Journal of Management
Vol. 42 No. 3, March 2016 698–721
DOI: 10.1177/0149206313495413

Should Entrepreneurially Oriented Firms Have Narcissistic CEOs?

Andreas Engelen
Christoph Neumann
Susanne Schmidt
TU Dortmund

Extant research has shown that firms with high levels of entrepreneurial orientation (EO) outperform competitors. The present study sheds light on this performance relationship in large, publicly listed high-tech firms by examining whether the strength of this relationship depends upon the CEO's narcissism, an executive personality trait recently debated controversially in both academic and practitioner publications. A theoretically derived research model is empirically validated by means of multisource secondary data for 41 S&P 500 firms from 2005 to 2007. Findings indicate that narcissistic CEOs usually weaken the EO-performance relationship, although the opposite is true under some conditions, such as in highly concentrated and dynamic markets.

Keywords: *corporate entrepreneurship; entrepreneurial orientation; upper echelons; narcissism*

Extant research has largely confirmed the positive performance consequences of a strong entrepreneurial orientation (EO). However, this relationship has been shown to be dependent upon contingency factors. From an upper echelons perspective, top management's characteristics, especially those of the CEO, may play a major role in converting EO into superior performance (Covin & Slevin, 1991) and Richard, Wu, & Chadwick (2009) find that CEOs' demographics (industry and position tenure) impact the strength of the EO-performance relationship.

However, focusing on CEOs' demographics may provide an incomplete picture of how CEOs can facilitate the performance consequences of EO. Hambrick and Mason (1984)

Acknowledgment: This article was accepted under the editorship of Deborah E. Rupp.

Corresponding author: Andreas Engelen, Technical University of Dortmund, Martin Schmeißer-Weg 12, Germany.

E-mail: Andreas.Engelen@tu-dortmund.de

argue that CEOs' personality traits are likely to play a more important role in driving CEO behavior than are simple demographics and that focusing on demographics precludes finding the psychological attributes that affect CEO behavior (Nadkarni & Herrmann, 2010). Lawrence (1997) refers to this situation as a black box of organizational demography in upper echelons research. The CEO's personality is important since CEOs are typically confronted with so much information, ambiguity, complexity, and contradiction (Nadkarni & Herrmann, 2010) that it would not be surprising if CEO personality played a major role in the successful conversion of EO into superior performance (Covin, Green, & Slevin, 2006).

To address this gap, the present study integrates insights from the personality literature on the EO-performance relationship and examines the extent to which narcissistic CEOs—those with grand views of themselves and their abilities and who focus on ensuring that those self-images are constantly reinforced (Chatterjee & Hambrick, 2007)—impact the EO-performance relationship. Narcissism appears to be a particularly appropriate personality trait for our purposes since Chatterjee and Hambrick (2007) show that narcissistic CEOs' strategic choices differ systematically from those of other CEOs. There is also agreement that the qualities of those who tend to become CEOs have changed over time; there are increased numbers of CEOs with narcissistic traits, so narcissism is a timely topic (Campbell & Campbell, 2009; Rosenthal & Pittinsky, 2006). To examine the impact of CEOs' narcissism, we integrate insights from the personality literature to determine whether the effect of narcissism on the EO-performance relationship is dependent on market characteristics (Wallace & Baumeister, 2002). The theoretically derived research model is then tested by means of multisource secondary panel data for 41 high-tech firms from the S&P 500 for the period from 2005 to 2007.

This research contributes to the literature in three ways. First, EO research is advanced by concretizing the common wisdom that top managers are major drivers of EO's ability to convert into superior financial performance and by adding CEOs' narcissism to the moderators of this performance relationship. Second, this study develops upper echelon theory, which has only just begun to examine the effects of the CEO's personality, instead of simple demographic proxies, on firm-level outcomes (Hiller & Hambrick, 2005; Chatterjee & Hambrick, 2007). The present study opens the black box of upper echelons research by examining *how* a CEO personality trait interacts with a major strategic orientation (i.e., EO) to facilitate firm performance and *when* this impact is strongest. Third, this study contributes to research on CEO narcissism by arguing theoretically and validating empirically under what circumstances narcissism can be beneficial for or harmful to firm performance.

Theoretical Background and Research Model

Miller (1983) describes entrepreneurial firms with high degrees of EO as those with high levels of innovativeness, proactiveness, and risk taking, a view that has dominated quantitative EO research in the last two decades (Wales, Gupta, & Moussa, in press). As an essential aspect of this EO understanding, Miller (1983, p. 780) points out that all three dimensions must coexist concurrently:

> In general, theorists would not call a firm entrepreneurial if it changed its technology or product line ("innovated" according to our terminology) simply by directly imitating competitors while refusing

to take any risks. Some proactiveness would be essential as well. By the same token, risk-taking firms that are highly leveraged financially are not necessarily entrepreneurial. They must also engage in product-market or technological innovation.

EO facilitates firms' ability to identify new opportunities with potentially large returns, to target premium customers, and to obtain first-mover advantages (Covin & Slevin, 1991). We link these consequences of EO to shareholder value as the ultimate financial performance measure (Srivastava, Shervani, & Fahey, 1998). EO can increase shareholder value when it increases net cash flow, accelerates cash flow realization, or diminishes cash flow volatility (E. W. Anderson, Fornell, & Mazvancheryl, 2004).

Firms with high risk propensities that are also more innovative and proactive than their competitors can pursue new market opportunities (e.g., offering new services or products) exclusively or at least before their competitors do (Zahra & Covin, 1995). If they do, they may be the only ones to profit from the market opportunity, or they at least generate additional positive cash flow while competitors are still working to get into the business. The first-mover advantage linked to EO also allows entrepreneurially oriented firms to set industry standards and, therefore, to control market access, which enables the firms to skim monopoly rents (Covin & Slevin, 1991) and increase net cash flow.

In addition to enhancing residual cash flows, exploiting market opportunities ahead of competitors allows entrepreneurially oriented firms to realize cash flows ahead of their competition. Pioneering firms that are first in the market usually also get in early on establishing brand recognition (Lumpkin & Dess, 1996), which speeds penetration of the market and accelerates the associated cash flows (Srivastava et al., 1998).

EO should also positively affect the volatility of a firm's cash flow since the market perceives entrepreneurially oriented firms as more viable than other firms (Lumpkin & Dess, 2001). This perception might enhance the admiration of upstream and downstream partners who want to be associated with these superior characteristics and to maintain strong relationships with the firm (E. W. Anderson et al., 2004). Therefore, firms that pursue EO can be expected to achieve better pricing, costs, volumes, and market penetration than their competitors and to affect positively the risk and volatility of future cash flows by getting more value from their networks of suppliers, partners, and distribution channels (E. W. Anderson et al., 2004). An EO also helps the firm to secure market share and increase customer loyalty (Kerin, Varadarajan, & Peterson, 1992) and, thereby, reduce the volatility of the firm's cash flow, as consumers who perceive a pioneer's product quality as satisfying remain loyal in order to minimize their risk and information costs.

It follows that the effects of EO enhance net cash flows, accelerate cash flows, and lower the volatility of cash flows, leading to increased shareholder value:

Hypothesis 1: EO is positively associated with shareholder value.

The Moderating Effect of CEOs' Narcissism on the EO-Performance Relationship

Since research has shown that EO's advantageous characteristics do not always materialize (Matsuno, Mentzer, & Özsomer, 2002), additional research on moderators is needed (Rauch, Wiklund, Lumpkin, & Frese, 2009) in order to determine why. Upper echelons

theory posits that top managers like the CEO are important for their roles in strategic decision making and allocation of resources at the firm level (Hambrick, 2007), so we can assume that the successful conversion of a strategic posture like EO into superior firm performance is likely to be dependent on the characteristics of top management.

Richard et al. (2009) show that CEO demographics (industry and tenure in position) moderate the EO-performance relationship. Thus, the EO literature reflects the progress in the broader upper echelons theory, where studies have long focused on executives' demographics (Carpenter, Geletkanycz, & Sanders, 2004; Finkelstein, Hambrick, & Cannella, 2009; Hambrick, 2007), although Hambrick and Mason (1984) argued early on that personality traits are much more relevant in determining executive behavior. This perspective is reflected in marketing and management research, which has shown that personality traits are much more predictive of behavior and decision making than are simple demographics (Priem, Lyon, & Dess, 1999).

A CEO's personality determines how external information, conditions, and stimuli are filtered, interpreted, and finally incorporated into a decision (Hambrick & Mason, 1984). Although CEOs face considerable external and internal constraints, they have discretion in many of their choices (Hambrick & Finkelstein, 1987). In this study, we examine the degree of CEOs' narcissism as a fundamental personality trait and its effect on EO. While Ellis introduced the concept of narcissism to the psychology literature in 1898 (De Vries & Miller, 1984; Ellis, 1898), it ranges back as far as Greek mythology, when Narcissus fell in love with his own reflection in a pool and drowned because of his self-love. Theory suggests that the individual's degree of narcissism is relatively stable and enduring and that it stems from a combination of genetic factors and early parental relationships (Campbell, Foster, & Finkel, 2002). Therefore, an individual's level of narcissism is relatively immutable and falls on a continuum (Emmons, 1987).

There is agreement that narcissism is a multifaceted personality trait that is reflected in Emmons's (1987) four factors, which together describe the personality trait of narcissism: exploitativeness/entitlement, leadership/authority, superiority/arrogance, and self-absorption/self-admiration. Emmons (1987) and others point out that these factors cohere as a unitary personality construct (Campbell, Hoffman, Campbell, & Marchisio, 2011); superiority, entitlement, and the constant need for attention and admiration have been reported as major manifestations of narcissism (Chatterjee & Hambrick, 2011).

Narcissism is a relevant CEO personality trait for our purposes for several reasons: First, Chatterjee and Hambrick (2007) show that narcissistic CEOs' strategic choices differ from those of other CEOs, so these choices might provide more or fewer beneficial circumstances for EO's conversion into superior performance. Second, the management and psychology literatures agree that narcissism is prevalent in top management positions and that the prevalence of narcissistic CEOs has increased over the last two decades, making narcissism a timely topic (Campbell & Campbell, 2009). Third, narcissism has been described as a trait that covers the personality of a CEO comprehensively, overlapping with other important personality traits but covering even more aspects of personality. Researchers expect narcissists to have high self-esteem, but self-esteem differs from narcissism in that narcissism covers more features, including a sense of entitlement and a permanent need for admiration (Chatterjee & Hambrick, 2007). Similarly, core self-evaluation overlaps narcissism (e.g., positive self-regard) but does not cover the permanent need for applause and admiration that

is characteristic of narcissism (Simsek, Heavey, & Veiga, 2010). An examination of a CEO's narcissism makes possible a comprehensive analysis of the effect of his or her personality on the EO-performance relationship.

In the following, we develop arguments for the moderating effect of CEO narcissism on the EO-performance relationship. Because narcissism is highly multifaceted, one of its major characteristics is that it is paradoxical (Chatterjee & Hambrick, 2011, p. 209), so we discuss the various effects of CEO narcissism as identified in extant research and relate these effects to the EO-performance relationship.

Some characteristics of narcissistic CEOs can be expected to facilitate the EO-performance relationship. Because of the desire for superiority that is inherent in CEO narcissism, Campbell et al. (2011) argue that narcissistic leaders are open to novel solutions, so they embrace change and allocate firm resources accordingly. This tendency appears to be important for EO's successful conversion into superior performance since these CEOs are more likely than others to allocate financial and other resources, such as workforce, to the implementation of entrepreneurial activities. Wiklund and Shepherd (2005) and B. Anderson and Eshima (in press) argue that these resources can enable experimentation in strategy implementation, which extant research has shown is a major facilitator of the EO-performance relationship (Covin et al., 2006). CEOs who do not have this mindset are less likely to allocate such resources, limiting experimentation and inhibiting the performance potential of EO.

One of narcissists' most prominent characteristics is their need for constant applause, which is rooted in their self-admiration and desire for superiority and which drives them to an extreme task and goal orientation and bold, speedy decisions (De Vries & Miller, 1984; Wallace & Baumeister, 2002). Decision speed and boldness have both been presented as facilitators of the EO-performance relationship since they generally result in the choice of radical strategic moves with high potential (Covin et al., 2006). The drive for glory and applause leads narcissistic leaders to promote the grand, colorful projects that are typical of successfully implemented entrepreneurial activities (e.g., first-mover market entries with innovations) since such projects are more likely to gain public attention and applause than are strategic moves like incremental manufacturing improvements.

On the other hand, there are reasons to believe that narcissistic CEOs weaken the EO-performance relationship. Narcissistic CEOs tend to ignore the needs of subordinates and peers (Kets de Vries & Miller, 1985), to get self-affirmation from diminishing others (Bogart, Benotsch, & Pavlovic, 2004), and to make subordinates feel incompetent and powerless (McClelland & Burnham, 1976). Thus, the CEO creates a hostile environment that can slow the implementation of EO-related activities, such as new market entries ahead of the competition. These narcissistic activities can also result in employees who fear taking responsibility, pushing their ideas, or questioning the status quo. Such reluctance may weaken entrepreneurial firms' performance potential since entrepreneurial ideas are often implemented by employees other than those at the top management level (Wales et al., in press).

By exercising their authority and pursuing solo leadership, narcissists fail to stimulate followers intellectually (Howell & Avolio, 1993) and establish a culture of "yes-men," thereby limiting the firm's set of entrepreneurial alternatives (Podsakoff, MacKenzie, Moorman, & Fetter, 1990). Such a limitation is particularly harmful for entrepreneurial firms since employees at lower hierarchical levels, especially those with regular customer contact,

are major sources for new and innovative product ideas and are key to the effective and successful implementation of entrepreneurial activities in the marketplace (Wales, Monsen, & McKelvie, 2011).

Rooted in their arrogance and superiority is narcissists' frequent unwillingness to admit failure and to stop unsuccessful initiatives in a timely way (Kets de Vries & Miller, 1985). This behavior is harmful to entrepreneurially oriented firms, which tend to operate in uncertain environments that require a trial-and-error approach (Covin et al., 2006) that results in occasional or even frequent failure (McGrath, 1999). Green, Covin, and Slevin (2008) argue that the ability to react strategically is a major component of successful entrepreneurial firms. Therefore, firms led by CEOs who avoid criticism and failure are less likely than others to benefit from entrepreneurial activities.

Narcissistic CEOs enjoy being leaders, having authority, and dominating and controlling every activity (Kets de Vries & Miller, 1985). These characteristics often lead to an inefficient use of available resources, knowledge, and information and ultimately end in time-consuming infighting that can hinder the ability to leverage a first-mover advantage.

The paradoxical nature of narcissism is reflected in our arguments concerning whether narcissistic CEOs are beneficial or detrimental to the conversion of EO into superior firm performance. While some arguments favor a positive moderating effect for CEO narcissism, we hypothesize a negative moderating effect since some of its consequences substantially harm two major facilitators of the EO-performance relationship as identified in extant EO research: employees' motivation to act entrepreneurially (Engelen, Gupta, Strenger, & Brettel, 2015) and the ability to incorporate feedback and trial-and-error processes in strategy making (Covin et al., 2006). Both of these success factors appear to be generally inhibited by a narcissistic CEO, so we expect the negative effects of CEO narcissism on EO-performance to dominate the few positive effects. Therefore,

Hypothesis 2: The EO-shareholder value relationship is negatively moderated by the degree of CEO narcissism, such that the relationship between a firm's level of EO and shareholder value is stronger in a firm with a less narcissistic CEO than in a firm with a more narcissistic CEO.

Configurations of CEOs' Narcissism and Market Structure

Given the heterogeneous consequences that a CEO's narcissism can provoke in a firm, its effects are likely to be situation dependent. Nevicka et al. (2011) argue that narcissists are more sensitive to context than nonnarcissists are and point out the importance of identifying the conditions that elicit the kind of behavior from narcissistic CEOs that generates positive performance outcomes. To understand the situational dependencies of narcissism, we apply the theory from Wallace and Baumeister (2002) personality research, which states that narcissists perform better and work harder when there is opportunity for self-enhancement through an audience that observes the narcissist's performance or a task for which success indicates personal superiority.

Extant EO research has shown that the conversion of EO into superior firm performance is embedded in the market environment (Covin & Slevin, 1989; Rauch et al., 2009; Wiklund & Shepherd, 2005), so we identify market conditions that provide the CEO a particularly large audience and a particularly large challenge. The size of a CEO's audience increases when there are few players in a market, so the degree of market concentration appears to be

relevant, as the more concentrated the market, the larger is the public audience for the CEO (Luo & Homburg, 2007). The challenge level of a task on the organization level may be reflected in the degree of market dynamism since operating in dynamic markets tends to be a more challenging endeavor than is operating in stable situations (Jaworski & Kohli, 1993). Therefore, we examine how these market conditions affect a narcissistic CEO's impact on the EO-performance relationship, as derived in Hypothesis 2.

Market Concentration

Concentrated markets are characterized by a few players, while fragmented markets have a large number of players (Luo & Homburg, 2007). Concentrated markets tend to give more attention (i.e., more "audience") to the player's behavior, higher entry barriers (Vivek, 2011), less intense competition (Gatignon, Barton, & Pradeep, 1990), higher margins, and less pressure on operational cost efficiency than fragmented markets do (Berger & Hannan, 1998).

We argue that the positive effects of a CEO's narcissism on the EO-performance relationship (i.e., the propensity to favor change and novel solutions with corresponding resource assignments to strategy implementation and the narcissist's extreme goal and task orientation) are particularly beneficial, and the negative effects (i.e., ignoring subordinates, failing to admit failure, and the need to dominate and control every activity) are less detrimental in concentrated markets, while the opposite applies to fragmented markets.

Narcissists do not hesitate to change rules, and they tend to push novelty in strategic actions, for example, by assigning resources to effectively implement EO (Campbell & Campbell, 2009). In concentrated markets, where fewer firms dominate the market (Vivek, 2011; Woo & Cooper, 1981), firms typically have the ability and the resources to change the rules in the marketplace and to bring novelty into strategy, while firms in fragmented markets are likely to stay within established boundaries. Narcissistic CEOs are also more likely than others are to go to great lengths in the successful implementation of entrepreneurial activities since concentrated markets offer an audience (Wallace & Baumeister, 2002). Therefore, concentrated markets offer conditions in which the positive effects of CEO narcissism on the EO-performance relationship are particularly likely to unfold.

A narcissist's goal and task orientation—rooted in his or her drive for superiority—which we expected to strengthen the EO-performance relationship in Hypothesis 2, is also likely to fit well with the conditions of concentrated markets. Concentrated markets tend to be under close surveillance by the public and the media, a situation that particularly attracts and motivates narcissists (Wallace & Baumeister, 2002). Their inclination toward self-enhancement (Campbell, Reeder, Sedikides, & Elliot, 2000; John & Robins, 1994) motivates them to invest effort in order to gain the attention of the large public audience (Nevicka et al., 2011), which can be received by successfully commercializing entrepreneurial breakthrough ideas.

At the same time, the detrimental effects of narcissistic CEOs on the EO-performance relationship seem less pronounced in concentrated markets than they are in fragmented markets. Aiming at pronounced authority, narcissists tend to ignore subordinates' opinions, which can have a negative effect on the implementation of a firmwide construct like EO (Chatterjee & Hambrick, 2007). However, such behavior might be less detrimental in concentrated markets, where competitive pressure is lower (Luo & Homburg, 2007). Ignoring subordinates may lead to delays in the implementation of entrepreneurial activities, which is

particularly harmful in more competitive environments, where many players struggle for survival and first-mover positions (Vivek, 2011), but it is likely to have less effect in concentrated markets.

Since narcissists feel superior and tend to behave in an arrogant way, they tend to be insensitive to criticism and seldom think themselves capable of error or think that there are things they do not know. As a result, they avoid the trial-and-error behavior that is often a major facilitator of the EO-performance relationship (Covin et al., 2006) and that spares resources since implementing entrepreneurial activities can be time- and resource-consuming (Covin & Slevin, 1991). However, conserving resources may be less important in concentrated markets than in fragmented ones since players tend to have more extensive resources than do players in fragmented markets.

The third negative effect of CEOs' narcissism on the EO-performance relationship, that narcissistic CEOs with strong authority tend to control and dominate every activity, may be less detrimental in concentrated markets than in fragmented ones. Control and dominance of every aspect of the business by the CEO may slow down strategic activities, consuming time and resources, but firms in concentrated, less competitive markets (Chatterjee & Hambrick, 2007) tend to have more resources and higher margins (Vivek, 2011) than those in more fragmented markets, so the impact of this negative aspect of narcissism is reduced.

Overall, these arguments suggest that the positive effects of CEOs' narcissism on the EO-performance relationship are strengthened (weakened) in concentrated (fragmented) markets, while the negative effects of CEO narcissism are weakened (strengthened) in concentrated (fragmented) markets. Therefore, complementing Hypothesis 2, we state the following three-way interaction:

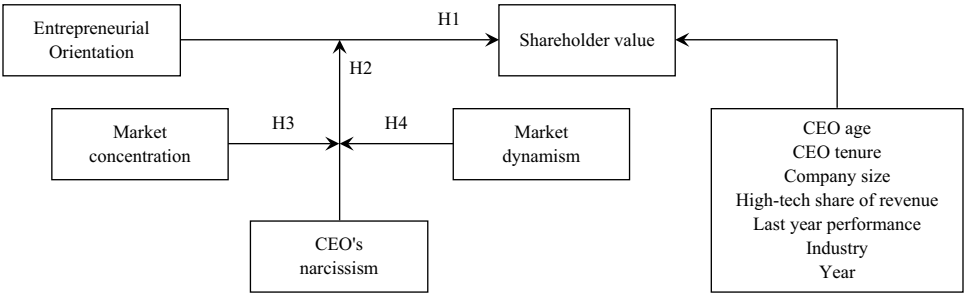
Hypothesis 3: The direction of CEO narcissism's moderation of the EO-shareholder value relationship depends on the level of market concentration. Positive moderation of the EO-shareholder value relationship occurs in concentrated markets.

Market Dynamism

Highly dynamic markets are characterized by rapid and frequent changes in customer preferences and behavior (Dess & Beard, 1984). The more dynamic the environment, the greater the speed and magnitude of change (Child, 1972) and the greater the ambiguity of information (Davis, Eisenhardt, & Bingham, 2009), decreasing managers' ability to predict future events and the relevance of those events to their firms (Khandwalla, 1977). These conditions provide particularly challenging tasks for the CEO. We argue that the positive effects of a narcissistic CEO on the EO-performance relationship are more advantageous and the negative effects are less detrimental in dynamic markets than they are in stable markets.

The positive effect on the EO-performance relationship of goal and task orientation is strengthened in highly dynamic markets. Dynamic markets are likely to increase the complexity of the CEO's job (Davis et al., 2009) by increasing the difficulty of information gathering and evaluation and by requiring numerous strategic adaptations. Narcissistic CEOs are likely to consider these challenges attractive since they offer potential for self-enhancement (Wallace & Baumeister, 2002). Driven by their need to demonstrate their superiority (Nevicka et al., 2011), narcissistic CEOs invest more personal effort in challenging tasks than

Figure 1
Overview of Research Model



nonnarcissistic CEOs do, thereby strengthening the positive effect of their task and goal orientation on the EO-performance relationship in dynamic markets.

In the derivation of Hypothesis 2, we assumed that narcissistic CEOs' tendency to ignore subordinates' needs inhibits the EO-performance relationship. However, this inhibitor may be less detrimental in highly dynamic environments than in stable ones since narcissistic CEOs often have little trouble facing tasks that make others angry, such as selling companies, laying off employees, and closing and moving facilities—that is, activities that are likely to be more necessary in dynamic than in stable contexts (Maccoby, 2004). CEOs who care about their employees' well-being are often less willing to pursue alternatives that impact employees negatively, thereby limiting the set of strategic alternatives that appears even more detrimental in dynamic environments (Kets de Vries & Miller, 1985).

The narcissist's reluctance to admit errors or pursue trial-and-error processes in strategic entrepreneurial activities is expected to be less detrimental in dynamic environments than in stable ones. Trial and error is often used to spare scarce resources, a strategy that is more suitable in stable environments that reward efficiency than in dynamic environments (Davis et al., 2009).

Overall, these arguments suggest that the positive effects of narcissistic CEOs are stronger (weaker) in dynamic (stable) markets, while the negative effects of CEO narcissism are weaker (stronger) in dynamic (stable) markets. This notion is in line with the contextual reinforcement model of narcissistic leadership developed by Campbell and Campbell (2009), which states that executive narcissism is beneficial in chaotic "emerging zones," while it is likely to be harmful in stable "enduring zones." Therefore, we state the following three-way interaction:

> *Hypothesis 4*: The direction of CEO narcissism's moderation of the EO-shareholder value relationship depends on the level of market dynamism. Positive moderation of the EO-shareholder value relationship occurs in dynamic markets.

The research model, summarized in Figure 1, shows the core elements (EO, CEO narcissism, shareholder value, market concentration, and market dynamism) and how they are related.

Methodology

Sample

To investigate the relationship between CEOs' personality traits and firm-level outcomes, an environment characterized by a high level of discretion that keeps cultural, legal, and other managerial restrictions to a minimum is advantageous (Hambrick, 2007). Therefore, the present study relies on U.S. companies since this cultural area is characterized by a high level of discretion and a low level of managerial restrictions (Crossland & Hambrick, 2011). To fulfill the disclosure requirements that come with a study that relies on secondary data alone, this study used the publicly traded companies in the S&P 500 as a sampling frame.

We chose the U.S. high-tech sector as the industry context for the EO-performance relationship and defined it on the basis of the high-tech SIC code list from the advocacy organization TechAmerica. Extant research has shown that the EO-performance relationship is particularly strong in these contexts (Rauch et al., 2009). That managers are not subject to strict regulations, which allows them to observe a wide range of managerial dispositions and strategic profiles (Hambrick & Finkelstein, 1987), supported this decision. To avoid influences from the financial crisis that began in 2008, data were collected for the period 2005 to 2007.

We first selected companies that were listed in the S&P 500 Index in all three years from 2005 to 2007 and that earned more than half of their revenue from high tech. Using data from ExecuComp, we excluded companies with CEOs who did not hold their positions for at least one of the years under consideration plus the full previous year to avoid anomalies in the analysis from succession events (Chatterjee & Hambrick, 2007). Further data limitations, as well as the autocorrelation structure chosen for the generalized estimated equation (GEE) model, which requires at least two successive observations of the same company, reduced the final sample to 41 companies and 41 unique CEOs, leading to 101 firm-year observations.

Measures

EO

According to our understanding of EO (based on Miller, 1983), EO is conceptualized unidimensionally as the simultaneous prevalence of proactiveness, innovativeness, and risk taking. The present study uses content analyses to measure EO through a computer-aided text analysis (CATA) approach based on work from Short, Broberg, Cogliser, and Brigham (2010), who derive and test lists of words ("dictionaries") that indicate "innovativeness," "proactiveness," and "risk taking" (see the appendix). We used the text analysis software DICTION (Hart, 2000) to screen each company's letters to shareholders for each year for these words and used their frequency as a measure of the company's level of EO.

The letter to shareholders was the preferred source for measuring a company's level of EO since it is the most commonly used text in the management literature (Duriau, Reger, & Pfarrer, 2007) and the rhetoric used therein has been linked to organizational actions and outcomes (Short et al., 2010). The final document is usually the output of the top management, rather than the CEO alone, so it reflects the allocation of senior managers' attention in the company.

To establish the unidimensional structure of this construct, as Stam and Elfring (2008) do to justify their unidimensional understanding of EO, we conducted a factor analysis with the scores for the three dimensions and found that a one-factor structure explained the underlying data best. One factor with an eigenvalue greater than 1 emerged that explained more than half of the total variance. The factor loadings are greater than .62. A composite reliability of .76 and an average variance extracted of .51 also emerged, which indicated that the unidimensional conceptualization of EO is justified with our data.

Narcissism

We employ the measure that Chatterjee and Hambrick (2007) developed based on the understanding of narcissism from Emmons (1987), which underlies our theoretical arguments outlined above.

Prominence of the CEO's photograph in annual reports. Four points, indicating a high level of narcissism, were scored if the CEO was shown alone in a photo that occupied at least half a page, three points if the CEO was shown alone in a photo that occupied less than half a page, two points if the photo showed the CEO with at least one fellow executive, and one point if the CEO was not pictured. All annual reports were downloaded from the respective corporate websites or requested in hard copy from companies' departments of investor relations. Such high prominence indicates leadership/authority, self-absorption/self-admiration, and exploitativeness/entitlement as factors of the narcissism construct (Chatterjee & Hambrick, 2007).

CEO's prominence in the company's press releases. This indicator measures the frequency of the CEO's name divided by the total number of words in each company's press releases such that the relative frequency with which the CEO's name appears indicates the degree of narcissism. Press releases for each company were downloaded from the LexisNexis databank. According to Chatterjee and Hambrick (2007), high prominence in press releases indicates leadership/authority, self-absorption/self-admiration, and exploitativeness/entitlement.

CEO's relative cash compensation. This indicator divides the sum of the CEO's salary and bonus (using data from ExecuComp) by that of the second-highest-paid executive in the company such that the larger the ratio, the higher is the level of narcissism.

CEO's noncash compensation. This measure divides the CEO's income declared as "Other Compensation" (using data from ExecuComp) by that of the second-highest-paid executive in his or her firm such that the larger the ratio, the higher is the level of narcissism. Both compensation-related indicators relate to superiority/arrogance and exploitativeness/entitlement in Emmons's (1987) understanding of narcissism (Chatterjee & Hambrick, 2007).

CEO's use of first-person singular pronouns in interviews. Chatterjee and Hambrick (2007) operationalize this dimension by dividing the number of all first-person singular pronouns (*I, me, mine, my, myself*) used by the CEO in interviews by the sum of all first-person

plural pronouns (*we, us, our, ours, ourselves*) used by the CEO in the same interviews such that the higher the ratio, the higher is the level of narcissism. This indicator relates in particular to leadership/authority, superiority/arrogance, and exploitativeness/entitlement (Chatterjee & Hambrick, 2007). Because of data limitations, the number of available CEO interviews was not sufficient to calculate this dimension, so it was excluded from our final narcissism index. However, the impact of this reduction is limited since the narcissism index without the interview dimension and the narcissism index including the interview dimension (for the companies for which CEO interviews were available) have a correlation of .93.

Next, we built one narcissism score by standardizing each dimension using the average and standard deviation from all available observations of the dimension. Then we built the final narcissism index by calculating the average of the standardized values across all four measures (Chatterjee & Hambrick, 2007). A factor analysis indicated that a one-factor structure captures the narcissism data best and all items load more strongly than .7 on this single factor (with an eigenvalue > 1). A composite reliability of .71 and an average variance extracted of .51 confirm the one-factor structure.

Performance Measurement

While extant EO research has focused on market-related and profitability-related measures, the present study examines shareholder value as a dependent variable of the performance relationship. EO can be of interest to shareholders only when it leads to increased value. Since EO is likely to lead to long-term rather than short-term effects, especially when innovative opportunities are pursued, it requires a performance measure that covers the long-term effects that are not allowed for in traditional accounting measures (Wiklund, 1999). The firm's performance was operationalized by Tobin's q, defined as the market value of a company's assets divided by its current replacement costs (Tobin, 1969). Because of its link to the stock market, this measure is much more forward looking than traditional accounting measures are; it is risk adjusted and less affected by accounting conventions, so it is easy to compare across firms (E. W. Anderson et al., 2004). The measure was calculated with data from Thomson Reuters Datastream by dividing the sum of market capitalization (WC08001) and total liabilities (WC03351) by the sum of common equity (WC03501) and total liabilities (WC03351) (Ozkan, 2011).

Intensity of Market Concentration

We measured intensity of market concentration using the Herfindahl index (Lounsbury, 2002). Data were gathered from Datastream. We used the common formula $H = \sum_{i=1}^{I} S_i^2$, where S represents the revenue market share and i the index for the individual firm, to calculate the Herfindahl index for each industry included in the final sample. The average value of market concentration in our sample is .089, and the median is .087. For the total Datastream sample, the average value of market concentration is .172, and the median is .94. While the standard deviation is, of course, significantly lower in the restricted sample, the median of our restricted high-tech sample does not differ from that of the total sample; therefore, firms that belong to the "rather concentrated/rather fragmented" group in our restricted sample also belong to the "rather concentrated/rather fragmented" group in the total sample. However, the average market concentration for the total Datastream sample is significantly higher than

that of our restricted sample, probably because of some highly concentrated markets in the total sample, particularly some infrastructure firms like transportation services, water transportation, and energy companies like coal mining and pipeline companies. When the 10% of firms with the strongest market concentration are cut from the total Datastream sample, the average market concentration is .096, which is again very similar to (and not significantly different from) the average market concentration in our sample. Therefore, we consider that the composition of market concentration in our sample is representative, apart from some highly concentrated industries.

Market Dynamism

Market dynamism was operationalized as the standard deviation of the annual industry (two-digit SIC-code) sales growth rates (Hambrick & Abrahamson, 1995). Required data for the last five years were gathered from Datastream. The average of the market dynamism value in our sample is .045, and the median is .039. The values for all firms listed in Datastream are .067 (mean) and .043 (median), which are not substantially different from the corresponding values in our sample. Therefore, our sample covers a sufficient number of firms that would be considered "more dynamic" and "less dynamic" in the total sample.

Control Variables

To reduce the variance caused by variables that are not directly linked to the research question, we control for the CEO-level, firm-level, and environmental-level factors.

CEO-level factors. Data from ExecuComp were used to control for the age of the CEO and his or her tenure in position, as these two factors have been shown to influence the EO-performance relationship (Richard et al., 2009).

Company-level factors. The study controls for firm size (the natural logarithm of the number of employees, as noted in Datastream) and the past year's performance (the prior year's Tobin's q, calculated from Datastream).

Environmental-level factors. We included the main two-digit SIC code from Datastream, the firm's share of high-tech revenues (using the declaration from TechAmerica and data from Datastream), and the individual year for all data collected as a dummy variable.

Model Specification

We used STATA's GEE model to estimate our regression models. We chose the GEE because we had multiple observations for almost all firms, and in these cases GEE is appropriate since it derives maximum likelihood estimates and, in particular, accommodates non-independent observations that we have in our dataset (Ballinger, 2004). In addition, GEE is flexible enough to cope with data that are not normally distributed, which is likely to be the case in our data. Finally, driven by similar reasons, the only two existing studies in management research that examine panel data on CEO narcissism and firm-level constructs use the same estimation method (Chatterjee & Hambrick, 2007, 2011). Therefore, beyond the reasons

Table 1
Descriptive Statistics and Correlations ($N = 101$)

Variable	*M*	*SD*	1	2	3	4	5	6	7	8	9
1. Tobin's q	2.32	0.98									
2. Entrepreneurial orientation[a]	1.00	0.40	.24**								
3. CEO age	54.49	6.09	–.19*	–.23**							
4. CEO tenure (in years)	5.98	1633	.09	–.01	.14						
5. Company size	9.89	1.43	–.39***	.02	.15	–.16					
6. High-tech revenue share	0.96	0.11	.09	–.04	–.01	.09	–.32***				
7. Tobin's q prior	2.44	1.01	.88***	.18*	–.22**	.09	–.39***	.17*			
8. CEO's narcissism	0.09	0.51	.04	.06	.08	–.12	.16	–.19*	.02		
9. Market concentration	0.08	0.02	–.47***	.08	.11	.09	.35***	.14	–.46***	.01	
10. Market dynamism	0.03	0.02	–.10	.07	.02	–.01	.09	.05	–.15	.05	.32***
11. Industry						Included					
12. Year						Included					

[a]Scaled to 100 Letter To Shareholders (LTS) words.
*$p < .1$
**p < .05
***p < .01

that relate to the nature of our data, we believe that we achieve comparability and consistency with extant research in narcissism.

Following the suggestions from Ballinger (2004) to fit GEE models, we chose an identity link function and the Gaussian link family. We defined the correlation structure as autoregressive, that is, observations closer in time are more highly correlated. This choice, reasonable from a theoretical perspective, was confirmed by the test for autocorrelation in panel data ($p < .05$) (Wooldridge, 2010).

Findings

Findings on Hypotheses Testing

Table 1 provides descriptive statistics and correlations for the continuous variables.

Tests for multicollinearity confirmed that multicollinearity is not a problem in the data, as the variance inflation factor is well below 10 and the condition index is below the threshold of 20 (Hair, Anderson, Tatham, & Black, 1998). Table 2 provides GEE results for all tests of the derived hypotheses after we standardized all independent and moderating variables to minimize multicollinearity (Aiken & West, 1991) and ease interpretability.

The figures presented for Models 1a, 1b, and 1c provide full support for Hypothesis 1 ($\beta = .11$, $p < .05$), which predicted a significant and positive relationship between EO and shareholder value.

In line with Hypothesis 2, the two-way interaction term of EO and CEO's narcissism was significant at the $p < .05$ level ($\beta = –.12$) in Model 2. Hence, the degree of CEO's narcissism negatively moderated the EO-performance relationship.

Hypothesis 3 states that the direction of narcissism's moderating effect depends on the degree of market concentration. The related term in Model 3a is significant at the $p < .01$

Table 2
Results of Regression Analyses[a] (Dependent Variable: Tobin's q)

Variable	Model 1a (n = 106)	Model 1b (n = 101)	Model 1c (n = 101)	Model 2 (n = 101)	Model 3a (n = 101)	Model 3b (n = 101)
Controls						
CEO age	.03	.02	.02	.03	.01	.05
CEO tenure	.03	.03	.02	.02	.00	.01
Company size	–.02	–.04	–.04	–.04	–.07**	–.07**
High-tech revenue share	–.06	–.06	–.06	–.06	–.08**	–.08**
Industry 1	.10	.12	.02	.08	–.08	–.04
Industry 2	.11	.07	–.04	.04	–.13	–.11
Industry 3	.01	.02	–.08	–.17	.01	–.04
Industry 4	.08	.07	.05	.06	–.02	.02
1st Year	–.07	–.10	–.19	–.17	–.21	–.25*
3rd Year	–.08	–.08	–.09	–.11	–.15	–.13
Tobin's q prior year	.87***	1.15***	1.15***	1.14***	1.14***	1.13***
Main effects						
EO	.11**	.11**	.11**	.13**	.10*	.12**
CEO's narcissism		.07	.07	.06	.05	.04
Market concentration			–.07	–.02	–.12	–.09
Market dynamism			.11	.12	.12**	.12*
Two-way interactions						
EO × CEO's Narcissism				–.12**	–.00	–.07
EO × Market Concentration					–.10*	
CEO's Narcissism × Market Concentration					–.03	
EO × Market Dynamism						–.12**
CEO's Narcissism × Market Dynamism						–.01
Three-way interactions						
EO × CEO's Narcissism × Market Concentration					.26***	
EO × CEO's Narcissism × Market Dynamism						.13*
Chi^2	739	741	736	751	904	812

[a]Standardized coefficients are reported.
*p < .1
**p < .05
***p < .01

level (β = .26), supporting the idea of a three-way interaction. The slope difference test from Dawson and Richter (2006) in Figure 2 confirms this hypothesis in showing the moderating effects of CEO narcissism on the EO-performance relationship for both low and high market concentration. While in fragmented markets the slope of the EO performance function significantly (p < .01) decreases when the CEO's narcissism increases, the opposite effect occurs (p < .05) when market concentration is high. Together, these findings lend full support to Hypothesis 3. According to Dawson and Richter's (2006) procedure, concentrated (fragmented) markets are those with values higher than .1 (lower than .06).

Hypothesis 4 states that the direction of narcissism's moderating effect depends on the degree of market dynamism. The related term in Model 3b is significant at the p < .1 level (β = .13), partly supporting the idea of a three-way interaction. The test from Dawson and Richter (2006) in Figure 3 partly confirms this hypothesis in showing the moderating effects of CEO narcissism on the EO-performance relationship for both low and high

Figure 2
Three-Way Interaction: Narcissism versus Market Concentration

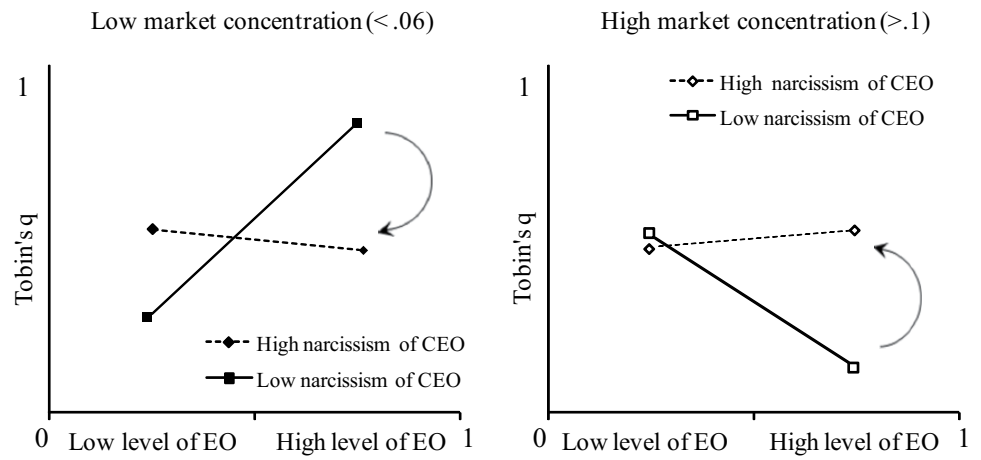
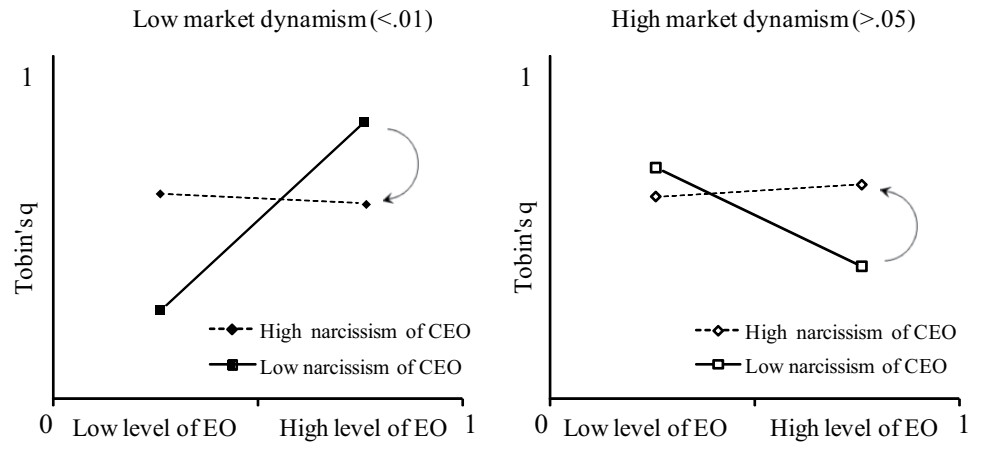


Figure 3
Three-Way Interaction: Narcissism versus Market Dynamism



market dynamism. In situations with low market dynamism, there is a positive slope for low narcissism, while this slope is negative when market dynamism is high. According to Dawson and Richter's (2006) procedure, dynamic (nondynamic) markets are those with values higher than .05 (lower than .01). While in stable markets the slope of the EO performance function significantly ($p < .01$) decreases when the level of the CEO's narcissism increases, we observe the opposite effect when the firm acts in a more dynamic market, although the effect is not significant ($p = .6$). Together, these findings partly support

Hypothesis 4. We also estimated a model in which both three-way interactions were introduced simultaneously and found that the interaction between EO and narcissism is still negatively related to firm performance ($\beta = -.15$, $p < .05$) and that the three-way interactions with market concentration ($\beta = .35$, $p < .01$) and market dynamism ($\beta = .19$, $p < .1$) yield similar results as those in Models 3a and 3b.

Further, we elaborated on issues of statistical power by conducting a statistical test for multiple regression (post hoc for given alpha, sample size, and effect size) (Cashen & Geiger, 2004). For an effect size of .2, which is common in entrepreneurship research (Connelly, Ireland, Reutzel, & Coombs, 2010), an alpha of .05, a sample size of 101, and a maximum of 21 predictors, we compute a very acceptable power value of .99, which indicates that the likelihood that a nonsignificant finding is actually significant is less than 1% (i.e., the probability of failing to reject the null hypothesis when it is actually false is very low) (Cohen, 1988).

Additional Analyses

While the present study builds upon the widespread unidimensional understanding of EO as the simultaneous exhibition of innovativeness, proactiveness, and risk taking (Miller, 1983; Wales et al., in press), Lumpkin and Dess (1996) add the dimensions of aggressiveness and autonomy to the EO construct, for which Short et al. (2010) provide measurement instruments. For this five-dimension conceptualization, the literature has also built aggregated measures, as we do for the three-dimension conceptualization (Wales et al., in press). Accordingly, we estimate our regression models with this alternate five-dimension measure for EO and find that the effect of EO on firm performance is again lower when CEO narcissism is strong ($\beta = -.13$, $p < .05$). Significant positive effects on firm performance of the three-way interactions among EO, narcissism, and market concentration ($\beta = .41$, $p < .01$) and among EO, narcissism, and market dynamism ($\beta = .33$, $p < .05$) also emerge.

Further, we estimated our models as reported in Table 2 with individual dimensions of EO in order to determine which EO dimensions, if any, are major driving factors behind the interaction with CEO narcissism or whether the moderating effects are uniformly present in all dimensions. The dimensions of autonomy ($\beta = -.16$, $p < .01$), proactiveness ($\beta = -.14$, $p < .05$), and risk taking ($\beta = .21$, $p < .05$) show significant interaction effects with CEO narcissism on financial firm performance. Therefore, proactiveness and autonomy are major individual drivers of our finding in terms of Hypothesis 2 (i.e., the negative moderating effect of CEO narcissism on EO-performance).

Discussion

The present study introduces the CEO's narcissism as a moderator of the EO-performance relationship, and its findings indicate that the positive relationship between EO and shareholder value is generally weakened when CEO narcissism is strong. A configurational examination shows that entrepreneurial firms should have narcissistic CEOs only in rare circumstances, such as when they operate in concentrated markets or in (partly supported) dynamic markets. These findings have some important implications for the literature on EO, upper echelons theory, and narcissism.

EO

This study advances research on EO in several ways: First, the study concretizes the common wisdom that top managers affect EO's impact on firm performance (Covin & Slevin, 1991). As the review from Wales et al. (in press) shows, only one study examines the CEO's characteristics as moderators of the EO-performance relationship: Richard et al. (2009) find that industry and position tenure determine the strength of this relationship. Our study shows that the CEO's personality—narcissism in particular—plays a major role in whether EO is converted into superior performance. Entrepreneurial settings impose on CEOs many stimuli characterized by ambiguity and dynamism, and in these situations, the CEO's personality is central to decisions made for the entire firm.

The present study also advances research on EO by extending research on the EO-performance relationship by considering shareholder value as a dependent variable. While extant research has largely focused on market-related and profitability-related measures (Rauch et al., 2009), our study theoretically derives and empirically validates shareholder value, measured by Tobin's q, as a performance consequence of EO. Thus, EO becomes a relevant topic for senior executives and those engaged in the corporate governance of large firms.

Third, our study is differentiated from extant research on the performance consequences of EO in that it uses secondary data from publicly listed firms rather than survey research with small- and medium-sized firms. Our approach shows that secondary data—applying CATA to publicly available documents—allows larger firms to be examined in terms of whether EO is a viable strategic option (Short et al., 2010). What's more, panel data, with all of their advantages from a methodological perspective (e.g., controlling for reverse causality and unobserved heterogeneity), can be generated.

Upper Echelons Research

As Carpenter et al. (2004) and Hambrick (2007), in their reviews of upper echelons research, find, researchers in this area have long focused on demographics like the CEO's age, functional background, and industry tenure to explain the CEO's influence on organizational outcomes. (See also the review on upper echelons research from Finkelstein et al., 2009.) However, in their seminal paper, Hambrick and Mason (1984) argue that CEO personality traits have much more potential to explain how CEOs "really" drive organization-level phenomena. Since demographics have often been used as proxies for certain personality traits, some researchers claim that upper echelons research has been caught in a "black box of demographics" (Lawrence, 1997; Nadkarni & Herrmann, 2010; Priem et al., 1999). A few studies have begun to examine conceptually (Hiller & Hambrick, 2005) and empirically (Chatterjee & Hambrick, 2007; Hayward & Hambrick, 1997) how the CEO's personality traits impact (usually nonperformance) organizational outcomes.

The present study advances this research on the CEO's personality and organization-level outcomes and theoretically derives and empirically validates *how* a CEO personality trait explains variances in firm performance, the ultimate objective in management research. While CEOs' narcissism has no direct effect on firm performance, its interplay with EO, a major strategic orientation, significantly impacts firm performance; therefore, the firm-level performance implications of the CEO's personality traits must be evaluated in combination

with the firm's strategic posture to assess their effectiveness. There appears to be no universal "recipe" for beneficial or harmful CEO personality traits, a conclusion that contradicts some studies in upper echelons research based on demographic research, where some "universally" valid relationships, such as the relationship between functional experience and firm innovativeness or that between internationality and firm performance, have emerged (Carpenter, 2002; Carpenter et al., 2004; Carpenter, Sanders, & Gregersen, 2001).

In addition to showing *how* the personality trait of narcissism impacts firm performance in a specific direction (i.e., in combination with a specific strategic posture like EO), our study shows *when* it does so. Findings have indicated that a specific personality trait can be beneficial for a desired outcome (here, increased effect of EO on firm performance) in some situations and harmful in others. These findings suggest that how CEO personality traits impact firm performance is complex—possibly even more complex than the extensively researched relationships between CEO demographics and firm-level outcomes—and that the relationship can be understood only in a strategic and market context.

CEO Narcissism

The concept of narcissism has been widely discussed in personality literature, while only recently have Chatterjee and Hambrick (2007) transferred this concept to the management context to show that narcissistic CEOs impact firms' strategic flexibility and the number and size of acquisitions and that they can lead to more extreme performance. Chatterjee and Hambrick (2007) also show in a post hoc analysis that CEO narcissism is not linked to systematically better or worse firm performance in their sample. The present study complements this research in two major ways: First, while we confirm Chatterjee and Hambrick (2007) in finding that there is no direct link between CEO narcissism and the level of firm performance, we find that it negatively impacts firm performance when considered in combination with EO, making narcissism in CEOs relevant in explaining firm performance and, therefore, relevant to those responsible for hiring CEOs.

Second, the present study addresses some discussions in the literature concerning whether CEO narcissism, which is replete with paradoxes and often described as a "mixed blessing," is positive or negative for firms. Since we identified both theoretical reasons for a positive and negative moderation of CEO narcissism on the EO-performance relationship, our empirical validation contributes to this literature stream by resolving these opposing theoretical arguments. Our findings indicate that narcissism in CEOs is usually harmful for entrepreneurial firms because it inhibits the full potential of EO. However, in rare circumstances—in concentrated markets and (partly supported) in dynamic markets—the positive aspects of narcissistic CEOs dominate, and a positive interaction effect between EO and performance emerges.

Limitations and Avenues for Further Research

Like all empirical studies, this study has limitations that offer useful avenues for further research. First, the study has issues related to generalizability because of its focus on large, publicly traded, primarily high-tech companies. It seems reasonable (but remains to be tested) that the study's results also hold for smaller firms in industries that operate under stronger restrictions, such as the insurance and basic metals industries.

A second limitation lies in the study's U.S. sample. Like every culture, that of the United States has its distinct social and economic background, and its individualism and tolerance for uncertainty grant considerable managerial discretion (Hofstede, 2001). Determining to what extent national culture, particularly the level of discretion, impacts the study's findings would be a useful goal for future research.

A third limitation may lie in the fact that we treat narcissism as a one-factor construct, as extant research in this area has also done and validated (Chatterjee & Hambrick, 2007). Future research might examine how different elements of the narcissism construct (such as leadership/authority or superiority/arrogance) play different roles in the EO-performance relationship.

A final limitation of our theoretical arguments and empirical study may lie in the use of sales volatility to capture market dynamism. There might be other market-level drivers of dynamism, such as innovation or regulation-related regular changes. Future research might theoretically and empirically examine how other types of dynamism impact the role CEO narcissism plays in impacting the EO-performance relationship.

Practical Implications

The present study has some important and useful implications for practitioners. It shows that EO increases shareholder value, making EO a construct of interest to anyone involved in corporate governance. This insight raises a question concerning how EO can best be converted into superior performance. Although the CEO's personality has long been accepted as an important factor in leadership, practitioners learn that the CEO's personality traits are important factors in leveraging entrepreneurial activities.

The present study also provides those who select the CEO with some recommendations. An understanding of the potential candidates' narcissistic traits is important, as prominent stories about successful, narcissistic CEOs during the last two decades, such as Steve Jobs from Apple—who is described as a productive narcissist by Maccoby (2004)—Jeff Bezos from Amazon, and Andy Grove from Intel, may lead some to consider these narcissistic candidates as "silver bullets." However, our findings show that narcissistic CEOs should usually not be hired to lead entrepreneurially oriented firms because these CEOs' negative effects on performance usually outweigh their positive effects.

However, there are rare situations in which firms can profit from the CEO's narcissistic traits, especially when market concentration or (partly supported) market dynamism is strong. In these environments the advantages of narcissism compensate for its disadvantages. It may be no accident that Jobs, Bezos, and Grove, all successful, narcissistic CEOs, operated in comparatively concentrated and dynamic markets.

Conclusion

The present study introduces CEO narcissism as a moderator of the EO-shareholder value relationship and shows that the CEO's personality can be important in realizing the full potential of entrepreneurially oriented firms. The contingency model shows that CEOs' narcissism usually weakens the EO-performance relationship, but a configurational perspective shows that it can also be beneficial for entrepreneurial firms when market concentration or

dynamism is strong. These findings, empirically validated by means of multisource panel data from publicly listed high-tech firms on the S&P 500, contribute to the EO, upper echelons, and narcissism literature.

Appendix

Measurement Constructs

Construct	Measure	Source
Entrepreneurial orientation (Short, Broberg, Cogliser, & Brigham, 2010)	Computer-aided text analysis of letter to shareholders ad-lib, adroit, adroitness, adventuresome, adventurous, anticipate, audacious, bet, bold, bold-spirited, brash, brave, bright-idea, chance, chancy, change, clever, cleverness, conceive, concoct, concoction, concoctive, conjure-up, courageous, create, creation, creative, creativity, creator, danger, dangerous, dare, daredevil, daring, dauntless, dicey, discover, discoverer, discovery, dream, dream-up, enterprising, envisage, envision, expect, expert, exploration, exploratory, explore, fearless, forecast, fore-glimpse, foreknow, foresee, foretell, form, formulation, forward-looking, frame, framer, freethinker, gamble, genesis, genius, gifted, gutsy, headlong, hit-upon, imagination, imaginative, imagine, improvise, incautious, ingenious, ingenuity, initiative, initiator, innovate, innovation, inquire, inquiry, inspiration, inspired, intrepid, invent, invented, invention, inventive, inventiveness, inventor, investigate, investigation, look-into, make-up, mastermind, masterstroke, metamorphose, metamorphosis, neoteric, neoterism, neoterize, new, new-wrinkle, novel, novelty, opportunity-seeking, original, originality, originate, origination, originative, originator, patent, plunge, precarious, proactive, probe, prospect, radical, rash, recast, recasting, reckless, research, resourceful, resourcefulness, restyle, restyling, revolutionize, risk, risky, scrutinization, scrutiny, search, see-things, stake, study, survey, temerity, think-up, trademark, uncertain, venture, venturesome, vision, visionary, visualize, wager	DICTION 6.14.5 Corporate websites Investor relations departments
Narcissism (Chatterjee & Hambrick, 2007)		
Prominence of the CEO's photograph in annual report	4 points: photo shows CEO alone and occupies > .5 pages 3 points: photo shows CEO alone and occupies < .5 pages 2 points: photo shows CEO with one or more fellow executives 1 point: no photo of the CEO	Company websites, investor relations departments
CEO prominence in company press releases	Number of times the companies' press releases contained the name of the CEO, divided by the total number of words in the press releases	LexisNexis data bank
CEO's relative cash pay	CEO's cash compensation (salary and bonus) divided by the cash compensation of the second highest paid executive	ExecuComp
CEO's relative noncash pay	CEO's noncash compensation (other compensation) divided by the noncash compensation of the second highest paid executive	ExecuComp

References

Aiken, L. S., & West, S. G. 1991. *Multiple regression: Testing and interpreting interactions*. Thousand Oaks, CA: Sage.

Anderson, B., & Eshima, Y. in press. The influence of firm age and intangible resources on the relationship between entrepreneurial orientation and firm growth among Japanese SMEs. *Journal of Business Venturing*.

Anderson, E. W., Fornell, C., & Mazvancheryl, S. K. 2004. Customer satisfaction and shareholder value. *Journal of Marketing*, 68 (4): 172-185.

Ballinger, G. A. 2004. Using generalized estimating equations for longitudinal data analysis. *Organizational Research Methods*, 7: 127-150.

Berger, A. N., & Hannan, T. H. 1998. The efficiency cost of market power in the banking industry: A test of the "quiet life" and related hypotheses. *Review of Economics and Statistics, MIT Press*, 80: 454-465.

Bogart, L. M., Benotsch, E. G., & Pavlovic, J. D. 2004. Feeling superior but not threatened: The relation of narcissism to social comparison. *Basic and Applied Social Psychology*, 26: 35-44.

Campbell, W., Hoffman, B., Campbell, S., & Marchisio, G. 2011. Narcissism in organizational contexts. *Human Resource Management Review*, 21: 268-284.

Campbell, W. K., & Campbell, S. M. 2009. On the self-regulatory dynamics created by the peculiar benefits and costs of narcissism: A contextual reinforcement model and examination of leadership. *Self & Identity*, 8: 214-232.

Campbell, W. K., Foster, C. A., & Finkel, E. J. 2002. Does self-love lead to love for others? A story of narcissistic game playing. *Journal of Personality and Social Psychology*, 83: 340-354.

Campbell, W. K., Reeder, G. D., Sedikides, C., & Elliot, A. J. 2000. Narcissism and comparative self-enhancement strategies. *Journal of Research in Personality*, 34: 329-347.

Carpenter, M. 2002. The implications of strategy and social context for the relationship between top management team hetrogeneity and firm performance. *Strategic Management Journal*, 23: 275-284.

Carpenter, M., Sanders, W., & Gregersen, H. B. 2001. Bundling human capital with organizational context: The impact of international assignment experience on multinational firm performance and CEO pay. *Academy of Management Journal*, 44: 493-512.

Carpenter, M. A., Geletkanycz, M. A., & Sanders, W. 2004. Upper echelons revisited: Antecedents, elements, and consequences of top management team composition. *Journal of Management*, 30: 749-778.

Cashen, L. H., & Geiger, S. W. 2004. Statistical power and the testing of null hypotheses: A review of contemporary management research and recommendations for future studies. *Organizational Research Methods*, 7: 151-167.

Chatterjee, A., & Hambrick, D. C. 2007. It's all about me: Narcissistic chief executive officers and their effects on company strategy and performance. *Administrative Science Quarterly*, 52: 351-386.

Chatterjee, A., & Hambrick, D. C. 2011. Executive personality, capability cues, and risk taking: How narcissistic CEOs react to their successes and stumbles. *Administrative Science Quarterly*, 56: 202-237.

Child, J. 1972. Organization structure, environment, and performance: The role of strategic choice. *Sociology*, 6: 1-22.

Cohen, J. 1988. *Statistical power analysis for the behaviorial sciences*. Hillsdale, NJ: Lawrence Erlbaum.

Connelly, B. L., Ireland, R. D., Reutzel, C. R., & Coombs, J. E. 2010. The power and effects of entrepreneurship research. *Entrepreneurship: Theory & Practice*, 34: 131-149.

Covin, J., & Slevin, D. 1989. Strategic management of small firms in hostile and benign environments. *Strategic Management Journal*, 10: 75-87.

Covin, J., & Slevin, D. 1991. A conceptual model of entrepreneurship as firm behavior. *Entrepreneurship Theory and Practice*, 16: 7-25.

Covin, J. G., Green, K. M., & Slevin, D. P. 2006. Strategic process effects on the entrepreneurial orientation–sales growth rate relationship. *Entrepreneurship: Theory & Practice*, 30: 57-81.

Crossland, C., & Hambrick, D. C. 2011. Differences in managerial discretion across countries: How nation-level institutions affect the degree to which CEOs matter. *Strategic Management Journal*, 32: 797-819.

Davis, J. P., Eisenhardt, K. M., & Bingham, C. B. 2009. Optimal structure, market dynamism, and the strategy of simple rules. *Administrative Science Quarterly*, 54: 413-452.

Dawson, J., & Richter, A. 2006. Probing three-way interactions in moderated multiple regression: Development and application of a slope difference test. *Journal of Applied Psychology*, 91: 917-926.

De Vries, M. F. R. K., & Miller, D. 1984. Neurotic style and organizational pathology. *Strategic Management Journal*, 5: 35-55.

Dess, G. G., & Beard, D. W. 1984. Dimensions of organizational task environments. *Administrative Science Quarterly*, 29: 52-73.

Duriau, V. J., Reger, R. K., & Pfarrer, M. D. 2007. A content analysis of the content analysis literature in organizational studies: Research themes, data sources, and methodological refinements. *Organizational Research Methods*, 10: 5-34.

Ellis, H. 1898. Auto-erotism: A psychological study. *Allienist and Neurologist*, 19: 260-299.

Emmons, R. A. 1987. Narcissism: Theory and measurement. *Journal of Personality and Social Psychology*, 52: 11-17.

Engelen, A., Gupta, V. K., Strenger, L., & Brettel, M. 2015. Entrepreneurial orientation, firm performance, and the moderating role of transformational leadership. *Journal of Management*, 41: 1069-1097.

Finkelstein, S., Hambrick, D., & Cannella, A. 2009. *Strategic leadership—Theory and research on executives, top management teams, and boards*. Oxford, UK: Oxford University Press.

Gatignon, H., Barton, W., & Pradeep, B. 1990. Brand introduction strategies and competitive environments. *Journal of Marketing Research*, 27 (4): 390-401.

Green, K. M., Covin, J. G., & Slevin, D. P. 2008. Exploring the relationship between strategic reactiveness and entrepreneurial orientation: The role of structure-style fit. *Journal of Business Venturing*, 23: 356-383.

Hair, J., Anderson, R., Tatham, R., & Black, W. 1998. *Multivariate data analysis* (5th ed.). Upper Saddle River, NJ: Prentice Hall.

Hambrick, D. C. 2007. Upper echelons theory: An update. *Academy of Management Review*, 32: 334-343.

Hambrick, D. C., & Abrahamson, E. 1995. Assessing managerial discretion across industries: A multi-method approach. *Academy of Management Journal*, 38: 1427-1441.

Hambrick, D. C., & Finkelstein, S. 1987. Managerial discretion: A bridge between polar views on orgainzations. In L. Cummings & B. Staw (Eds.), *Research in organizational behavior*: 369-406. Greenwich, CT: JAI Press.

Hambrick, D. C., & Mason, P. A. 1984. Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review*, 9: 193-206.

Hart, R. P. 2000. *DICTION 5.0: The text analysis program*. Thousand Oaks, CA: Sage-Scolari.

Hayward, M., & Hambrick, D. 1997. Explaining premiums paid for large acquisitions: Evidence of CEO hubris. *Administrative Science Quarterly*, 42: 103-127.

Hiller, N. J., & Hambrick, D. C. 2005. Conceptualizing executive hubris: The role of (hyper-)core self-evaluations in strategic decision making. *Strategic Management Journal*, 26: 297-319.

Hofstede, G. 2001. *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations* (2nd ed.). Thousand Oaks, CA: Sage.

Howell, J., & Avolio, B. 1993. Transformational leadership, transactional leadership, locus of control, and support for innovations: Key predictors of consolidated-business-unit performance. *Journal of Applied Psychology*, 78: 891-903.

Jaworski, B., & Kohli, A. 1993. Market orientation: Antecedents and consequences. *Journal of Marketing*, 57 (3): 53-70.

John, O. P., & Robins, R. W. 1994. Accuracy and bias in self-perception: Individual differences in self-enhancement and the role of narcissism. *Journal of Personality and Social Psychology*, 66: 206-219.

Kerin, R. A., Varadarajan, P. R., & Peterson, R. A. 1992. First-mover advantage: A synthesis, conceptual framework, and research propositions. *Journal of Marketing*, 56 (4): 33-52.

Kets de Vries, M. F. R., & Miller, D. 1985. Narcissism and leadership: An object relations perspective. *Human Relations*, 38: 583-601.

Khandwalla, K. 1977. *The design of organizations*. New York, NY: Harcourt Brace Jovanovich.

Lawrence, B. 1997. The black box of organizational demography. *Organization Science*, 8: 1-22.

Lounsbury, M. 2002. Institutinal transformation and status mobility: The professionalization of the field of finance. *Academy of Management Journal*, 45: 255-266.

Lumpkin, G., & Dess, G. 1996. Clarifiying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*, 21: 135-172.

Lumpkin, G. T., & Dess, G. 2001. Linking two dimensions of entrepreneurial orientation to firm performance: The moderating role of environment and industry life cycle. *Journal of Business Venturing*, 16: 429-441.

Luo, X., & Homburg, C. 2007. Neglected outcomes of customer satisfaction. *Journal of Marketing*, 71 (2): 133-149.

Maccoby, M. 2004. Narcisstic leaders—The incredible pros, the inevitable cons. *Harvard Business Review*, January-February, 1-9.

Matsuno, K., Mentzer, J., & Özsomer, A. 2002. The effects of entrepreneurial proclivity and market orientation on business performance. *Journal of Marketing*, 66 (3): 18-32.

McClelland, D. C., & Burnham, D. H. 1976. Power is the great motivator. *Harvard Business Review*, March-April, 100-110.

McGrath, R. 1999. Falling forward: Real options reasoning and entrepreneurial failure. *Academy of Management Review*, 24 (1): 13–30.

Miller, D. 1983. The correlates of entrepreneurship in three types of firms. *Management Science*, 29 (7): 770-791.

Nadkarni, S., & Herrmann, P. O. L. 2010. CEO personality, strategic flexibility, and firm performance: The case of the Indian business outsourcing industry. *Academy of Management Journal*, 53: 1050-1073.

Nevicka, B., De Hoogh, A. H. B., Van Vianen, A. E. M., Beersma, B., & McIlwain, D. 2011. All I need is a stage to shine: Narcissists' leader emergence and performance. *Leadership Quarterly*, 22: 910-925.

Ozkan, N. 2011. CEO compensation and firm performance: An empirical investigation of UK panel data. *European Financial Management*, 17: 260-285.

Podsakoff, P., MacKenzie, S., Moorman, R., & Fetter, R. 1990. Transformational leader behaviors and their effects on followers' trust in leader, satisfaction, and organizational citizenship behaviors. *Leadership Quarterly*, 1: 107-142.

Priem, R., Lyon, D., & Dess, G. 1999. Inherent limitations of demographic proxies in top management team heterogeneity research. *Journal of Management*, 25: 935-953.

Rauch, A., Wiklund, J., Lumpkin, G. T., & Frese, M. 2009. Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. *Entrepreneurship: Theory & Practice*, 33: 761-787.

Richard, O. C., Wu, P., & Chadwick, K. 2009. The impact of entrepreneurial orientation on firm performance: The role of CEO position tenure and industry tenure. *International Journal of Human Resource Management*, 20: 1078-1095.

Rosenthal, S. A., & Pittinsky, T. L. 2006. Narcissistic leadership. *Leadership Quarterly*, 17: 617-633.

Short, J., Broberg, J., Cogliser, C., & Brigham, K. 2010. Construct validation using computer-aided text analysis (CATA): An illustration using entrepreneurial orientation. *Organizational Research Methods*, 13: 320-347.

Simsek, Z., Heavey, C., & Veiga, J. F. 2010. The impact of CEO core self-evaluation on the firm's entrepreneurial orientation. *Strategic Management Journal*, 31: 110-119.

Srivastava, R. K., Shervani, T. A., & Fahey, L. 1998. Market-based assets and shareholder value: A framework for analysis. *Journal of Marketing*, 62 (1): 2-18.

Stam, W., & Elfring, T. 2008. Entrepreneurial orientation and new venture performance: The moderating role of intra- and extraindustry social capital. *Academy of Management Journal*, 51: 97-111.

Tobin, J. 1969. A general equilibrium approach to monetary theory. *Journal of Money, Credit and Banking*, 1: 15-29.

Vivek, S. 2011. Stock returns and product market competition: Beyond industry concentration. *Review of Quantitative Finance and Accounting*, 37: 283-299.

Wales, W., Gupta, V., & Moussa, F. in press. Empirical research on entrepreneurial orientation: An assessment and suggestions for future research. *International Small Business Journal*.

Wales, W., Monsen, E., & McKelvie, A. 2011. The organizational pervasiveness of entrepreneurial orientation. *Entrepreneurship Theory & Practice*, 35: 895-923.

Wallace, H., & Baumeister, R. 2002. The performance of narcissists rises and falls with perceived opportunity for glory. *Journal of Personality and Social Psychology*, 82: 819-934.

Wiklund, J. 1999. The sustainability of the entrepreneurial orientation–performance relationship. *Entrepreneurship Theory & Practice*, 24: 37-48.

Wiklund, J., & Shepherd, D. 2005. Entrepreneurial orientation and small business performance: A configurational approach. *Journal of Business Venturing*, 20: 71-91.

Woo, C. Y., & Cooper, A. C. 1981. Strategies of effective low share businesses. *Strategic Management Journal*, 2: 301-318.

Wooldridge, J. M. 2010. *Econometric analysis of cross section and panel data* (2nd ed.). Cambridge, MA: MIT Press.

Zahra, S. A., & Covin, J. G. 1995. Contextual influences on the corporate entrepreneurship performance relationship: A longitudinal analysis. *Journal of Business Venturing*, 10: 43-58.