that "reputation facilitates value creation by signaling to current and potential exchange partners, including employees, suppliers, investors, and customers" (2000: 1098). Winning a certification contest may enhance a CEO's reputation and thus increase his or her firm's credibility in the eyes of key stakeholders (Fombrun, 1996; Hall, 1992). This credibility in turn could, among other things, make stock offerings more desirable or attract higher-quality employees. Employing a certified CEO may also allow a firm to enjoy cost savings. First, the status associated with positive certifications may lower a firm's cost of capital. Fombrun and Shanley (1990) showed that the terms for acquiring capital were more favorable for higher-status firms. Second, to the extent that certification positively influences the perception of a firm's future prospects, it may lower suppliers' perceptions of the risk in transacting with the firm. For example, Podolny (1993) suggested that the status of underwriters affects the due diligence costs of investment banks. The cost savings for transacting parties in this instance make the high-status partner more attractive.

A CEO may also be able to translate the credibility of being anointed a star into power when dealing with internal and external constituencies. Specifically, being certified as a star CEO may increase a CEO's prestige power. As Finkelstein wrote, "Prestige power is related to a manager's ability to absorb uncertainty from the institutional environment" (1992: 515). One way in which managers can influence their prestige power is through building a positive reputation among stakeholders (Dalton, Barnes, & Zaleznik, 1968). As certification is awarded by expert stakeholders, it would seem to confer a positive institutional reputation and lead to increased prestige power for the anointed star. Similarly, Hayward and colleagues (2004) proposed that star CEOs and key stakeholders embrace, rather than reject, a CEO's celebrity status and view it as a valuable intangible asset for a firm. Hayward et al. posited that, as a result, such CEOs will enjoy wider discretion and assert even greater

control over their firms as these awards reinforce both the efficacy of the star CEOs and the notion that they enhance their firms' performance. Given that strategic decisions are unstructured and replete with ambiguities (Mintzberg, Raisinghani, & Thêorét, 1976) and therefore invite the use of power, the influence that star CEOs gain from public recognition may allow them to leverage their knowledge and skills more effectively to yield positive firm outcomes. The effects of CEO certification on both stakeholder perceptions and CEO job performance lead to the following hypothesis:

Hypothesis 1a. CEO certifications are positively associated with a firm's future performance.

In contrast, some evidence from the organizations and behavioral finance literatures also suggests the possibility that CEO certification is detrimental to future firm performance by inducing overconfidence and hubris in CEOs anointed as stars (e.g., Hayward & Hambrick, 1997; Malmendier & Tate, 2005). This research has suggested that CEOs who have been successful in the past often become overly confident in their abilities and actions, leading them to overestimate the expected returns from their corporate investment decisions. Defining hubris as "exaggerated pride or self-confidence" (1997: 106), Hayward and Hambrick found that CEO hubris, as measured by recent media praise, led to both the payment of higher premiums for corporate acquisitions and higher shareholder losses from these acquisitions. The authors argued that CEOs' overconfidence in their acquisitions was a direct outcome of the media praise these celebrity CEOs received. Malmendier and Tate (2005) reported evidence suggesting that overly confident CEOs were more likely to invest in "pet projects" funded by internal cash flows. If being certified as a star CEO makes it more likely that an executive will become overly confident of his or her decisions and actions, certification may lead in some cases to overly risky and ill-advised choices. These arguments thus suggest the following alternative hypothesis:

Hypothesis 1b. CEO certifications are negatively associated with a firm's future performance.

In investigating the effects of CEO certification on firm performance, we examined market returns and accounting returns in the years following awards. Although prior research did not provide much basis for distinguishing the effects of certification on these different performance metrics ex ante, it did seem reasonable to expect that CEO certification might have different effects on market returns and on profitability. Although we do not advance specific predictions about these relationships, we did investigate them as part of our analysis.

CEO Certifications and CEO Compensation

According to Crystal (1991), many corporate boards believe that high pay for star CEOs is a wise investment in managerial talent. It is this belief that underlies statements such as the one made by corporate investor Warren Buffett: "You'll never pay a really top-notch executive . . . as much as they are worth. A million, $3 million, or $10 million, it's still peanuts" (*Forbes,* 1990: 210).

Crystal described this ideology well in the following:

A perennial debate in history circles centers on whether great men, like Napoleon, really can change the course of history, or, alternatively, whether history unfolds in a mysterious process that is only marginally influenced by the Napoleons of this world. Ask your typical board of directors to jump into the debate among historians, and to a man . . . they will vote with the "great man" camp. To them, it is self evident that if you put the right person in the CEO's job and make sure he stays in the job, great results will ensue. And to make sure he stays in the job, pay him anything he requires, short of the entire sales volume of the company. (1991: 159)

The insight behind Crystal's observation is that, regardless of whether CEOs' marginal contributions to firms justify their salaries, boards of directors often believe that CEOs do great things that warrant high pay, and this perception rules the compensation-setting process.

However, for the many reasons noted above, a CEO's marginal contribution to firm performance is difficult to assess, and thus powerful shareholders, the business press, and the public at large can contest board beliefs about this contribution. It is because these beliefs are contestable that CEO certifications act as useful cues about the competence of managers. Indeed, stakeholders may heavily weight the outcomes of certification contests when evaluating a CEO's talent because such contests are likely to be perceived as one of the few relatively neutral sources of information about a CEO's contribution. This view is consistent with Khurana's (2002) argument that stakeholders overweight external cues of a CEO's reputation in their evaluations of his or her talent, as well as with Frank and Cook's (1995) suggestion that performers who are publicly recognized as stars collect compensation premiums that are higher than their marginal con-

tributions would justify. These arguments are also consistent with the Matthew effect (Merton, 1968), in that high-status actors receive higher rewards for performing similar or identical tasks. Certified CEOs may be able to leverage their high status in negotiating future compensation contracts with boards, or board members may simply feel justified in paying star CEOs higher compensation as a result of reduced uncertainty about the quality of the CEOs. The fact that the media sponsors CEO certification contests may be important in this regard. Hayward and colleagues (2004) suggested that journalists often overattributed firm outcomes to the actions of the CEO and played a crucial role in creating CEO celebrity. Flattering media accounts about medal-winning CEOs may encourage boards to believe in the distinctive ability of winners and thus grant higher compensation to managers certified in the press. Following these arguments, we therefore hypothesize:

Hypothesis 2. CEO certifications are positively associated with CEO compensation.

Although Hypothesis 2 predicts that winning a medal will have a positive main effect on a CEO's compensation, his or her compensation may also depend on the firm's subsequent performance. Meindl and colleagues (1985) found that poor firm performance was often attributed to shoddy leadership, while exemplary performance was often credited to the diligence and wisdom of CEOs, regardless of whether they were closely linked to these performance outcomes. In addition, Hayward and colleagues (2004) proposed that celebrity CEOs actively embraced and cultivated their celebrity by taking credit for their success and attempting to capture greater control of their firms. By embracing their celebrity star CEOs may, in effect, publicly reinforce the perceived cause-and-effect relationship between their actions and firm performance.

Combined, these ideas suggest that a CEO's winning a certification contest makes it more likely that observers will attribute the CEO's firm's outstanding prior performance to CEO actions rather than to external causes, and that the CEO will attempt to exert greater control on the firm. If firm performance is high after a CEO has been publicly recognized as exemplary, these earlier attributions will be reinforced. Thus, CEOs of firms that are performing well who have been certified in previous years may obtain compensation premiums because their boards of directors are likely to attribute the firms' continuing favorable outcomes to the CEOs' wisdom and competence.

At the same time, these attributional tendencies may make it quite difficult for a certified CEO to

construct credible accounts that deflect blame onto external sources when subsequent firm performance is poor (Ginzel, Kramer, & Sutton, 1992). Attempts by management to link later poor performance to external causes are thus likely to be viewed as less credible, especially if a star CEO has embraced and cultivated his or her own celebrity (Hayward et al., 2004). Consequently, when a firm's performance is poor, CEOs who have won certification contests in the past may actually be held more accountable and receive lower compensation than noncertified CEOs whose firms achieve similar levels of performance. Being recognized as a star CEO may thus be a double-edged sword and may carry with it the "burden of celebrity" (Fombrun, 1996). This line of reasoning suggests the following hypothesis:

Hypothesis 3. Certifications in the past are positively associated with a CEO's compensation when a firm's subsequent performance is high and negatively associated with his or her compensation when the firm's subsequent performance is poor.

DATA AND METHODS

Data

Our sample was selected from the companies that were members of the Standard & Poor's (S&P) 500 at the end of 1992. The original sample included the 366 companies that had fiscal years ending on December 31. We selected this date to avoid any sampling problems that might arise from differences in fiscal years, such as significant changes in the market environment in the nonoverlapping periods. Missing data reduced our sample to 278 companies. *T*-tests revealed no significant differences between our sample and the S&P 500 as a whole on such dimensions as size, performance, and industry representation. To test our hypotheses, we gathered panel data for the five years starting in 1992 and ending in 1996. We began our sample in 1992 because it was during this year that the Securities and Exchange Commission (SEC) significantly increased its reporting requirements with regard to CEO pay policies. Firms were systematically required to report all elements of a CEO's compensation. Starting the sample in 1992 made it possible to collect total compensation data for each CEO and ensured that the firms faced a common regulatory environment over the period. In cases in which there was a CEO succession during the year, we kept the CEO who was replacing the departing CEO in our sample, unless he or she was appointed CEO after October of the year. We

also omitted from our sample firm-years in which the CEO had not been at the focal firm in some capacity for the full year. As we report below, we performed a variety of sensitivity analyses to ensure that our selection criteria did not affect the results.

Dependent Variables

Firm performance. We assessed both the immediate and longer-term effects of CEO certification on performance. To measure the immediate reaction of the stock market, we examined the impact of its CEO's winning a medal on a firm's excess returns in the days immediately following the announcement of the medal. For longer-term performance, we used both an accounting and a market measure to assess annual performance from 1992 through 1996. To measure compounded market returns as the total yearly stock return of the company, with reinvestment of dividends assumed, we used the formula $(price_{end} - price_{beginning} + dividends)/price_{beginning}$. We also obtained annual return on common equity (ROE), which is a measure of how well a company is using the equity provided by stockholders (Teitelman, 1996) and is commonly used as a basis for awarding incentive pay. Both performance measures were obtained from the COMPUSTAT database.

CEO compensation. We gathered data on compensation from the EXECOMP database. Because CEO compensation takes a wide variety of forms (Bebchuk & Fried, 2004), we used CEOs' total direct compensation as our measure. A CEO's total direct compensation included salary, bonus, the value of restricted stock grants, options granted during the year (valued by the Black-Scholes method),[2] long-term incentive payouts that year, and all other types of cash compensation paid in that year. As in other studies, this variable was transformed into its natural logarithm so that extreme values would not unduly bias the analysis.

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[2] Although we recognized that the valuation of stock options can be problematic, previous research has shown that various option-pricing methods produce results that are very highly correlated ($r = .90$; Sanders, Davis-Blake, & Fredrickson, 1995). This high correlation, combined with the fact that the Black-Scholes method is the most widely used means of valuing stock options (Gerhart & Rynes, 2003), led us to use this valuation methodology in the absence of a significantly better one.

Independent Variables

CEO certification. We assessed CEO certification using the results of *Financial World's* annual CEO of the Year competition. *Financial World* began this widely publicized annual contest in 1975 and continued it until 1996. Each year the magazine surveyed a large group of business analysts and CEOs who rated CEOs on four criteria, which it described as follows:

> (i) During the preceding year, this corporate chief so managed his company's affairs that it was among the leaders in standard analytic measurement tools of performance. Given the limitation of the economy in general and his industry in particular, his company was able to effect a high rate of return on investment capital, a big increase in net income, best management of debt, etc.

> (ii) The executive so managed his company that it increased its position in the field significantly or maintained its position in spite of general adversity.

> (iii) This chief executive has assembled an effective working team to surround him so that corporate affairs are run smoothly with creativity, innovation and dynamism. Morale in his company is high in response to his leadership.

> (iv) This chief executive has not only been responsible for input into his company but has contributed significantly to his industry and/or community and the nation at large. (*Financial World,* 1975: 16)

All CEOs of companies with more than $100 million in assets or sales were eligible for the award, and between 2,000 and 3,000 CEOs were considered in a given year. In each industry, analysts and CEOs selected three bronze medal award winners on the basis of the above criteria. The bronze medalists in each industry were then grouped into general business categories and 10–12 silver medalists as well as 1 gold medalist were selected from among the bronze medalists across all categories.

The fact that three types of medals were awarded raised the issue of how we should code this variable. It was not meaningful to distinguish between different types of medals because there was only one gold medal winner each year and a relatively small number of silver medals. Also, because analysts and CEOs first decided which contestants would win a medal (of any type), we felt that the most reasonable approach was to measure whether or not each CEO in our sample won any medal during the period of our study. We used this information to construct two variables.

Medal in current year. This was a dummy variable that measured whether a firm's CEO won any medal in March of each year, and we used it to assess whether certification had a positive impact on firm performance (Hypotheses 1a and 1b) and the immediate effect of winning a medal early in the year on that year's total compensation to the CEO (Hypothesis 2).[3]

Medals won in previous five years. This variable, which captured the number of medals a CEO had won over the previous five years, reflected our reasoning that the effects of certification on compensation were likely to extend beyond one year (Hypothesis 2). It was also likely that winning multiple medals would increase the impact of certifications on compensation. We interacted this variable with performance (measured as both ROE and stock return) to test Hypothesis 3.

Control Variables

Company size. This variable was defined as the logarithm of a company's total assets and was based on data obtained from the COMPUSTAT database.

Institutional ownership. We defined this variable as the percentage of outstanding stock held by institutional investors, as identified in the First Call database.

Industry return. We defined a firm's industry as all companies that had the same two-digit SIC code. Although SIC codes can range from one to seven digits, past research has found that the two-digit level captures most of the systematic industry variation in stock prices (Alford, 1992; Clarke, 1989). Moreover, past research suggests that corporate boards make performance comparisons at the two-digit level (e.g., Antle & Smith, 1986; Gibbons & Murphy, 1990; Porac, Wade, & Pollock, 1999). A company's total assets for a given year were used to weight that year's performance.[4] We calculated industry performance each year using the formula Σ_{ij} (*total assets*$_{ij}$ × *total return*$_{ij}$)/(Σ_{ij} *total assets*$_{ij}$), where *i* indicated each company in industry *j* for a given year. These data were obtained from COMPUSTAT.

CEO tenure. How long a CEO has been on the job obviously will influence whether observers attribute a firm's past performance to that CEO's ability. To control for these effects, we calculated CEO tenure as the number of years a CEO had been in his or her present position. These data were obtained from firm proxy statements, *Who's Who in Finance and Industry,* and the *Forbes* annual survey of executive compensation.

Outside CEO. When CEOs are appointed from outside a firm, they may be more visible and may also receive higher compensation than internally promoted CEOs. To control for these effects, we coded an outsider dummy variable 1 if the difference between a CEO's organizational tenure and positional tenure was less than or equal to three years. We chose the three-year difference because an outside successor is frequently brought into a company at a rank below that of CEO and groomed for one or more years before becoming CEO (Cannella & Lubatkin, 1993). This process allows the new CEO to become familiar with all aspects of the company and allows the board and departing CEO to evaluate the new CEO's potential prior to his/her appointment.

New CEO. If an individual is promoted from a lower position to CEO during the course of a year, his or her pay will be prorated on the basis of the amount of time spent in each position during that year. Thus, CEOs appointed in a current year have lower levels of compensation because they spent part of the year in a lower position. To control for the effects of midyear promotions on compensation, we created a dummy control variable, coding it 1 if promotion to CEO had occurred sometime during the current year. We also reran our analyses excluding such new CEOs, and the results did not change substantively.

Year dummies. Dummy variables for the years 1993–96 were also included in the models as controls for any period effects in our time series. For instance, year dummies controlled for changes in general economic conditions from year to year.

Methods

Event study. To measure the immediate performance effects of winning a medal, we performed an event study. Finance researchers have used event studies frequently since the early 80s (MacKinlay, 1997), and management researchers have more recently employed them (e.g., Arthur & Cook, 2004; Johnson et al., 2005; Sanders & Boivie, 2004). If investors believe that winning a medal conveys

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[3] Because winning a medal was in part determined by prior financial performance, it is possible that medal winners were primarily benefiting from a financial "halo" (Brown & Perry, 1994). In analyses not reported here, we used Brown and Perry's halo removal methodology on both our medal measures and reran our analyses. The results were substantively unchanged. For ease of interpretation, we report results here using the unmodified measures.

[4] We also calculated a measure using a company's total assets for the previous year; the results of our analysis were substantively unchanged.

new information about the quality of a CEO and his/her ability to positively influence the future cash flows of a firm, one would expect a positive stock market reaction in the days following the announcement of an award. In event studies, one must first identify the timing of the event of interest. Using either a financial market model or a market index, researchers then calculate expected returns for each firm. Each firm's expected return is then subtracted from its actual return. These differences are known as *excess (unexpected* or *unanticipated) returns* and reflect the extent to which the event provided new information about the value of the firm (Brown & Warner, 1985). Finally, researchers use statistical tests to determine whether these excess returns are significantly different from 0 over a specified time window.

We used two approaches to calculate the expected returns provided by the EVENTUS program available on the Wharton Research Data Services Web site. In the first method, we used the market model, in which regression analysis relates a firm's return to that of a market portfolio (in this case, the S&P 500 index). Using daily returns, we estimated a regression equation over the estimation period (ending 46 days before the event and extending back to 255 days prior to the event) to predict each firm's returns.[5] Estimation periods generally end before the event of interest so that the returns at the time of the event will not influence the model parameters. We then used the resulting regression coefficients and a firm's actual daily returns to compute abnormal returns for each firm over each day of the event period. The second common approach in event studies is to calculate a market-adjusted return by subtracting the return of the market during each day of the event period from the firm's daily returns. We used the resulting excess returns (ER_{it}) provided by each method to calculate the average daily excess returns (AER_t) by summing the average excess returns over the event window. Following previous event study research, we then used the *t*-statistic to assess whether these excess returns were significantly different from 0 (Brown & Warner, 1985; MacKinlay, 1997).

In event studies, determining the exact timing of the event of interest is critical since new information is likely to be quickly incorporated into firm security prices. We first considered using the publication date of the issue of *Financial Times* an-

nouncing each year's awards as the indicator of when information about the awards became public. However, magazines are often available prior to their publication dates, and the results of such a contest are likely to be made public early as a means of generating increased interest in the magazine. Thus, we performed a search on Lexis-Nexus using a variety of relevant search terms and recorded the earliest dates at which the contest results for each year were mentioned. In all cases, these occurred prior to the publication date of the magazine. Since these announcements were often press releases put out by the companies themselves, we believed that our event dates were accurate and reflected when the award information was actually released. In our analyses, we focused on one-, two-, and three-day event windows. One disadvantage of using longer windows is that other, unrelated events may be confounded with the event of interest (McWilliams & Siegel, 1997).[6] We will, however, report the results of supplementary analyses using longer windows.

Yearly performance and compensation. Because our data extended over five years and we had multiple observations for each firm, our observations were not independent and so not appropriate for analysis with a simple ordinary least squares regression. We considered using a random-effects model, but use of such a model requires that coefficients obtained from the random-effects model must equal those from a fixed-effects model. If this is not the case, it means that the random-effects estimator will produce biased results because there is a correlation between the independent variables and the unit effects that has not been controlled for. Using a test developed by Hausman (1978), we found that this assumption was violated. Hence, the fixed-effects estimator was used.

Estimating a fixed-effects model is equivalent to adding a dummy variable for each firm (Greene, 1993). A fixed-effects model controls for constant unmeasured differences across firms that may explain differences in the dependent variables. For instance, because some firms pay very well for all positions, while other firms pay less for comparable positions, firm dummies are important because they control for effects of such wage differences. Fixed-effects models are considered conservative

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[5] Typically event studies employ an estimation period of either 255 or 360 days prior to an event. We tested an alternative model that employed the 360-day estimation period, and our results were substantively unchanged.

[6] Even in our three-day window, 19 observations had confounding events, such as earnings announcements and new-product introductions. However, excluding these observations did not substantively change the results of any of our event study analyses, so we retained all observations for the analyses reported here.

because only changes in independent variables *within* a firm can produce significant effects. Thus, a positive coefficient in these models can be interpreted as signifying that a positive change in an independent variable within a firm will cause a positive change in the dependent variable within that firm. As we will discuss below in our results section, we also employed several other time series methodologies to check the robustness of the findings from our fixed-effects models.

Industry dummies were not included in the time series models because firm effects controlled for variance due to industry membership, as industry membership was constant for all the firms during the study period. In all of our analyses, we excluded CEOs who had joined their firms in a current year since they could not be held responsible for the prior year's performance. Unless otherwise noted, all of our independent variables were lagged one year behind our dependent measures. For example, in our models we used performance in 1991 to predict 1992 total compensation.

RESULTS

The list of medal-winning CEOs in our sample contains many of the best-known and most respected CEOs in the United States (e.g., Jack Welch, Lawrence Bossidy, and Stanley Gault). The entire list of medal winners is available from the authors. Table 1 presents descriptive statistics for each of the variables that we measured as well as their bivariate correlations.

Firm Performance

Tables 2a and 2b present the results of our event study and show the excess returns associated with winning a medal. Table 2a shows the results of examining cumulative excess returns in the three days prior to the announcement of the awards (days -3 to -1). These returns are not significant, suggesting that the information did not leak out to the market before the announcement date. Although they are not shown here, we also calculated event windows that extended 6 days, two weeks, and 30 days prior to the event and found no significant effects. During the event windows subsequent to the announcement, however, we do find evidence of a positive stock market reaction. The cumulative excess returns calculated using both the market model and market-adjusted returns are positive and significant for the intervals from 0 to 2 days and 0 to 3 days. The cumulative excess returns for the period between the day of the event and one day after (0, 1) are positive and marginally significant when the market model is used and highly significant when cumulative market-adjusted excess returns are used. We also calculated binomial Z-statistics, to test "whether the proportion of positive to negative returns exceeds the number expected from the market model" (McWilliams & Siegel, 1997: 635). This test also indicated statistically significant, positive abnormal returns in the days following certification.

To investigate these effects further, we examined the daily excess returns from three days before to three days after each event. Table 2b shows that the

TABLE 1
Descriptive Statistics

Variable	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Medal winner this year	0.14	0.35															
2. Medals won in past 5 years	0.57	1.08	.34														
3. CEO total direct compensation[a]	7.83	0.81	.20	.23													
4. Return on equity	9.19	48.22	.05	.05	.10												
5. Company return	20.53	36.00	.08	−.05	.16	−.02											
6. Total assets[a]	8.76	1.44	.16	.23	.44	.06	.03										
7. Industry return	15.51	16.11	.05	.04	.08	−.02	.42	.05									
8. Outside CEO	0.22	0.41	.04	−.02	.10	−.05	.08	−.04	.03								
9. CEO tenure	6.47	6.65	.06	.30	.02	−.02	−.01	−.04	−.03	.00							
10. CEO tenure squared	86.05	180.98	.04	.21	−.02	−.03	−.02	−.06	−.03	.06	.93						
11. Institutional ownership	0.55	0.15	.03	.04	.17	−.01	.13	−.05	.09	−.02	−.01	−.05					
12. New CEO	0.09	0.28	−.12	−.15	−.05	.01	.00	.00	−.02	−.04	−.30	−.15	−.01				
13. 1993	0.20	0.40	.02	.03	−.12	.00	−.04	−.02	−.13	−.02	.03	.01	.05	−.01			
14. 1994	0.20	0.40	−.02	.01	.04	.02	−.08	−.01	.11	.01	.02	.03	−.12	.03	−.26		
15. 1995	0.20	0.40	−.03	.00	.09	.06	−.30	.03	−.41	.02	−.03	−.02	.02	.03	−.25	−.25	
16. 1996	0.20	0.40	−.03	−.05	.20	.00	.19	.05	.20	.03	−.04	−.03	.10	−.03	−.25	−.24	−.24

[a] Logarithm.

TABLE 2
Excess Market Returns Surrounding the Announcement of Medals[a]

Days	Market Model		Market-Adjusted Model	
	Abnormal Return	*t*	Abnormal Return	*t*
(2a) Cumulative excess returns				
−3 to −1	−0.17%	−0.84	−0.04%	−0.18
0 to +1	0.28	1.66[†]	0.38	2.28*
0 to +2	0.47	2.30*	0.64	3.08**
0 to +3	0.49	2.06*	0.69	2.90**
(2b) Daily excess returns				
−3	−0.04	−0.38	−0.01	−0.09
−2	−0.01	−0.07	0.05	0.44
−1	−0.12	−1.01	−0.08	−0.66
0	0.03	0.28	0.13	1.07
1	0.25	2.06*	0.26	2.16*
2	0.20	1.65[†]	0.25	2.12*
3	0.02	0.13	−0.06	0.46
(2c) Long-term excess returns				
3 to 30	−1.13	−1.79[†]	0.14	0.22
3 to 90	−3.36	−3.01**	0.70	0.63
3 to 180	−7.07	−4.45**	0.88	0.55
3 to 240	−8.23	−4.48**	2.38	1.29

[a] Medals were *Financial Times* awards to CEOs. $n = 186$. The number of medals in the event study did not equal the number in the sample because the event study program we used (EVENTUS) did not have stock performance history for every company. Thus, our sample of medal winners was reduced from 195 to 186.
  [†] $p < .10$
  * $p < .05$
  ** $p < .01$

excess returns are positive and significant one day after an event using both the market model and market-adjusted returns. Further, the results we obtained using both approaches are quite similar in that the returns one day after the event are .25 percent with the market model and .26 percent with market-adjusted excess returns. Two days after the event, only the excess returns calculated with market-adjusted returns are significant, although the excess returns calculated with the market model are positive and close to significance. Overall, our results suggest that market investors view these awards favorably. In general, the strongest effect occurs one day after an announcement and fades thereafter as the information is integrated into investors' evaluations of firms.[7]

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[7] One possible source of bias in our method is that our events were clustered on specific event dates (such as the days the awards were announced each year). Although Brown and Warner (1985) provided evidence that such clustering generally does not affect results from daily data, we reestimated our excess returns over these event windows using the grouping option in Eventus, which clusters the returns, and our short-term returns did not change.

To investigate the longer-term effects of certification, we ran additional event studies over a longer window. Table 2c shows the cumulative excess returns associated with winning a medal calculated with a window extending from the third day after certification to 30 days, 90 days, 180 days, and 240 days later. Using the market model, we found in the 30-day window that the cumulative excess return becomes negative (−1.13%) and marginally significant. This negative return increases to −8.23 percent by day 240 and is highly significant. Combined, these results suggest that although the immediate effect of winning a medal is positive, over time this trend reverses and becomes negative. In contrast, however, the market-adjusted model shows no negative long-term effects. The excess returns, although not significant, are positive.

Differences in how excess returns are calculated with each approach may in part account for the variation in results. Recall that in the market model, one determines a firm's sensitivity to the return of the market by regressing market returns on the firm's actual returns during a period prior to the event window. Excess returns are then calculated by subtracting this expected return from the firm's actual returns during the event window. Es-

sentially, this procedure means that market model excess returns are adjusted according to a firm's past market response and its risk profile. In the market-adjusted-return model, a firm's prior sensitivity to the market is not taken into account. Excess returns are calculated by simply subtracting the average return from the S&P 500 over the event period from a firm's actual returns. Unlike the market model, the market-adjusted model uses the same expected return (that of the S&P 500) for all firms. Our long-term results may suggest that although the firms in our sample were not doing worse than the average S&P 500 firm, they were doing worse than they had done historically.

As we noted earlier, the results from using longer event windows are only suggestive both because of the distributional assumptions required and the fact that other events are likely to influence performance during a longer event window. Table 3 presents fixed-effect models used to examine whether CEO certifications are associated with lower or higher firm performance in the subsequent year to test Hypothesis 1. In some sense, the fixed-effects model is similar to the market model because it measures within-firm variation. The market model compares current performance to what would be expected given a firm's past sensitivity to the market, and the fixed-effects model examines how winning a medal changes performance within a firm. In this instance, even if a firm performed better on average than other firms over the time period, if its within-firm performance declined one could view the effect of the medal as negative. Model 1 presents our control model predicting yearly market returns. In model 2, we added whether a CEO won a medal at the beginning of a current year and the number of medals won over the previous five years. We found no support for Hypothesis 1a in that winning a medal was not positively associated with future market performance, but we did find some support for Hypothesis 1b in that winning a medal was negatively associated with a firm's market return. In fact, model 2 shows that a firm whose CEO received a medal at the beginning of a year had lower market performance during that same year. Using an *F*-test, we also found a significant increase in explained variance (R^2) between our best-fitting model 2 and our base model 1.

TABLE 3
Results of Fixed-Effects Regression Analysis for Performance[a]

	Market Return						Return on Equity			
Variable	Model 1		Model 2		Model 3[b]		Model 4		Model 5	
ROE	−0.42**	(0.05)	−0.41**	(0.05)	−0.45**	(0.11)				
Market return							0.06**	(0.02)	0.06**	(0.02)
Total assets, lagged	−4.87	(4.28)	−5.06	(4.26)	−3.19	(6.18)	−6.30*	(3.52)	−6.31*	(3.53)
Industry return	0.44**	(0.07)	0.44**	(0.07)	0.39**	(0.12)	0.04	(0.05)	0.04	(0.05)
CEO tenure	0.12	(0.24)	0.13	(0.24)	0.19	(0.30)	−0.17	(0.20)	−0.17	(0.20)
Institutional ownership	−89.25**	(15.07)	−88.64**	(15.02)	−160.87**	(54.45)	0.89	(12.71)	0.88	(12.71)
Outside CEO	11.73**	(3.95)	12.20**	(3.93)	0.38	(6.19)	−1.72	(3.23)	−1.70	(3.23)
New CEO	2.01	(3.17)	0.57	(3.20)	−1.10	(3.44)	−4.30*	(2.60)	−4.35*	(2.63)
1993	−0.85	(2.33)	−1.20	(2.33)	10.23**	(3.30)	1.66	(1.98)	1.65	(1.98)
1994	−13.23**	(2.27)	−13.68**	(2.36)			5.04**	(1.96)	5.03**	(1.97)
1995	19.04**	(2.57)	18.46**	(2.57)	44.49**	(5.45)	6.04**	(2.29)	6.03**	(2.29)
1996	9.45**	(2.69)	8.79**	(2.69)	36.13**	(6.00)	5.86**	(2.20)	5.84**	(2.21)
Medal winner this year			−8.33**	(2.64)	−11.18**	(2.86)			−0.26	(2.16)
Medals won in last five years			−0.21	(1.45)	0.14	(1.58)			−0.03	(1.19)
Market return, lagged					0.16**	(0.05)				
Constant	101.37**	(38.03)	104.37**	(37.88)	−5.89**	(1.16)	64.95*	(31.21)	65.03*	(31.25)
Observations	1,271		1,271		955		1,268		1,268	
R^2	.46		.47				.48		.48	
Adjusted R^2	.31		.31				.33		.33	
χ^2					372.83					

[a] Firm dummies are included but not shown.

[b] This model used the Arellano-Bond (1991) approach, in which a lagged dependent variable is used as an instrument. As a result, the number of observations is smaller because the first year must be dropped. In addition, in a few cases in which lagged market returns were unavailable, those observations had to be dropped.

* $p < .05$
** $p < .01$

One possible problem with this model is that we did not control for prior performance, which is almost certain to be causally related to winning a medal. Because high performers are also more likely to be medal winners, the negative effect of certification in model 2 may be due to regression to the mean. To investigate this possibility further, we estimated a dynamic model that included a lagged dependent variable. However, including a lagged dependent variable in a standard fixed-effects equation is problematic because the error term will almost certainly be correlated with the lagged endogenous variable. To obtain consistent estimates, we used the model developed by Arellano and Bond (1991), which uses the generalized method of moments (GMM). As can be seen in model 3, we continued to find that winning a medal at the beginning of a current year had a negative impact on performance, once again offering support for Hypothesis 1b. In models 4 and 5, we explored whether winning a medal had an impact on ac-

counting performance but found no effects. In an analysis not shown here, we used the Arellano-Bond approach to estimate a model predicting ROE with a lagged dependent variable, but the results were the same. In sum, these results suggest that, although the market has an initially positive reaction to CEO certification, over the long term there is a negative relationship between CEO certification and market performance, and no relationship between CEO certification and accounting performance in the following year. Therefore, results support Hypothesis 1a only in the case of short-term excess returns. Hypothesis 1b receives partial support, in that winning a medal was negatively associated with annual market returns and one measure of longer-term excess returns, but it was unrelated to future accounting performance.

CEO Compensation

Table 4 presents the results of analyses of the

TABLE 4
CEO Total Compensation

Variable	Model 1		Model 2		Model 3		Model 4		Model 5[a]	
ROE	0.00	(0.00)	0.00	(0.00)	0.00	(0.00)	0.00	(0.00)	0.00	(0.00)
Market return	0.00**	(0.00)	0.00**	(0.00)	0.00**	(0.00)	0.00*	(0.00)	0.00**	(0.00)
Total assets, lagged	0.09	(0.07)	0.09	(0.07)	$0.11^{\dagger}$	(0.07)	$0.10^{\dagger}$	(0.07)	0.202**	(0.02)
Industry return	0.00	(0.00)	0.00	(0.00)	0.00	(0.00)	0.00	(0.00)	0.00	(0.00)
CEO tenure	0.03**	(0.01)	0.02*	(0.01)	0.02*	(0.01)	0.02*	(0.01)	0.02*	(0.01)
CEO tenure squared	−0.00**	(0.00)	−0.00**	(0.00)	−0.00**	(0.00)	−0.00**	(0.00)	−0.00*	(0.00)
Institutional ownership	0.46*	(0.27)	0.47*	(0.27)	0.47*	(0.27)	0.45*	(0.27)	0.65**	(0.23)
Outside CEO	$0.10^{\dagger}$	(0.07)	$0.09^{\dagger}$	(0.07)	0.09	(0.07)	$0.09^{\dagger}$	(0.07)	0.17*	(0.08)
New CEO	0.05	(0.06)	0.06	(0.06)	0.06	(0.06)	0.06	(0.06)	0.10*	(0.06)
1993	0.10*	(0.04)	0.11**	(0.04)	0.10**	(0.04)	0.11**	(0.04)	0.08*	(0.04)
1994	0.37**	(0.04)	0.38**	(0.04)	0.37**	(0.04)	0.38**	(0.04)	0.35**	(0.04)
1995	0.44**	(0.05)	0.45**	(0.05)	0.44**	(0.05)	0.45**	(0.05)	0.41**	(0.05)
1996	0.57**	(0.05)	0.59**	(0.05)	0.57**	(0.05)	0.59**	(0.05)	0.53**	(0.04)
Medal winner this year			0.10*	(0.05)	0.10*	(0.05)	0.10*	(0.05)	0.10*	(0.05)
Medals won in last five years			0.05*	(0.03)	0.00	(0.03)	$0.04^{\dagger}$	(0.03)	0.04	(0.03)
Medals won in last five years × ROE					0.00**	(0.00)			0.00**	(0.00)
Medals won in last five years × market return							0.00**	(0.00)		
Constant	6.33**	(0.65)	6.31**	(0.65)	6.19**	(0.65)	6.30**	(0.65)	5.24**	(0.27)
Observations	1,267		1,267		1,267		1,267		1,173	
R^2	.78		.78		.78		.78			
Adjusted R^2	.71		.71		.72		.72			
χ^2									395.88	

[a] We estimated this model using generalized estimating equations first proposed by Liang and Zerger (1986) and implemented it using the XTGEE command in STATA. Computing the correlation matrix to adjust for autocorrelation required that there be no gaps between years within a firm. Thus, firms in which there were missing values between years were dropped.

$^{\dagger} p < .10$
$^{*} p < .05$
$^{**} p < .01$

relationship between CEO certification and total CEO compensation in the award year. Model 1 presents the effects of the controls, and model 2 adds the two medal-winning measures. Both of these certification measures have positive and highly significant effects, indicating strong support for Hypothesis 2. Winning a medal increases a CEO's pay in that year by approximately 10 percent, and each medal awarded in the previous five years adds almost 5 percent to his/her total pay.

In model 3, we tested Hypothesis 3 by interacting medals won in the past with firm performance as measured by return on common equity. Although the main effect of winning medals in the previous five years is no longer significant, the interaction is highly significant and in the expected positive direction. This finding supports Hypothesis 3 for accounting performance. The lack of a main effect for certification means that winning medals has a positive effect on a CEO's pay when accounting performance is above zero but a negative effect when it is less than zero. Because an ROE of zero is at the 11th percentile in our sample, this finding suggests that it is quite easy for a CEO who has won one or more medals in the previous five years to benefit from a current year's award. In model 4, we investigated whether Hypothesis 3 holds for market performance. Although past medals had a weak, positive effect on total pay, the interaction with subsequent market performance was not significant. In an analysis not shown here, we entered the interaction terms for both accounting and market performance together in another model. Only the interaction between winning medals in the past five years and accounting performance was significant, suggesting that model 3 was our best-fitting and most parsimonious model. It is also worth noting that the effects of being a current medal winner were robust and positive over all specifications.[8] Using an *F*-test, we also found a significant increase in explained variance between our best-fitting model 3 and model 1.

Because panel pay data within a firm are often correlated across years, it was possible that the disturbances were correlated across periods and that autocorrelation was affecting our results. More

specifically, if unobserved properties of a firm were gradually changing across years, our fixed-effects models would not capture these changes because such models only control for variables that do not change over years within a firm. To assess the robustness of our findings, we reestimated our best-fitting model 3 using a relatively new class of robust estimators known as generalized estimating equations (GEE; Liang & Zerger 1986). An advantage of this approach is that it analyzes both within- and between-firm variations, unlike the fixed-effects model, which only examines changes within a firm.

In GEE models, one must choose a distribution for the dependent variable, a link function to relate the outcome to the dependent variables, and a specification of the "working" within-firm correlation matrix. Using the XTGEE routine in STATA 8.0, we chose a Gaussian (normal) distribution and an identity link function that corresponded to a linear model. For the correlation matrix, we assumed that there was a first-order autoregressive disturbance (AR1), in which disturbances from the prior period for a firm are correlated with disturbances in the current period. We calculated robust standard errors using the Huber (1967) and White (1982) estimator. Model 5 is model 3 reestimated with this approach. As can be seen, all of our results are robust to this specification.

We also performed additional sensitivity analyses. Recall that our selection criterion for CEOs was that they had been appointed to their positions by the end of October of a current year. In addition, a focal CEO had to have been at his or her firm in some capacity in the previous year. In 23 cases in which the focal CEO had started during the current year, the prior CEO had won a medal and subsequently left the firm. It is unclear what the effect of such medals would be, since these CEOs generally left their firms at the end of the prior year or early in the current year. Conceivably, the effects of such medals could even be negative, since star CEOs had left the firms. We found no separate effect of these medal winners in our event analysis, and when we pooled them with winners who did stay with their firms, our results did not change. In our panel analyses of performance and compensation, we also tried including a dummy variable indicating that the previous CEO of a firm had won a medal, but this variable was not significant. Finally, we dropped all new CEOs who had started in the current year from our sample, as well as those that had been at the firm less than six months during the previous year; our results remained robust.

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[8] We also tried interacting winning a medal in a current year with past performance; the interaction was not significant. In supplementary analyses, we also interacted winning medals in the past with winning a medal in the current year. We found that this interaction had a marginally significant ($p < .10$) negative effect, suggesting that the impact of winning a new medal on compensation is attenuated if a CEO has won in the past. All of our results remained robust to this specification.

DISCUSSION

Complementing previous research that has established that certification contests can have powerful effects on organizations by influencing organization-level legitimacy and status (Rao, 1994), our study examines the effects of certification on individuals in the corporate governance arena. We used the annual results of *Financial World*'s CEO of the Year competition as an indicator of the general opinion about CEO abilities among analysts and peers. We examined the influence of being certified as a star CEO on both organizational performance and CEO compensation. Our results suggest that, at least initially, stockholders value such certification of CEOs, as evidenced by the positive abnormal stock returns that immediately followed the announcement of the awards. And yet these effects quickly fade and appear to become negative over the subsequent months. Regression analyses showing that the relationship between medals and yearly returns is negative even after prior returns are controlled for reinforces our confidence in these longer-term negative effects. Our results also suggest that being certified does not seem to be associated with either higher or lower one-year accounting profits for award recipients' firms.

At the same time, being certified had a positive effect on the recipients' compensation that went over and above performance differences between winners' and nonwinners' firms. If a CEO's compensation partially reflects the extent to which a company's directors value his or her abilities and contributions, this result suggests that certification does indeed heighten the tendency of a board to attribute special competencies to the CEO. Our data suggest that this attribution then leads the board to set up an evaluative gauntlet for the CEO in subsequent years, as certification has a positive impact on compensation as long as return on equity remains positive. If a company achieves a negative ROE, star CEOs then receive lower total compensation than CEOs who never won a medal for an equivalent level of performance. This gauntlet is not very severe, however. The performance inflection point is at the 11th percentile of performance in our sample, suggesting that profitability need not be very high for CEOs to capitalize on their celebrity status.

This general pattern of results suggests a more nuanced representation of the effects of CEO certification on firm and individual outcomes than our original hypotheses and prior research suggest. One obvious subtlety is the difference between profitability and stock returns as measures of firm performance. Our results indicate that profitability is insensitive to CEO certification, suggesting that star CEOs have neither a positive nor a negative effect on the operating results of firms, at least over the one-year time window that we used in our analyses. Our five years of panel data did not allow us to rigorously analyze multiyear lagged relationships without losing large numbers of observations, so our results are inconclusive regarding any longer-term profitability effect.

However, the lack of one-year results is suggestive and theoretically important, given the concomitant effects of certification on both immediate and one-year market returns. If CEO certification has no short-term effect on the profitability of a company, then winning a medal can only be, at best, a noisy signal regarding the relationship between managerial ability and longer-term profitability. Yet our results indicate that both investors and company boards respond to this signal in predicatble ways, both immediately and over the course of the year in which an award is won. We observed effects similar to those observed by Sanders and Boivie (2004) in their study of governance practices on IPO underpricing: investors initially bid up the price of a company's stock after learning about a CEO medal. However, shortly afterward they reversed course and bid the price down. Over the course of the year, firms with medal-winning CEOs thus had lower cumulative market returns than firms with non–medal winners at the helm. It is important to note that this reversal cannot be explained by regression to the mean from the previous year's stock performance, since we controlled for prior market returns in our analyses. Company boards seem to respond quickly to CEO certification as well, since our results show that winning a medal increases a CEO's total direct compensation for that year by about 10 percent. They also continue to respond to certification over the course of the following year by paying medal winners more than non–medal winners when their firms continue to be profitable—but paying them less when their firms are not profitable.

One possible explanation for this more nuanced pattern of data is that certification does indeed create a burden of celebrity. Although shareholders' and boards' immediate response is positive, certification may also heighten their expectations about future performance. Our results suggest that simply maintaining a certain level of performance may not be sufficient for shareholders of firms with celebrity CEOs. Firms that employ star CEOs seem to have a higher "expectational hurdle" to meet in order to be valued positively by the market. Boards of directors seem to be more lenient in their expectations, but they do respond more negatively to

lower profitability when a star CEO is involved. In the eyes of both investors and boards, then, star CEOs may very well create the seeds of their own devaluation because "the reputations they earn from doing some things particularly well sit on the slippery ground of their constituents' fickle interpretation" (Fombrun, 1996: 388).

We did not find that overconfident star CEOs undermined short-term profitability, although the negative stock returns that we observed could conceivably imply that investors were anticipating lower profitability in the future owing to executive decisions that they perceived as risky. So we cannot rule out CEO hubris as a possible influence on our performance results. In addition, CEO hubris is a plausible explanation for our results regarding the relationship between subsequent firm profitability and CEO compensation. We have suggested that CEO certifications may encourage compensation committees to attribute responsibility for company outcomes to the CEOs. Thus, certified CEOs whose companies perform well are rewarded handsomely, while poor performers are penalized. Yet in many cases a CEO's compensation is partially dependent on meeting performance targets that are set at the beginning of the year in the course of discussions between the board and the CEO. Because of the generalized attribution, perhaps shared by the CEO, that a star CEO can have a bottom-line impact on future company performance, the formulas that determine the amount of incentive compensation awarded at the end of the year may be much more sensitive to a firm's subsequent performance than the criteria used to evaluate lesser-known managers. By this reasoning, a board's attribution that a star CEO can influence the performance of their firm plays out in a tighter performance-compensation link. Celebrated and visible CEOs with records of accomplishment may very well agree to this tighter link because they have confidence in their own abilities to increase their firms' future profitability. Certification may essentially make both board members and the CEO believe that the CEO's success is sustainable. If the firm's subsequent performance is poor, however, it will be more difficult for an overconfident star CEO to modify previously agreed-upon targets and to change the "rules of the game."

These expectational effects on star CEO compensation have interesting implications for agency arguments regarding the monitoring and control of managerial activities (e.g., Fama, 1980; Jensen & Meckling, 1976). Barkema and Gomez-Mejia (1998) noted that 50 years of scholarship has yielded weak, and often contradictory, findings regarding traditional agency-theoretic arguments that share-holders must use disciplining mechanisms to align executive incentives with corporate performance. Our findings suggest an alternative governance mechanism that is based on the attributions of managers and boards of directors rather than on organizational constraints imposed by outsiders. Because controlling mechanisms rooted in CEO performance attributions are internally imposed by a CEO rather than externally imposed by shareholders, CEO certifications may supplement traditional governance mechanisms by inducing attributions of competence that evolve into expectations for higher performance. Disciplining mechanisms that are partially endogenous to how CEOs and boards explain the performance of their companies have been largely ignored in the corporate control literature. Our results suggest that exploring such mechanisms more fully may be a useful line of future research into manager-shareholder alignment.

Overall, our results provide cautionary information for corporate pay policies. Given that CEO certifications do not appear to have a short-term beneficial effect on future profitability, the argument that boards of directors should pay exorbitant levels of compensation to attract and retain star CEOs whose firms have performed well in the past may be somewhat misplaced, especially given the heightened investor expectations that also seem to come with star status. However, boards of directors might be able to mitigate these costs by making pay more dependent on future performance. In this way, companies could reduce the degree to which they "overpay" for star CEOs when actual corporate performance fails to meet expectations. Ironically, the overconfidence that past success creates may provide an endogenous mechanism through which boards can attenuate the winner-take-all effect identified by Frank and Cook (1995). Of course, one limitation of our study is that we could not distinguish whether the greater sensitivity of pay to performance for certified CEOs resulted from boards holding star CEOs more responsible for firm outcomes or from star CEOs agreeing to more demanding compensation contracts out of hubris. We suspect that both of these processes occur simultaneously. However, qualitative or survey research that delves more deeply into the black box surrounding compensation setting would be useful in untangling these dynamics more completely.

Future research might also address the effect of certification on CEOs when they switch firms. It would be consistent with our theoretical framework that when star CEOs accept jobs at different firms, they receive pay premiums or more structural power. Certification contests might be an important source of information about a CEO, since

the boards doing the hiring may not have much direct experience with CEO candidates. Thus, winning a certification contest may be an even stronger signal to the labor market outside of a CEO's own firm. Future research might also address whether certification has an impact on other top management team members. Top management team members who have worked for celebrity CEOs may be paid compensation premiums or be more likely to be hired as CEOs at other firms. Then again, team members who move into CEO positions elsewhere may face very high expectations and have shorter honeymoon periods. Exploring these research questions will help shed light on where—and how brightly—a celebrity CEO's star shines.

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