

Where does pride lead? Corporate managerial hubris and strategic emphasis

MinChung Kim¹ · Guiyang Xiong² · Kwang-Ho Kim³

Received: 31 October 2015 / Accepted: 22 May 2017 / Published online: 2 August 2017
© Academy of Marketing Science 2017

Abstract A firm's strategic emphasis on value creation versus appropriation, which is typically reflected in its resource allocation between R&D and advertising, is a central corporate decision that significantly influences financial performance. However, the drivers of such decisions remain underexplored. This study identifies a significant predictor of strategic emphasis, namely, corporate managerial hubris, and reveals some of its boundary conditions. Leveraging a unique dataset based on text mining of press releases issued by over 400 firms across 13 years, the authors demonstrate that high corporate managerial hubris predicts low strategic emphasis on advertising relative to R&D. However, this effect is mitigated significantly by firm maturity, corporate governance, and industry-level strategic emphasis. The results provide novel insights into the effects of hubris on firm spending, the situations wherein marketing decisions tend to be subject to managers' psychological bias, the means of preventing over- or under-investment in marketing strategy, and the recruitment and training of managers.

Keywords Corporate managerial hubris · Advertising · R&D · Strategic emphasis

Two fundamental functions play key roles in determining corporate performance and growth, namely, research and development (R&D), which creates new value for consumers, and advertising, which communicates and helps appropriate the value created (e.g., Mizik and Jacobson 2003; McAlister et al. 2007; Krasnikov and Jayachandran 2008; Xiong and Bharadwaj 2011). The proper allocation of resources to these functions is essential to firm success (Morgan 2012). Marketing strategy literature concurs with the crucial importance of understanding the factors that drive the decisions of firms to invest in R&D and advertising (e.g., Joseph and Richardson 2002; Chakravarty and Grewal 2011; Currim et al. 2012). Moreover, firms often face trade-offs when they distribute limited budget between advertising and R&D because they have to decide which area should receive more investment. Prior studies have reported a significant variation across firms in terms of their relative emphasis on advertising versus R&D (i.e., strategic emphasis), which can significantly influence stock returns and risks (Mizik and Jacobson 2003; Josephson et al. 2016; Han et al. 2017). However, despite its value relevance, antecedents to such relative emphasis remain scarcely studied.

The marketing strategy literature argues that the motivations of managers/executives (e.g., Currim et al. 2012) and pressures from shareholders (e.g., Chakravarty and Grewal 2011) can influence marketing spending. In line with these existing theories, we propose and test a unique factor that has been ignored by the marketing literature, *corporate managerial hubris* (i.e., the collective level of managerial hubris in the firm's management team), as an antecedent to advertising and R&D investments and the strategic emphasis between the

Shrihari Sridhar served as Area Editor for this article.

✉ MinChung Kim
mckim@unist.ac.kr

Guiyang Xiong
gy.xiong@gmail.com

Kwang-Ho Kim
khkim19@hufs.ac.kr

¹ School of Business Administration, Ulsan National University of Science and Technology (UNIST), 50 UNIST-gil, Eonyang-eup, Ulju-gun, Ulsan, Republic of Korea 44919

² Whitman School of Management, Syracuse University, 721 University Avenue, Syracuse, NY 13244, USA

³ College of Business, Hankuk University of Foreign Studies, 107 Imun-ro, Dongdaemun-gu, Seoul, Republic of Korea 02450

two functions. Corporate managerial hubris can be relevant in this case because it determines (1) the management team's motivations and risk preferences (e.g., Li and Tang 2010) and (2) their tendencies to respond to or ignore the interests or preferences of external stakeholders (Donaldson 1999; Tang et al. 2015b).

Hubris,¹ which refers to the exaggerated belief in one's own judgment and ability (Hayward and Hambrick 1997), prominently exists among corporate executives and managers (Hiller and Hambrick 2005; Tang et al. 2015a). Hubristic individuals possess strong self-confidence and pride, perceive themselves as superior to their peers, and tend to overestimate their own abilities (Harrison and Shaffer 1994; Hiller and Hambrick 2005; Hilary and Menzly 2006). Corporate managerial hubris reflects the overall level of hubris in a firm's management team and is, to a large extent, determined by the mental status of top executives (Yan 2015). Hubristic managers tend to exhibit certain behaviors, such as pursuing difficult tasks (Griffin and Tversky 1992) and/or engaging in risky endeavors (Simon and Houghton 2003). Moreover, the "internal locus of control" engenders the tendency of hubristic managers to undervalue or even ignore the interests of or pressures from external stakeholders (Hayward and Hambrick 1997; Tang et al. 2015b). For these reasons, managerial hubris has been shown to affect various firm strategies and outcomes, including mergers and acquisitions (M&As), product line composition (weight of new product sales relative to total sales), and corporate social responsibility (e.g., Tang et al. 2015a; Tang et al. 2015b; Aktas et al. 2016). We extend this stream of literature by examining the effect of corporate managerial hubris on marketing investments.

Conventional wisdom has assumed a positive link between hubris and overinvestments (e.g., Varghese 2009; Laseter 2016). However, is this necessarily true? Does hubris drive up different types of investments equally? Is the effect of hubris on firm spending always positive, or is it conditional? Our study attempts to theorize and empirically answer these questions. In doing so, this work is among the first to bridge management research on managerial hubris with marketing research on firm resource allocation and strategic emphasis between advertising and R&D. This study also explores the conditions under which the effects of corporate managerial hubris are more or less prominent. Determining the boundary

conditions can help marketing researchers and practitioners understand the situations in which a firm's marketing strategy is less likely to be subject to the psychological bias of managers.

We evaluate corporate managerial hubris based on the computerized text mining of firms' press releases over time, combined with various sources of secondary data to create a unique dataset. The results corroborate that corporate managerial hubris predicts a reduced emphasis on advertising relative to R&D. Moreover, we propose and test a cohesive set of contingency factors, all of which may decrease the room for managerial discretion, thereby mitigating the effect of corporate managerial hubris. We find that hubristic managers are less likely to underemphasize advertising relative to R&D as firm maturity, corporate governance, or industry strategic emphasis on advertising increases. The findings not only contribute to the literature but also provide novel managerial insights into the manner in which marketing budget allocation and firm strategic emphasis may be biased by the psychological or mental status of managers, the prevention of over- or under-investments in marketing, and the recruitment and training of managers.

In the subsequent sections, we first summarize the related literature and identify the research gaps. We develop the hypotheses based on theories from the marketing, psychology, management, and finance literature. Subsequently, we discuss the data and empirical models to test the hypotheses and present the results. We conclude with theoretical contributions and managerial implications.

Relevant literature and research gaps

Table 1 summarizes existing studies on the drivers of R&D and advertising spending and the strategic emphasis between them.

Since the focus of our study is to explain the allocation of marketing investments/resources *instead of* their outcomes, Table 1 lists only extant research on R&D spending or intensity, rather than R&D success or output (e.g., patents or innovation levels of new products²). Similarly, we review studies on advertising spending or intensity, rather than its outcomes (e.g., consumer awareness or purchases). Based on Table 1, we can categorize the drivers of marketing investments identified by prior studies into four groups: firms' financial well-being (Baber et al. 1991; Joseph and Richardson 2002; Chakravarty and Grewal 2011, 2016; Sridhar et al. 2014; Josephson et al. 2016), corporate financing activities (Kurt

¹ Scholars have used the terms "hubris" and "overconfidence" interchangeably (Hayward et al. 2006; Malmendier and Tate 2008; Li and Tang 2010). Another related concept is narcissism. Extant research argues that narcissistic individuals differ from hubristic ones in their strong need for external applause and affirmation; and hubris is a mental state, whereas narcissism is a type of personality that remains persistent (Chatterjee and Hambrick 2007; Li and Tang 2010; Tang et al. 2015b). Hence, measures of narcissism are largely based on an executive's prominence or relative compensation (e.g., Chatterjee and Hambrick 2007; Kashmiri et al. 2017). We focus only on hubris in this study to develop theories and measures. Future research can compare the roles of narcissism vs. hubris in this context.

² For example, some prior studies examined the factors that predict successful introductions of radical new products, such as the willingness to cannibalize (e.g., Chandy and Tellis 1998) and CEO narcissism (e.g., Kashmiri et al. 2017).

Table 1 Literature on the drivers of marketing investments

Study	Independent variable(s)	Moderator(s)	Dependent variable(s)	Empirical context
Baber et al. (1991)	Difficulty in reporting increases in net income	None	R&D spending	438 industrial firms (SIC ^a 20–39)
Joseph and Richardson (2002)	Firm earnings (cash flows)	Management ownership	Advertising spending	2763 firm-year observations by matching Compustat and Marketbase databases
Chakravarty and Grewal (2011)	Firm stock returns and volatility in previous periods	Firm size; industry concentration	R&D and marketing budgets	309 firms in high-tech manufacturing industries (SIC 357, 363, 366, and 367)
Currim et al. (2012)	Equity to bonus compensation ratio for top executives	None	R&D and advertising intensity	842 firms from ExecuComp
Kurt and Hulland (2013)	Initial Public Offerings (IPOs); Seasoned Equity Offering (SEOs)	None	Marketing intensity (selling, general, and administrative expenditures minus R&D expenditures, divided by total assets)	1581 IPO firms and 1200 SEO firms from 1970 to 2004
Sridhar et al. (2014)	Sales; Tobin's Q	None	R&D and advertising spending	903 firms in high-tech industries
Chakravarty and Grewal (2016)	Analyst forecasts	CEO's compensation, output experience, and throughput experience; R&D and marketing intensity	Unanticipated changes in R&D and advertising budgets	515 firms from SIC 3570–3695
Josephson et al. (2016)	Firm maturity and slack (i.e., level of liquidity assets)	Industry competitiveness	Advertising spending minus R&D spending, divided by total assets (i.e., strategic emphasis)	578 publicly listed firms from 1999 to 2011
This study	Corporate managerial hubris	Two environmental factors (industry strategic emphasis; competition) and two organizational factors (firm maturity and corporate governance) that can influence the tendency and focus of firm investments	Advertising spending minus R&D spending, divided by total assets (i.e., strategic emphasis), and R&D and advertising intensity	469 publicly listed firms from 1993 to 2007

^a SIC is standard industrial code

and Hulland 2013), executive compensation (Currim et al. 2012), and firm maturity (Josephson et al. 2016). The majority of the literature, except Josephson et al. (2016), examined R&D or advertising spending in isolation of each other and ignored firms' relative focus between them. Although these studies provide valuable insights, they have ignored the potential influence of managers' psychological bias, such as hubris. Our study fills this important gap in the literature.

Moreover, management literature on the effect of hubris has not examined how hubris influences R&D and advertising spending or the strategic emphasis of firms. Although individuals routinely overestimate their abilities (e.g., Harrison and Shaffer 1994), such hubristic tendency is even more common among corporate managers and executives (Hiller and Hambrick 2005; Galasso and Simcoe 2011). According to upper echelons theory (Hambrick and Mason 1984), the strategy and performance of firms can be influenced by the

psychological or mental status of top management. Based on this notion, a growing body of recent studies on finance and management has demonstrated the effects of managerial hubris on the strategic initiatives of firms, including M&As (Aktas et al. 2016; Yan 2015; Malmendier and Tate 2008; Chatterjee and Hambrick 2007; Hayward and Hambrick 1997) and corporate social responsibility (Tang et al. 2015b). However, little is known about the link between hubris and marketing investments.

Three studies have examined the effect of managerial hubris on R&D output (Simon and Houghton 2003; Li and Tang 2010; Tang et al. 2015a). These studies are fundamentally different from our study on at least four fronts. First, they do not directly address how hubris affects R&D input (i.e., R&D spending). Specifically, Simon and Houghton (2003) conducted a small-scale field study and linked hubris to two types of innovation outputs, namely, breakthrough and incremental

innovations. Similarly, Li and Tang (2010) examined new product innovativeness, and Tang et al. (2015a) focused on the number of patents and new product sales as dependent variables.³ While it is meaningful to study the outputs or end products of firms' R&D activities, understanding the drivers of R&D inputs/investments from a resource allocation perspective is also crucial. Our study is the first to take this perspective, which has been ignored by the literature.

Second, instead of focusing on explaining R&D spending in isolation, our study examines the effect of corporate managerial hubris on firms' strategic emphasis on R&D versus advertising investments. The concept of firm strategic emphasis and its operationalization are deeply rooted in the marketing literature and reflect the relative focus of firms on value appropriation versus value creation (e.g., Mizik and Jacobson 2003; McAlister et al. 2007; Wies and Moorman 2015). None of the previous studies (including those listed in Table 1 and Simon and Houghton [2003], Li and Tang [2010], and Tang et al. [2015a]) has linked hubris with advertising investments or examined its influence on firm strategic emphasis. In fact, based on the literature, factors that drive firm strategic emphasis have not been explored because most prior studies on strategic emphasis has focused on its effects on financial returns and risks instead of its antecedents (Josephson et al. 2016).

Third, all three management studies analyzed data from one particular industry only⁴; thus, they cannot speak to the moderating role of industry conditions. By contrast, we investigate the contingency effects of hubris on marketing investments, identify novel moderators previously ignored by the literature, and demonstrate how the effect of hubris varies across industry conditions.

Finally, all these studies utilized cross-sectional surveys to obtain subjective measures of hubris reported by managers themselves and then linked these measures with R&D outcomes. The use of self-reported hubris measures in this context may result in biases that we will discuss in detail in a subsequent section. Furthermore, by using cross-sectional data only, these studies ignored changes in managerial hubris over time, whereas our study analyzes panel data, thereby capturing the longitudinal dynamics in hubris.

³ Tang et al. (2015a) specified a model in which both managerial hubris and R&D spending influence patents/new product sales, i.e., R&D intensity is treated as an explanatory variable instead of the dependent variable. Hence, their model is completely different from ours, which examines the impact of hubris on R&D spending. Furthermore, Tang et al. (2015a) reported an insignificant model-free correlation between hubris and R&D intensity based on a sample of Chinese firms, whereas we estimated a panel data model and affirm a significant effect of hubris on R&D intensity based on publicly listed U.S. firms.

⁴ Simon and Houghton (2003) examined small computer companies only, whereas Li and Tang (2010) and Tang et al. (2015a) studied Chinese firms in the manufacturing industry.

Hypothesis development

Corporate managerial hubris and strategic emphasis

The resource allocation pattern of a firm or its relative commitment to R&D versus advertising is a central decision that determines how a firm competes in the marketplace (Mizik and Jacobson 2003). Whereas R&D creates value for consumers through the innovation and delivery of new products, advertising enables firms to appropriate the value created (because it helps impede competition by raising barriers to imitation; Ghemawat 1991) and communicate this value to various stakeholders (e.g., consumers and investors; Xiong and Bharadwaj 2013). We expect that the relative focus of firms on advertising over R&D (i.e., strategic emphasis) varies depending on corporate managerial hubris.

R&D spending is crucial to product improvement or innovation, with the goal of enhancing consumer purchases or creating entirely new markets. Successful R&D projects can provide firms with competitive advantages, thereby boosting margins and firm values (Sorescu and Spanjol 2008). However, R&D requires a significant amount of resources, which can place a heavy financial burden on firms (Kor 2006). Moreover, the success of R&D is far from guaranteed, and the failure rate of new product introductions is disturbingly high (Min et al. 2006; Kashmiri et al. 2017). Even if the new product eventually becomes successful in the market, the recovery of initial R&D spending requires a significant amount of time (Moorman and Miner 1997), particularly for highly innovative products, because of slow adoptions stemming from perceived high risks (Chandy and Tellis 1998; Sorescu and Spanjol 2008). Competitor imitation also poses a threat to the market success of R&D as similar or even better products by competitors can emerge before the original product brings in sufficient revenues to compensate for the high costs of development and launch incurred by firms (Bayus et al. 1997).

We expect that corporate managerial hubris is likely to distort the perceptions of managers on the benefits and costs of R&D, thereby influencing firm R&D investments. Existing studies show that hubristic managers tend to overestimate the resources they have (Malmendier and Tate 2008) and underestimate the resources required to implement their strategies (Tang et al. 2015b), and the uncertainties of the situation (Li and Tang 2010). They also exhibit strong self-sufficiency and therefore are likely to believe in their own superior problem-solving abilities and expect positive outcomes under risky conditions (Hiller and Hambrick 2005). These characteristics of hubristic managers make them perceive the situation they face in a simplified and overly optimistic manner (Claxton et al. 2015). Consequently, they tend to exhibit increased confidence in the success of R&D investments and the potential of their innovations to attract customers and overcome the competition, thereby increasing commitment to R&D. In

sum, corporate managerial hubris may positively affect R&D spending.

Compared with R&D, which creates consumer value through new products or technologies, advertising communicates the value created to external stakeholders and extends the duration of exploiting the value (Mizik and Jacobson 2003; Xiong and Bharadwaj 2013). While emphasis on R&D is typically considered a risky and aggressive strategy for the firm to progress constantly, advertising is often used to “defend [a firm’s] position in the market against competition by erecting barriers to imitation” (Mizik and Jacobson 2003, p. 65). Advertising can enhance consumers’ perceived quality and reduce their perceived risks, consequently increasing the likelihood of purchase, decreasing price sensitivity, and improving loyalty (Mela et al. 1997; Mehta et al. 2008). Therefore, advertising helps improve the performance of a firm’s existing products.

Hubristic managers tend to be confident that their products or services are adequately superior to retain existing consumers and attract new ones (Tang et al. 2015b); thus, they are less inclined to act in defense of their market position or restrict competitive forces through advertising. Moreover, advertising appears less challenging compared with R&D because the former *typically* does not require firms to develop new technologies or apply new business methods. According to Griffin and Tversky (1992), hubristic individuals are prone to the “difficult effect” (i.e., they prefer difficult tasks over easy ones). Additionally, literature has demonstrated the entrepreneurial qualities of hubristic managers (e.g., Miller et al. 1982; Tang et al. 2015a). Furthermore, hubristic managers pay less attention to other stakeholders (Hayward and Hambrick 1997) and, thus, may undervalue the importance of communicating to them via advertising. Taken together, such decision makers are likely to place less emphasis on advertising relative to R&D. In summary, we hypothesize the following:

- H1: Corporate managerial hubris is negatively associated with the firm’s relative strategic emphasis on advertising (versus R&D).

Contingent effects of corporate managerial hubris

The effects of managers’ psychological traits on firm strategies depend on the level of managerial discretion (e.g., Crossland and Hambrick 2011). Managerial discretion is the latitude of actions available to managers in making and implementing strategic decisions (Hambrick and Finkelstein 1987). The rich stream of literature on managerial discretion suggests that when managers have more discretion, their psychological traits will be more embedded in firm strategies and thus will indirectly influence firm performance (e.g., Hambrick 2007; Wangrow et al. 2015). Therefore, managerial

discretion can serve as a key boundary condition in determining the influence of managers’ hubris on firm strategies (Li and Tang 2010; Tang et al. 2015b). Consequently, we focus on a cohesive set of contingency factors (*organizational* and *environmental*), all of which affect the room for managerial discretion and thus moderate the effect of corporate managerial hubris on investment decisions and strategic emphasis.

Organizational factors

Managers’ actions and choices are empowered or constrained by certain internal factors within an organization (Hambrick and Finkelstein 1987). Prior management studies suggest that managerial discretion can be shaped by organizational inertia, resource availability, and power dynamics among various stakeholders (e.g., Hambrick and Finkelstein 1987; Hambrick and Abrahamson 1995; Hambrick et al. 2005; Wangrow et al. 2015). Accordingly, we identify two major organizational factors, namely, *firm maturity* and *corporate governance*, which can moderate the hubris effect because of their influences on managerial discretion.

Firm maturity A key determinant of managerial discretion is organizational inertia (Hannan and Freeman 1984). In an inertial culture, hubristic managers have limited discretion because they are constrained by standardized routines, formalized rules, and control systems (Hannan and Freeman 1989; Kelly and Amburgey 1991). Organizational ecology literature suggests that a firm’s inertial culture is formed through its life cycle, that is, a more mature firm (a firm in a later stage of its life cycle) tends to exhibit greater inertia (Hambrick and Finkelstein 1987; Anthony and Ramesh 1992). Accordingly, prior research has pointed to the important role of firm maturity⁵ or life cycle stage in influencing firm strategy (e.g., Anthony and Ramesh 1992).

When a firm is in the early stage of its life cycle, managers are typically empowered with greater discretions in deploying the resources available to facilitate firm growth (Anthony and Ramesh 1992; Bulan and Subramanian 2009). As a firm matures and moves closer to the stagnant state, ensuring the accountability and reliability of what the firm provides consumers becomes important (Vera and Crossan 2004). Consequently, mature firms attempt to maintain the stability of organizational structures (Balkin and Montemayor 2000) and to formalize and standardize processes, thereby limiting the room for managerial discretion (Hannan and Freeman 1984). Therefore, as a firm matures, high inertia reduces room for hubristic managers to pursue their own agenda, thereby

⁵ A firm’s maturity is not solely determined by its age but reflects the extent to which a firm is growing or being stagnant (Anthony and Ramesh 1992). Therefore, firm maturity is measured as a composite score of various signals (including firm age) of firm vitality. A detailed scoring system is described in the “Data and measures” section.

impeding their psychological bias from affecting the firm's investment strategies. Mature firms also tend to have a wider and more complicated stakeholder base (Hannan and Freeman 1984), which constrains the discretion of hubristic managers because they are pressured to coordinate and incorporate diverse interests from various stakeholder groups when making strategic decisions (Hambrick and Finkelstein 1987; Shen and Cho 2005).

In summary, mature firms tend to exhibit greater organizational inertia that chiefly determines a firm's strategic direction, which in turn constrains the discretionary choices of hubristic managers (Li and Tang 2010) and mitigates their preferences for R&D over advertising when allocating firm resources. Therefore, we hypothesize the following:

- H2: The negative association between corporate managerial hubris and strategic emphasis on advertising (versus R&D) is weakened as a firm matures.

Corporate governance Corporate governance pertains to a firm's mechanism for monitoring and restricting managers' behaviors (Larcker et al. 2007). It reduces room for managerial discretion and impedes managers from pursuing their own interests at the cost of shareholder interests (Sundaramurthy 1996; Castañer and Kavadis 2013).

Strong corporate governance requires managers to justify and explain a proposed strategic plan, for which constructive criticisms are provided (McNulty and Pettigrew 1999). This process prevents hubristic managers from misinterpreting the reality of the situation and implementing unrealistically optimistic plans. Thus, hubristic managers may be hindered from overinvesting in R&D. They are also forced to communicate better with shareholders and incorporate their feedback in the presence of strong corporate governance. In contrast, managers in firms without strong corporate governance may enjoy increased discretion to pursue their own preferences because of the lack of monitoring and control mechanisms, thereby amplifying the effect of managerial hubris on a firm's strategic emphasis.

In sum, in the presence of strong corporate governance, hubristic managers are less likely to form the distorted judgment of the reality, neglect external stakeholders, and make investment decisions solely based on their own preferences. Thus, we expect that corporate governance can mitigate hubristic managers' tendency to allocate disproportionately high resources to R&D relative to advertising.

- H3: The negative association between corporate managerial hubris and strategic emphasis on advertising (versus R&D) is weakened as corporate governance strengthens.

Environmental factors

The task environment (e.g., industry factors) of a firm serves as an external influence on managerial discretion (Hambrick and Finkelstein 1987; Hambrick and Abrahamson 1995; Hambrick et al. 2005; Wangrow et al. 2015). The room for managerial discretion is reduced when a firm is pressured to conform to industry norms or react to competition. Therefore, we expect *industry-level strategic emphasis* and *industry competition* to moderate the effect of corporate managerial hubris on strategic emphasis.

Industry-level strategic emphasis We define industry-level strategic emphasis as the aggregated level of relative focus (on advertising relative to R&D) of all other firms in the same industry as the focal firm. Similar to other decisions, how much to invest in advertising or R&D for a firm's success is often unclear, and what the peers do can set a norm (March 1981). Haunschild and Miner (1997) found that firms tend to follow practices that many other firms in the same industry adopt. Deviation from industry norm can be considered as a rejection of the conventional wisdom incorporated in the industry consensus (Deephouse 1999), which may harm a firm's reputation and legitimacy (Haunschild and Miner 1997; Philippe and Durand 2011) and diminish its ability to acquire resources from exchange partners (Porac et al. 1989). Thus, Hambrick et al. (2005) suggested that isomorphism (the need to be like other firms in the industry) reduces managerial discretion.

For these reasons, if the industry norm is to emphasize advertising more instead of R&D, managerial discretion to do the opposite will be limited, leaving hubristic managers less room to pursue their own interests. Therefore, we expect that the negative effect of corporate managerial hubris on a firm's strategic emphasis on advertising becomes mitigated when the industry-level strategic emphasis on advertising is high.

- H4: The negative association between corporate managerial hubris and strategic emphasis on advertising (versus R&D) is weakened when the industry-level strategic emphasis on advertising (versus R&D) is higher.

Industry competition Industry competition strengthens as industry concentration decreases and more competitors emerge (Keats and Hitt 1988; Palmer and Wiseman 1999). High competition leaves less room for discretionary choices of hubristic managers in resource allocation and mitigates their influences on strategic emphasis for two reasons. First, in a highly competitive market where firms can easily lose market shares to their competitors, consumer and distributor loyalty becomes highly crucial, such that substantial advertising campaigns are

no longer options but requirements (e.g., Mizik and Jacobson 2003). Thus, hubristic managers may be forced to spare more resources from areas they are most passionate about (e.g., R&D) and instead devote increasing efforts in advertising to maintain the firm's market position.

Second, as competition intensifies, maintaining good relationships with various other stakeholders (such as investors and partner firms) in addition to its consumers is also important for a firm (e.g., Xiong and Bharadwaj 2013). This aspect increases the complexity of corporate decision-making because managers have to consider more about the interests and preferences of these stakeholders instead of merely satisfying their own desires (e.g., Tang et al. 2015b). Thus, hubristic managers in a highly competitive industry have to compromise their own preferences when making investment decisions. Taken together, we expect that:

- H5: The negative association between corporate managerial hubris and strategic emphasis on advertising (versus R&D) is weakened when industry competition is higher.

Data and measures

Corporate managerial hubris

Measuring hubris requires capturing the degree in which a subject's judgment is positively biased (Kahneman and Tversky 1995). Thus, prior studies have attempted to capture the extent to which individual managers or executives predict a firm's prospects in a self-confident manner to measure managerial hubris (e.g., Tang et al. 2015a). In the present study, to match the firm-level dependent variable (corporate-wide spending on advertising, R&D, and the relative emphasis between the two), a firm-level managerial hubris measure (i.e., corporate managerial hubris) is required. Consistent with the growing body of literature using textual analysis to examine management attitudes, we follow Loughran and McDonald (2011) and measure corporate managerial hubris based on the tone of firm press releases.

Press releases issued by firms are under the complete control of their management teams, whereas news releases from other media are not. Previous studies demonstrate that executives have "very stringent guidelines for external announcements and personally review all but most routine issuances" (Chatterjee and Hambrick 2007, p. 364). Thus, the tone of firm press releases reflects how a firm's management interprets its situations and future prospects, and may be largely influenced by the mental status of top executives (e.g., CEOs who are likely to be well-informed by chief finance officers and other executives; see Tang et al. 2015a). Specifically, we use the proportion of positive and strong modal words relative

to the total number of non-numerical words in all firm press releases published during a year because such words reflect the managers' optimism and confidence (Jordan 1999; Loughran and McDonald 2011). Tone management literature suggests that the positivity of the tone serves as a good proxy for the confidence and pride levels of managers (e.g., Huang et al. 2013; Yan 2015; Lee et al. 2017). Prior research shows that hubristic managers are strongly ego-driven and self-aggrandizing (Tang et al. 2015a) and thus tend to use a larger number of strong words in press releases to reflect "certainty" (Boulton and Campbell 2016). For these reasons, we adopt the measure based on positive and strong modal words following previous studies (e.g., Loughran and McDonald 2011; Yan 2015; Boulton and Campbell 2016).

This measure based on textual analysis has several advantages over survey-based measures (survey measures have their own merits in various contexts, but they may not be the most suitable for this study). First, we examine managerial hubris across time for over 10 years. A retrospective survey that asks managers to recall their hubris level in the past has low validity, whereas a large-scale longitudinal survey is costly and difficult to implement. Second, survey respondents tend to answer questions in a manner that is viewed positively by others (Thompson and Phua 2005). Therefore, they may be conservative in reporting certain psychological traits to avoid being perceived as overconfident or arrogant. Consequently, potential social desirability bias is likely to reduce accuracy of the self-reported measures of hubris. For the same reason, extant research has suggested the use of unobtrusive measures instead (e.g., Chatterjee and Hambrick 2007) because managers tend to be unwilling to reveal their true psychological traits in such surveys (Cycyota and Harrison 2002; Tang et al. 2015b). Third, a growing body of finance research shows that the management team's hubristic mental status is collectively reflected by the tone in firm press releases, which can translate into firm behaviors (Loughran and McDonald 2011; Lee et al. 2017). By using measures based on the text mining of such publicly available firm statements, we examine the same data that external stakeholders also have access to. Therefore, this research suggests an efficient approach for stakeholders to predict firm strategic emphasis by continuously tracking corporate managerial hubris without directly surveying them.

We obtained all press releases issued by firms listed in ExecuComp, which covers Standard and Poor's 1500 firms, between 1993 and 2007 from the LexisNexis academic database and the Wall Street Transcript Service to measure corporate managerial hubris. We then conducted textual analysis to identify the positive and strong modal words in firm press releases (Jordan 1999; Loughran and McDonald 2011; Boulton and Campbell 2016). Examples of positive words include *best*, *brilliant*, *able*, *distinctive*, *efficient*, *strong*, *superior*, *achieve*, *attain*, *excellence*, *pleasure*, and *upturn*. The list of strong modal words includes *always*, *highest*, *must*, *will*, etc., as opposed to weak modal words, such as *could*,

depending, might, and possibly.⁶ We use the proportion of these positive and strong modal words in all press releases issued by firm i in each year t to measure corporate managerial hubris.

Although the psychological trait measurements of managers based on the textual analysis of press releases have been widely adopted in the management and finance literature, as the first study to introduce them in marketing research, we use human raters to assure their face validity following Hill et al. (2014). Specifically, we recruited human subjects from a third-party data vendor to rate the perceived levels of corporate managerial hubris after reading a press release. Each of the 170 qualified respondents rated seven press releases randomized from our sample in a 10-point Likert scale.⁷ We checked the correlation between standardized human ratings of corporate managerial hubris and our measure based on the textual analysis (i.e., the proportion of positive and strong modal words) and found a high correlation ($\rho = 0.505$), thereby suggesting satisfactory face validity.

We also constructed an alternative measure based on the positivity of the tone (i.e., the proportion of positive words alone in firm press releases) according to Yan (2015) and Loughran and McDonald (2011). Its correlation with the human ratings described above is also high ($\rho = 0.404$), which confirms its face validity. We found consistent results using this alternative operationalization of corporate managerial hubris as detailed in the “Robustness check” section.

We matched data on corporate managerial hubris with data on the other variables of interest (as detailed below) from various sources. After eliminating missing observations,⁸ we obtained a

final sample of an unbalanced panel, including 1914 firm-year observations for 469 firms. Data shows that managerial hubris varied not only across firms but also across time within each firm.⁹ Our unique data capture the variation in corporate managerial hubris across a large number of firms over a long period, thereby allowing us to examine its effect on firm strategy at a scale and scope beyond most extant studies on managers’ psychological traits.

Strategic emphasis

We measured a firm’s strategic emphasis, i.e., the relative emphasis on advertising versus R&D, as $SE_{it} = (\text{Advertising Spending}_{it} - \text{R\&D Spending}_{it}) / \text{Total Assets}_{i,t-1}$ (e.g., Mizik and Jacobson 2003; Josephson et al. 2016). The annual data on advertising spending, R&D spending, and the total assets were obtained from Compustat.

Contingency variables

Industry competition We employed 1 minus the Herfindahl index ($HERF = \text{sum of squared market shares for all the firms in an industry identified based on a two-digit SIC}$), which identifies industry concentration, as an indicator of industry competition. A high (low) value of this measure (i.e., $1 - HERF$) indicates high (low) market competition (Keats and Hitt 1988).

Corporate governance We adopted the corporate governance index developed by Gompers et al. (2003) to measure the strength of a firm’s corporate governance. We initially collected data from publications issued by the Investor Responsibility Research Center (IRRC) to construct the index. The IRRC lists 24 distinct corporate governance provisions based on various public sources, which include corporate bylaws and charters, annual reports, proxy statements, and SEC filings. Following Gompers et al. (2003), we counted the number of provisions for each firm i in year t that limit its shareholder rights (i.e., enhance managers’ power) to index the *weakness* in corporate governance. For easy interpretation, we subtract the weakness score from the total number of the provisions (i.e., 24) to measure the *strength* of corporate governance.

Firm maturity According to Anthony and Ramesh (1992), we measured the firm’s maturity based on three distinct indicators, namely, dividend payout, sales growth, and firm age.¹⁰ We categorized the firms into three groups (small, medium,

⁶ Loughran and McDonald (2011) developed a dictionary of positive and strong modal words (available at www3.nd.edu/~mcdonald/Word_Lists.html) by combining the words they identified in all 10-K filings from 1994 to 2008 and those words in the *Harvard Psychosociological Dictionary* (available at www.wjh.harvard.edu/~inquirer/). A complete list of the positive and strong modal words is available at www3.nd.edu/~mcdonald/Word_Lists.html.

⁷ We thank the review team for the suggestions on checking face validity. The sequence of the press releases is randomized for each respondent to minimize potential anchoring bias (i.e., a subject’s rating may be biased depending on his/her experience of rating press releases presented earlier in the survey). In addition, the respondents have the option to go back to review the press releases that they have already rated and revise their ratings.

⁸ Not all firms listed in ExecuComp are included in the final sample because not all firms are included in the Investor Responsibility Research Center (IRRC) database, which provides data for corporate governance (one of the proposed moderators). The IRRC firm list is based on S&P 500 plus the largest corporations included in the annual lists of *Forbes*, *Fortune*, and *Businessweek*. It covers a majority of the value-weighted market (IRRC tracked over 93% of the total capitalization of NYSE, AMEX, and NASDAQ combined in 1990 and was expanded by several hundred in 1998). We conducted t-tests for advertising, R&D, and strategic emphasis between the two samples before and after removing the observations with missing corporate governance data. The t-test results indicate that the means of the key variables are not significantly different across the two samples, and our results are unlikely to be subject to sample selection. We also used the original sample based on ExecuComp to test H1, H2, H4, and H5 *without* including corporate governance as a moderator. We found consistent results on these hypotheses. Therefore, our results are not biased because of the loss of observations.

⁹ Our corporate managerial hubris has a mean of 2%, a between standard deviation of 0.5%, and a within standard deviation of 0.3%.

¹⁰ Anthony and Ramesh (1992) also proposed capital expenditure as an alternative indicator of firm maturity but found that it has relatively lower explanatory power. Thus, we did not use it in the main analysis. However, as a robustness check, we used it as an alternative measure to rerun the models and found substantially consistent results.

and large) based on the size of each indicator and assigned a value for each group, as specified by Anthony and Ramesh (1992, page 207; specifically, 1 for firms with small dividend payout, high sales growth, and young age; 3 for firms with high dividend payout, low sales growth, and old age; and 2 for firms with medium dividend payout, medium sales growth, and adult age). We computed the summated scores across all three indicators and used them as the indicator of firm maturity.¹¹ Thus, a high final score corresponds to high maturity.

Industry-level strategic emphasis We calculated the values of strategic emphasis for all the firms *except* for the focal firm in an industry and used their average as industry-level strategic emphasis. We excluded the focal firm when calculating the average because we aimed to capture peer pressure from other firms (i.e., competitors) on the focal firm in terms of marketing budget allocation and resulting strategic emphasis.

Control variables

Based on prior research explaining firm strategic emphasis, advertising, and R&D intensity, we included a comprehensive set of control variables, namely, firm size, financial slack, presence of powerful Chief Marketing Officer (CMO), year dummies, and the one-year lagged dependent variable. We measured firm size (Firm_size) as the log of the total number of employees. Previous studies have widely adopted this proxy for firm size to avoid potential collinearity with other control variables associated with sales and/or assets (e.g., Nath and Mahajan 2011).¹² We measured the firm's financial slack (Firm_slack) with working capital available divided by the total assets according to Josephson et al. (2016).¹³ The presence of a powerful CMO (CMO_Power) is a binary variable that indicates whether firm *i* in year *t* has a top-paid CMO, under the assumption that CMO compensation reflects his/her power in the firm (Nath and Mahajan 2011; Kim et al. 2016). We identified top-paid CMOs from the ExecuComp database following Kim et al. (2016). Finally, we included one-year lagged dependent variable to control for firm-specific

persistence in strategic emphasis (Kang and Montoya 2014; Josephson et al. 2016) and added year dummies to account for the effects of macroeconomic conditions. We summarize the list of variables in the Appendix Table 7.

Empirical analysis

We specify the empirical model with the interaction terms below.

$$\begin{aligned} SE_{i,t+1} = & \alpha_0 + \alpha_1 SE_{it} + \alpha_2 Hubris_{it} + \alpha_3 Hubris_{it} \\ & \times Firm_Maturity_{it} + \alpha_4 Hubris_{it} \times Corporate_Governance_{it} \\ & + \alpha_5 Hubris_{it} \times Ind_Strategic_Emphasis_{it} + \alpha_6 Hubris_{it} \\ & \times Ind_Competition_{it} + \alpha_7 Firm_Maturity_{it} \\ & + \alpha_8 Corporate_Governance_{it} + \alpha_9 Ind_Strategic_Emphasis_{it} \\ & + \alpha_{10} Ind_Competition_{it} + \varphi' Controls_{it} + e_{i,t+1}^{SE}, \end{aligned} \quad (1)$$

where *i* indexes a firm, *k* indexes an industry, *t* indexes a year, SE is the firm's strategic emphasis on advertising relative to R&D, Hubris is the corporate managerial hubris, Firm_Maturity is the firm's maturity score, Corporate_Governance is the firm's corporate governance index, Ind_Strategic_Emphasis is the average of strategic emphasis for all the firms in an industry, except focal firm *i*, Ind_Competition is the industry competition, Controls is the vector of other control variables specified above (i.e., Firm_size, Firm_slack, CMO_Power, and year dummies), and $e_{i,t+1}^{SE}$ is the error term. We use lagged independent variables (i.e., dependent variable measured at *t* + 1) based on the hubris literature (e.g., Tang et al. 2015b) because, conceptually, the current psychological status of the managers is likely to influence the firm's strategies in the forthcoming period. This practice also assures the time precedence of cause over effect, alleviating the reverse causality concern (Kim et al. 2016; Josephson et al. 2016). The coefficients α_2 , α_3 , α_4 , α_5 , and α_6 correspond to the testing of H1, H2, H3, H4, and H5, respectively.

We estimate the following equations to explore the underlying mechanisms that drive the hypotheses (i.e., whether the effect of executive hubris on strategic emphasis is driven by its influence on R&D intensity, advertising intensity, or both).

$$\begin{aligned} R\&D_Intensity_{i,t+1} = & \beta_0 + \beta_1 R\&D_Intensity_{it} + \beta_2 Hubris_{it} \\ & + \beta_3 Hubris_{it} \times Firm_Maturity_{it} + \beta_4 Hubris_{it} \\ & \times Corporate_Governance_{it} + \beta_5 Hubris_{it} \\ & \times Ind_Strategic_Emphasis_{it} + \beta_6 Hubris_{it} \\ & \times Ind_Competition_{it} + \beta_7 Firm_Maturity_{it} \\ & + \beta_8 Corporate_Governance_{it} \\ & + \beta_9 Ind_Strategic_Emphasis_{it} \\ & + \beta_{10} Ind_Competition_{it} + \psi' Controls_{it} \\ & + e_{i,t+1}^{RD}, \text{ and} \end{aligned} \quad (2)$$

¹¹ Based on the sum, Anthony and Ramesh (1992) further grouped the firms into five different stages of corporate life cycle, and assigned each stage a 1 to 5 score to indicate firm maturity. We found consistent results when using the 5-stage measure to replace the original summated score. Therefore, our results are robust to the alternative operationalization of firm maturity.

¹² We also tested the models with the market capitalization log (i.e., log [total number of shares outstanding × closing price]) as a proxy for firm size. The results on the hypothesized variables remained consistent.

¹³ Josephson et al. (2016) examined a firm's strategic slack, which is measured as the total revenue divided by R&D spending. We did not include strategic slack as a control variable for two reasons. First, strategic slack is the reciprocal of R&D intensity and is not conceptually meaningful to predict R&D intensity with its reciprocal. Second, including strategic slack reduces sample size because strategic slack becomes a missing value when R&D spending (the denominator) is zero. That said, when including strategic slack as an additional control variable in our model predicting strategic emphasis, we found consistent results on the hypothesized effects.

$$\begin{aligned}
\text{ADV_Intensity}_{i,t+1} = & \gamma_0 + \gamma_1 \text{ADV_Intensity}_{it} + \gamma_2 \text{Hubris}_{it} \\
& + \gamma_3 \text{Hubris}_{it} \times \text{Firm_Maturity}_{it} + \gamma_4 \text{Hubris}_{it} \\
& \times \text{Corporate_Governance}_{it} + \gamma_5 \text{Hubris}_{it} \\
& \times \text{Ind_Strategic_Emphasis}_{it} + \gamma_6 \text{Hubris}_{it} \\
& \times \text{Ind_Competition}_{it} + \gamma_7 \text{Firm_Maturity}_{it} \quad (3) \\
& + \gamma_8 \text{Corporate_Governance}_{it} \\
& + \gamma_9 \text{Ind_Strategic_Emphasis}_{it} \\
& + \gamma_{10} \text{Ind_Competition}_{it} + \chi' \text{Controls}_{it} \\
& + e^{\text{AD}}_{i,t+1},
\end{aligned}$$

where R&D_Intensity and ADV_Intensity are the R&D and advertising intensities, respectively, and $e^{\text{RD}}_{i,t+1}$ and $e^{\text{AD}}_{i,t+1}$ are the error terms.

We estimated each model using two-stage least squares (2SLS) with an instrumental variable (IV) to account for the potential endogeneity of corporate managerial hubris.¹⁴ We used industry-level managerial hubris, an aggregated measure of hubris for all the firms except for a focal firm in the industry, as the IV. The selection of this instrument is consistent with previous studies (e.g., Germann et al. 2015), which suggests that peer firms' level of the variable of interest serves as a good instrument in related contexts.¹⁵ We also tested the statistical significance of the estimated coefficients using robust standard errors adjusted by firm-level clustering, which incorporates firm-level serial correlations among error terms (e.g., Petersen 2009).

Results

Table 2 reports the descriptive statistics of the variables and their bivariate correlations. The means of Hubris, SE, R&D_Intensity, and ADV_Intensity are 0.020, −0.010, 0.052, and 0.042, respectively. The model-free correlation between Hubris_t and SE_{t+1} is negative and significant, as expected in H1 ($\rho = -.057, p < .05$).

The results from our 2SLS estimations are presented in Table 3. The maximum variance inflation factor obtained after estimating the model (Eq. 1) was 4.59 (less than 10), indicating that multicollinearity is not an issue (e.g., Kim et al. 2016).

¹⁴ Kleibergen-Paap LM test indicated that the model is identified.

¹⁵ We tested the qualification of the IV (i.e., peer firms' hubris) following Germann et al. (2015) and found that the instrument is a significant predictor of a focal firm's hubris in the first-stage regression based on the Cragg-Donald Wald F-statistic ($F = 108.4, p < 0.001$). Moreover, we tested our model using additional instruments to check the robustness of the results to the selection of IVs. We added the average tenure of the executives (data obtained from ExecuComp) and CEO's education level (data obtained from S&P NetAdvantage) as instruments because they may be associated with the executives' hubris (e.g., Finkelstein and Hambrick 1990; Hayward and Hambrick 1997) but do not directly influence a firm's relative focus on R&D versus advertising. The inclusion of these instruments yielded consistent results.

The main effect of Hubris on SE is negative and significant ($-.0455, p < .01$), as shown in Column 1 of Table 3, and this main effect remains consistent when various moderators are added to the model, as shown in Column 4 of Table 3. Therefore, we find support for H1, that is, the higher corporate managerial hubris, the lower the emphasis on advertising relative to R&D. Based on the moderating effects shown in Column 4 of Table 3 we find that firm maturity (Firm_Maturity) significantly mitigates the negative effect of Hubris on SE ($.0128, p < .01$), which supports H2. Therefore, hubristic managers are less likely to overemphasize R&D in highly mature firms. Corporate governance (Corporate_Governance) also mitigates the negative effect of Hubris on SE ($.0026, p < .05$), which supports H3. The result suggests that firms with strong corporate governance constrain hubristic managers' risk-taking preference. Based on the moderating effects of external factors, the positive and significant interaction effect between industry SE and Hubris ($.0149, p < .05$) supports H4, which indicates that when peer firms focus heavily on advertising or "value exploitation," hubristic managers are less inclined to do the opposite. Finally, industry competition (Ind_Competition) does not exhibit a significant moderating effect ($.0276, p > .10$). Thus, H5 is not supported. A possible explanation is that the strong confidence of hubristic managers may drive them to underestimate the competition or difficulty of achieving R&D success under high competition (Galasso and Simcoe 2011).

Columns 2, 3, 5, and 6 of Table 3 provide insights into whether the effect of Hubris on SE occurs through its effect on R&D_Intensity, ADV_Intensity, or both. The results reveal different mechanisms underlying the main effect and various interaction effects. Hubris has a significant and positive main effect on R&D_Intensity ($.0681, p < .01$ in Column 2) but a significant and negative effect on ADV_Intensity ($-.0063, p < .05$ in Column 3). Thus, with all else being equal, the firm is likely to invest more in R&D with a significant decrease in advertising investments as Hubris increases. Such disproportionate resource allocation increases the chance of over-investing in value creation in isolation of value appropriation (which, according to Mizik and Jacobson [2003], can significantly harm firm value).

Different contingency factors also varied in terms of how they influence the effect of hubris: some contingency factors have moderating effects on both R&D and advertising, whereas others have moderating effects on R&D alone. For instance, the interaction term between Firm_Maturity and Hubris has a significant effect not only on R&D_Intensity ($.0159, p < .01$ in Column 5) but also on ADV_Intensity ($.0022, p < .01$ in Column 6). Both effects explain their role in mitigating the effect of Hubris on the firm's SE. In contrast, Corporate_Governance and Ind_Strategic_Emphasis only moderate the effect of Hubris on R&D_Intensity but not on ADV_Intensity.

Table 2 Summary statistics and bivariate correlations

No.	Variables	Mean	S.D.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1)	SE _{t+1}	-0.010	0.091										
(2)	R&D_Intensity _{t+1}	0.052	0.064	-0.797 ^a									
(3)	ADV_Intensity _{t+1}	0.042	0.057	0.708 ^a	-0.141 ^a								
(4)	Hubris _t	0.020	0.005	-0.057 ^b	0.122 ^a	0.047 ^b							
(5)	Firm_Maturity _t	6.480	1.816	0.231 ^a	-0.214 ^a	0.126 ^a	0.136 ^a						
(6)	Corporate_Governance _t	10.84	2.616	-0.062 ^a	0.120 ^a	0.039 ^c	-0.088 ^a	-0.288 ^a					
(7)	Ind_Competition _t	0.941	0.051	-0.196 ^a	0.280 ^a	0.005	0.061 ^a	-0.030	0.034				
(8)	Ind_Strategic_Emphasis _t	-0.077	0.614	0.161 ^a	-0.167 ^a	0.067 ^a	-0.028	0.012	-0.019	-0.106 ^a			
(9)	Firm_Size _t	2.277	1.550	0.347 ^a	-0.383 ^a	0.122 ^a	0.095 ^a	0.436 ^a	-0.162 ^a	-0.213 ^a	0.104 ^a		
(10)	Firm_Slack _t	0.237	0.194	-0.320 ^a	0.349 ^a	-0.117 ^a	-0.086 ^a	-0.294 ^a	0.150 ^a	0.071 ^a	-0.117 ^a	-0.532 ^a	
(11)	CMO_Power _t	0.249	0.433	-0.163 ^a	0.198 ^a	-0.037	0.005	-0.173 ^a	0.134 ^a	0.036	0.011	-0.308 ^a	0.222 ^a

^a $p < 0.01$, ^b $p < 0.05$, ^c $p < 0.10$

We plotted the contingency effects of Hubris based on the results when each moderating variable is one standard deviation above and below its mean.

The negative effect of Hubris on SE is stronger (i.e., hubristic managers are even more likely to over-emphasize R&D) when the value for Firm_Maturity is smaller (i.e., when a firm is in an earlier stage in maturity spectrum), as shown in Fig. 1. Similar effects can be observed for Corporate_Governance and Ind_Strategic_Emphasis. However, Ind_Competition does not significantly alter the effect of Hubris on SE.

Robustness check

First, we checked the robustness of the results to alternative operationalizations of key variables. Columns 1–3 of Table 4 reported that the estimated main and interaction effects remain largely unchanged when using the proportion of positive words alone to measure corporate managerial hubris (i.e., the focal independent variable). Therefore, our results are robust to both proxies for corporate managerial hubris employed by previous studies (Loughran and McDonald 2011; Huang et al. 2013; Yan 2015; Lee et al. 2017). In addition, we constructed an alternative measure of industry-level strategic emphasis, which is the weighted average of strategic emphasis for other firms in a focal firm's industry (using their market shares as weights). The logic is that larger firms in the industry could have a stronger influence on the focal firm than smaller ones. We found consistent results (Columns 4–6 of Table 4) that support H1, H2, H3, and H4.

Second, we checked the robustness of the results to different model specifications. We conducted additional analyses to further account for potential endogeneity due to common unobservables, which could drive both Hubris and R&D_Intensity (or ADV_Intensity). In the main analysis, we employed the aggregated hubris within a focal firm's

industry as IV. However, one may be concerned about a possible correlation between this IV and the unobservables (e.g., industry hubris could co-move with unobservables such as industry opportunities). To address this potential concern on the exclusion restriction, we constructed an alternative IV, i.e., the weighted average of hubris of all the industries uncorrelated with a focal firm's industry (we considered two industries as uncorrelated if the correlation between their sales growth rates is not significant at 10% level). Within each uncorrelated industry, we computed the weighted average of hubris for all firms, using firms' market shares as weights. For each focal firm in our sample, we summated the weighted hubris of all the uncorrelated industries and used it as the alternative IV (alt_IV) to re-estimate our model using 2SLS.¹⁶ As reported in Columns 1 in Table 5, these results are largely similar to those reported in Table 3.

In addition, we re-estimated the model with three-stage least squares (3SLS). This method is efficient and accounts for the potential correlation between the errors in Eqs. 1, 2, and 3. Specifically, we estimated the system of equations (Eqs. 1, 2, and 3, plus an additional equation predicting Hubris with the main IV and the alternative IV, respectively). Columns 2 and 3 of Table 5 show that the results are robust to 3SLS and both IVs.

Finally, we estimated a random effects¹⁷ panel data model with 2SLS based on the study of Germann et al. (2015) using the main IV and the alternative IV, and the results remain largely consistent, as reported in Columns 4 and 5 of Table 5.

¹⁶ We thank an anonymous reviewer and the associated editor for their suggestion on the new IV.

¹⁷ We estimate the random-effects instead of fixed-effects model because some of our focal moderators exhibit low variability across time within the firm, making the fixed-effects model inappropriate. Unlike the fixed-effects model, the random-effects model cannot independently account for time-invariant firm-specific unobservables. Therefore, when estimating the random-effects model, we corrected for the potential bias of unobservables using 2SLS with the instrument variable.

Table 3 The effects of management team's hubris on strategic emphasis, R&D, and advertising intensity

Variables	(1) DV: SE _{t+1} (baseline model)	(2) DV: R&D_ Intensity _{t+1} (baseline model)	(3) DV: ADV_ Intensity _{t+1} (baseline model)	(4) DV: SE _{t+1} (full model)	(5) DV: R&D_ Intensity _{t+1} (full model)	(6) DV: ADV_ Intensity _{t+1} (full model)
Hubris	-0.0455*** (-3.67)	0.0681*** (3.54)	-0.0063** (-2.31)	-0.0516*** (-3.62)	0.0709*** (3.57)	-0.0072** (-2.38)
Hubris × Firm_Maturity	—	—	—	0.0128*** (3.36)	-0.0159*** (-3.19)	0.0022*** (2.70)
Hubris × Corporate_Governance	—	—	—	0.0026** (2.13)	-0.0032* (-1.94)	0.0001 (0.47)
Hubris × Ind_Strategic_Emphasis	—	—	—	0.0149** (2.03)	-0.0189** (-2.15)	0.0003 (0.34)
Hubris × Ind_Competition	—	—	—	0.0276 (0.61)	-0.0514 (-0.84)	-0.0078 (-0.62)
Firm_Maturity	0.0016** (2.05)	-0.0024** (-2.20)	0.0004* (1.72)	0.0011 (1.45)	-0.0016 (-1.62)	0.0003 (1.35)
Corporate_Governance	-0.0004 (-0.79)	0.0010 (1.53)	-0.0000 (-0.06)	-0.0002 (-0.41)	0.0007 (1.27)	0.0000 (0.28)
Ind_Strategic_Emphasis	-0.0013 (-0.73)	0.0002 (0.11)	0.0001 (0.25)	-0.0023 (-0.89)	0.0017 (0.67)	0.0002 (0.36)
Ind_Competition	-0.0111 (-0.56)	0.0334 (1.31)	0.0011 (0.18)	-0.0308* (-1.71)	0.0579*** (2.59)	-0.0003 (-0.05)
Firm_Size	0.0021* (1.80)	-0.0039*** (-2.78)	-0.0000 (-0.03)	0.0013 (1.16)	-0.0026** (-2.02)	-0.0001 (-0.45)
Firm_Slack	-0.0229*** (-2.82)	0.0313*** (2.83)	-0.0022 (-0.99)	-0.0202** (-2.53)	0.0262** (2.56)	-0.0016 (-0.73)
CMO_Power	-0.0014 (-0.45)	0.0015 (0.46)	-0.0005 (-0.38)	-0.0014 (-0.43)	0.0015 (0.45)	-0.0005 (-0.42)
Lagged DV	0.8034*** (23.28)	0.6413*** (9.67)	0.9023*** (43.17)	0.8001*** (22.99)	0.6579*** (10.28)	0.8988*** (42.73)
Intercept	-0.0015 (-0.25)	0.0279*** (3.51)	0.0056** (2.04)	-0.0011 (-0.19)	0.0257*** (3.61)	0.0058*** (2.12)
Observations (# of firms)	1914 (469)	1914 (469)	1914 (469)	1914 (469)	1914 (469)	1914 (469)
Adjusted R ²	0.790	0.518	0.917	0.796	0.565	0.918

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. All the independent and moderator variables were measured at t and the dependent variable was measured at $t + 1$. Robust t -statistics adjusted by firm-level clustering are reported in the parenthesis, and the coefficients for year dummies are not reported. We mean centered the variables associated with the interaction terms to reduce the multicollinearity. We estimated 2SLS models which include one-year lagged dependent variable as a control variable

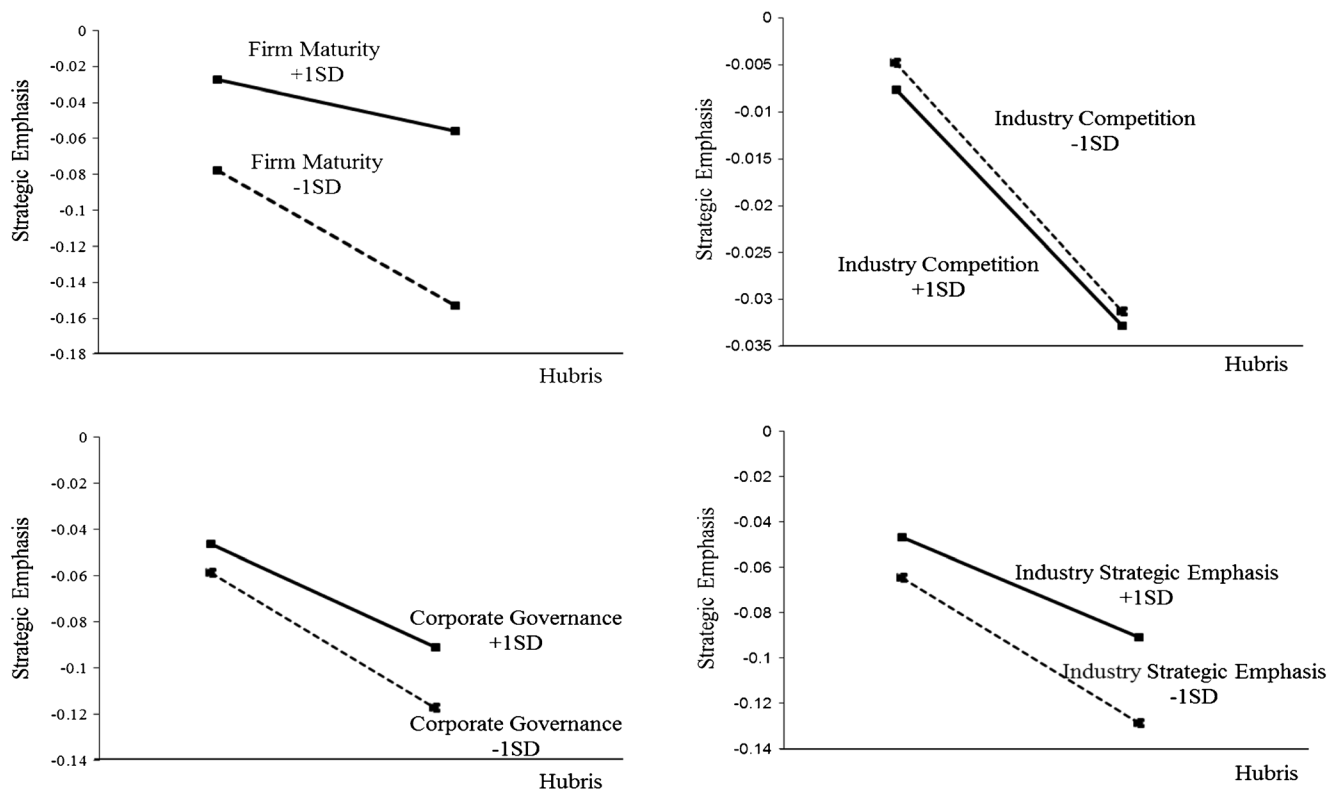


Fig. 1 Effects of corporate managerial hubris on strategic emphasis: contingent effects

Therefore, our results are robust to alternative measures, estimation approaches, and IVs.

Discussion

Theoretical contributions

The determinants of firm marketing budget or spending have constantly attracted the attention of marketing researchers and managers (e.g., Chakravarty and Grewal 2011; Currim et al. 2012). The present study adds several distinct insights to this stream of literature. First, we identify a unique driver of advertising and R&D spending, namely, corporate managerial hubris, which has largely been ignored in the marketing literature. Second, in addition to examining the direct impact (main effect) of managerial hubris, we demonstrate that this effect can be magnified or mitigated by various internal and external factors of the firm. Third, in contrast to prior research that examines R&D spending and advertising spending independently and separately (e.g., Baber et al. 1991; Joseph and Richardson 2002; Chakravarty and Grewal 2011; Currim et al. 2012), we compare the effect on advertising intensity versus R&D intensity and thus, speak to the relative strategic focus of the firm (Josephson et al. 2016). Fourth, by analyzing a large-scale panel data set, we empirically demonstrate the

asymmetric main effects of corporate managerial hubris on advertising versus R&D intensity as well as the boundary conditions.

Despite extensive marketing literature on *consumer* psychology and its influence on consumer decision making, marketing researchers have paid little attention to the psychological attributes of *managers* and how they influence marketing strategy. The present research is among the first to fill this research gap by demonstrating managers' psychological bias in firm resource allocation to R&D versus advertising. A firm's relative strategic emphasis is an important construct in marketing strategy (e.g., Mizik and Jacobson 2003; Swaminathan et al. 2008; Aspara and Tikkanen 2013). However, extant research has focused chiefly on the consequences of strategic emphasis and offered minimal insights into its antecedents. The present study adds to marketing theory by unveiling a novel driver of this fundamental marketing construct related to value creation versus appropriation or exploration versus exploitation (McAlister et al. 2007; Josephson et al. 2016), as well as its contingency effects.

Management scholars have recognized the role of managerial hubris in influencing a firm's R&D *output* (Simon and Houghton 2003; Li and Tang 2010; Tang et al. 2015a). The current study extends this stream of literature by explicitly examining R&D *input* (i.e., R&D spending) and, also importantly, its position in firm resource allocation relative to advertising spending. Moreover, we employed longitudinal data

Table 4 Robustness check with alternative measures of corporate managerial hubris and industry-level strategic emphasis

Variables	(1) DV: SE _{t+1} Alternative Measure for Hubris: Hubris = # of positive words / # of total words	(2) DV: R&D_ Intensity _{t+1}	(3) DV: ADV_ Intensity _{t+1}	(4) DV: SE _{t+1} Alternative Measure for Industry SE: Ind_Strategic_Emphasis = average of strategic emphasis for other firms in focal firm's industry weighted by market share	(5) DV: R&D_ Intensity _{t+1}	(6) DV: ADV_ Intensity _{t+1}
Hubris	−0.0475*** (−3.88)	0.0640*** (4.03)	−0.0066** (−2.48)	−0.0420*** (−3.42)	0.0619*** (3.53)	−0.0050* (−1.79)
Hubris × Firm_Maturity	0.0114*** (3.54)	−0.0137*** (−3.51)	0.0020*** (2.72)	0.0104*** (3.18)	−0.0136*** (−3.12)	0.0016** (2.18)
Hubris × Corporate_Governance	0.0024** (2.28)	−0.0029** (−2.29)	0.0000 (0.08)	0.0022** (2.14)	−0.0028* (−1.96)	0.0000 (0.09)
Hubris × Ind_Strategic_Emphasis	0.0074* (1.78)	−0.0112** (−2.28)	−0.0007 (−0.68)	0.0446** (2.44)	−0.0509** (−2.13)	0.0099** (2.44)
Hubris × Ind_Competition	0.0508 (0.92)	−0.0934 (−1.45)	−0.0122 (−0.76)	0.0532 (1.23)	−0.0815 (−1.36)	0.0006 (0.04)
Firm_Maturity	0.0009 (1.42)	−0.0013* (−1.74)	0.0003 (1.21)	0.0008 (1.24)	−0.0012 (−1.44)	0.0002 (1.02)
Corporate_Governance	−0.0002 (−0.54)	0.0007 (1.43)	0.0000 (0.22)	−0.0002 (−0.44)	0.0007 (1.35)	0.0000 (0.31)
Ind_Strategic_Emphasis	−0.0013 (−0.69)	0.0004 (0.24)	0.0001 (0.26)	0.0217*** (2.58)	−0.0172** (−2.05)	0.0058** (2.47)
Ind_Competition	−0.0288* (−1.89)	0.0561*** (2.99)	0.0004 (0.07)	−0.0035 (−0.21)	0.0354 (1.64)	0.0063 (1.02)
Observations (# of firms)	1914 (469)	1914 (469)	1914 (469)	1914 (469)	1914 (469)	1914 (469)
Adjusted R ²	0.817	0.649	0.919	0.814	0.610	0.919

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. All the independent and moderator variables were measured at t and the dependent variable was measured at $t + 1$. We mean centered the variables associated with the interaction terms to reduce the multicollinearity. Robust t -statistics adjusted by firm-level clustering are reported in the parenthesis, and the coefficients for year dummies are not reported. All the control variables are included in the models, although their coefficients are not reported in the table for brevity

over time to study the effect of hubris and how this effect varies across firms and across industry conditions. By doing so, our study highlights the dynamic nature of hubris and its shifting nature across internal and external contextual situations. Thus, our study offers unique and important empirical support for the proposed novel relationships, leading to a more complete understanding about hubris.

Although a number of studies have explored the role of corporate governance (e.g., Sundaramurthy 1996; McNulty and Pettigrew 1999; Larcker et al. 2007; Pathan 2009), only recently have researchers started to investigate its contingency effect on firm strategy, which is important because firms should understand the conditions under which corporate governance is effective or ineffective. For instance, Castañer and Kavadis (2013) identified the interaction effect between free cash flow and corporate governance on firm financial diversification. The present study adds to this emerging literature by showing how corporate governance interacts with managerial

hubris to influence firm strategic emphasis. It is also the first to examine the effect of corporate governance on marketing variables.

Josephson et al. (2016) called for future research to further examine the effect of a firm's maturity on its strategic emphasis by employing "a more refined measure of firm maturity." In response, we use a sophisticated measure of firm maturity, which incorporates not only firm age but also various signals that reflect corporate life cycle and vitality (e.g., sales growth and dividend payout) (Anthony and Ramesh 1992). Our study demonstrates a novel role of firm maturity with this measure, i.e., it can mitigate the negative effect of corporate managerial hubris on strategic emphasis.

Managerial implications

An article in *Forbes* by Varghese (2009) described the "massive destruction" that hubris can cause to firms using

Table 5 Robustness check with alternative estimation approaches

Variables	(1) DV: SE _{t+1} 2SLS with alt_IV ¹	(2) DV: SE _{t+1} 3SLS	(3) DV: SE _{t+1} 3SLS with alt_IV	(4) DV: SE _{t+1} Random-effect 2SLS	(5) DV: SE _{t+1} Random-effect 2SLS with alt_IV
Hubris	−0.0362** (−2.37)	−0.0607*** (−6.57)	−0.0557*** (−4.56)	−0.0516*** (−3.59)	−0.0434*** (−2.60)
Hubris × Firm_Maturity	0.0091** (2.25)	0.0068*** (2.83)	0.0084*** (2.72)	0.0128*** (3.34)	0.0104** (2.42)
Hubris × Corporate_Governance	0.0021** (2.16)	0.0018** (2.38)	0.0020** (2.55)	0.0026** (2.11)	0.0022** (2.18)
Hubris × Ind_Strategic_Emphasis	0.0113* (1.75)	0.0092** (2.36)	0.0107** (2.52)	0.0149** (2.02)	0.0100* (1.87)
Hubris × Ind_Competition	0.0191 (0.57)	0.0135 (0.37)	0.0173 (0.48)	0.0276 (0.60)	0.0173 (0.51)
Firm_Maturity	0.0008 (1.25)	0.0006 (1.05)	0.0008 (1.30)	0.0011 (1.44)	0.0002 (0.27)
Corporate_Governance	−0.0001 (−0.29)	−0.0001 (−0.30)	−0.0001 (−0.35)	−0.0002 (−0.41)	−0.0002 (−0.33)
Ind_Strategic_Emphasis	−0.0019 (−0.82)	−0.0022 (−1.45)	−0.0019 (−1.25)	−0.0023 (−0.88)	−0.0019 (−0.89)
Ind_Competition	−0.0340** (−2.04)	−0.0083 (−0.45)	−0.0339* (−1.90)	−0.0308* (−1.69)	−0.0623*** (−2.78)
Observations (# of firms)	1914 (469)	1914 (469)	1914 (469)	1914 (469)	1914 (469)
Adjusted R ²	0.822	0.766	0.783	0.799	0.804

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$. ¹ alt_IV is an alternative instrumental variable (i.e., the weighted sum of hubris for unrelated industries). All the independent and moderator variables were measured at t and the dependent variable was measured at $t + 1$. Robust t-statistics adjusted by firm-level clustering are reported in the parenthesis, and the coefficients for year dummies are not reported. We mean centered the variables associated with the interaction terms to reduce the multicollinearity. All the control variables are included in the models, although their coefficients are not reported in the table for brevity

Enron as an example. Less than four months before Enron's bankruptcy, its CEO made the hubristic statement, "Our performance has never been stronger, our business model has never been more robust. We have the finest organization in American business today." Varghese commented that managers with such inflated perceptions of their own abilities are in great danger because they overlook the evident risks in their businesses. *Industry Week* (2007) demonstrated that hubris got in the way of Segway's success because their managers were "more driven by a need to feed their ego" and set "unrealistic and often phony targets" which were also unsustainable. Laseter (2016) noted that the CEO suite is often clouded by hubris.

Clearly, business practitioners have become increasingly alerted about hubris, and anecdotal evidence supports that hubris may damage companies as a whole. However, any organization is a complex system that involves many business aspects and units. It is thus necessary to take a more minute perspective to determine which business aspects are more (or less) likely to be affected by hubris. Such knowledge allows

firms to pin down the effects of managerial hubris, enabling them to cope with it by enacting purposeful actions.

Our study takes a meaningful step forward in this direction by focusing on the effect of hubris on a specific business aspect, that is, managerial importance, i.e., firm strategic emphasis in making marketing investments. Our results show that, at the most basic level, firms should be cognizant of the level of managerial hubris and the various aspects of internal organizational and external environmental factors that can moderate potential psychological bias in marketing resource allocation. More broadly, our novel and solid empirical findings suggest that firms carefully evaluate investment decisions to prevent excessive investments made to simply satisfy hubristic managers' desires. The mini cases about Monsanto and Segway in Table 6 exemplify our findings and further highlight the importance of systematically investigating the link between managerial hubris and investment decisions.

By demonstrating the moderating effects of both external and internal factors, we help firms better understand when they should be extra-cautious about potentially biased investment decisions and how to constrain hubristic managers'

Table 6 Examples of corporate managerial hubris and its potential consequences**Example 1: Monsanto**

The American company, Monsanto, had long been focusing on R&D and produced the first genetically modified crop in the world. In an interview with *The Independent* (Wright 2015), the chief executive Hugh Grant admitted that the company's hubris had led to an over-emphasis on R&D and ignorance of advertising and promotion to educate the consumers, resulting in consumer backlash against Monsanto's products and business failure. The public became concerned that food from Monsanto might be more harmful than conventionally grown food, although no compelling evidence suggested so. However, Monsanto made "the wrong call" when it failed to leverage marketing tools to rebrand itself and address public concerns after its bungled launch of GM in Europe. Reflecting on the inadequate effort in marketing and educating the consumers, Grant stated: "we were so far removed from that supermarket shelf, that was never something we gave a lot of thought to." He acknowledged that the reason was "Hubris and naivety. They are sort of opposite sides of the same coin. We did really cool science and we worked within global regulatory requirements. From where we were the conversation with consumers was an abstract."

Example 2: Segway

Segway is the inventor and manufacturer of self-balancing two-wheel scooters, which riders operate while standing. As commented by *IndustryWeek* (2007), Segway's managers were "more driven by a need to feed their ego rather than by true pride in doing great work" and became "vulnerable when they get too full of themselves." They invested heavily in product development and built a 75,000 square foot facility that aimed to produce 40,000 units per month, because the management optimistically estimated that the brand could capture 0.1% of all population of the world (6 billion people) and sell 6 million Segway scooters per year. There was a "narcotic-like effect" when the executives became preoccupied with the unrealistic targets and tended to inflate positive feedback and discount negative feedback. Plus, most feedback was "vague, weak and untimely," which could neither motivate nor pressure them to take relevant actions. The exaggerated belief in the potential of the project also led to the negligence of marketing, which could have helped exploit the market and understand and cater to consumer needs. Segway sold only 23,500 scooters over five years since its launch and, unfortunately, had to recall its entire installed base of the 23,500 scooters.

behaviors. These insights are useful because business practitioners currently have limited knowledge on the exact effects of hubris on various types of investments and how to cope with these effects (e.g., Laseter 2016).

Conventional wisdom suggests that hubristic managers tend to invest more in general (Varghese 2009). However, our findings proffer a refined understanding of this issue by showing that hubris has unequal influences on different types of investments. Specifically, hubristic managers tend to invest more in R&D but not in advertising. In other words, when managerial hubris is strong, it can become more difficult to obtain sufficient budget in the forthcoming period for value communication/appropriation to complement the increased value creation investments, especially for firms in earlier life stages according to our finding on the moderating effect of firm maturity. Such disproportionate strategic emphasis on

R&D can hurt firm value as documented by prior research (Mizik and Jacobson 2003; Josephson et al. 2016). The illusion that firm success can be ensured solely by developing superior new products has prompted many firms to overlook the importance of tempering competition imitation and to invest insufficiently in advertising (Teece 1986). A firm that over-focuses on R&D relative to advertising is unlikely to acquire sustained competitive advantage or to capture the economic surplus from the innovation (Mizik and Jacobson 2003).¹⁸ Therefore, consistent with a top priority raised by the Marketing Science Institute, when hubris among top executives is strong, it becomes even more critical for marketing managers to effectively communicate and justify the value of certain marketing investments (e.g., advertising) to the C-suite. However, marketing managers may fail to do so without sufficient power or incentives (Nath and Mahajan 2011; Kim et al. 2016). Marketing managers can utilize our findings combined with previous studies on the financial effects of strategic emphasis (e.g., Mizik and Jacobson 2003; Josephson et al. 2016) to argue for increased power and financial discretion to prevent value-decreasing decisions by hubristic executives (Kim et al. 2016). Firms can also implement strong corporate governance to mitigate the hubris.

Evidence supporting the use of psychological assessment in personnel selection processes is scarce (Goodstein and Lanyon 1999; Laseter 2016). Our empirical findings on the significant impact of managerial hubris on firm strategic focus indicate that, when recruiting executives or managers, firms should assess their psychological traits, particularly about self-sufficiency, pride, and overconfidence. Such test results should be considered in combination with all other criteria to optimize recruitment decisions. They can serve as an effective strategy to prevent over-investments in risky business areas when used properly. On the other hand, as commented in a recent business press, "Having an overconfident CEO could be very beneficial in some contexts... It's not that they're always harmful all the time" (Knowledge@Wharton 2015). For instance, there can be times when a strong R&D focus is required for firm growth or survival but managers are highly risk-averse; thus, they would be reluctant to invest in R&D (Jensen and Meckling 1976). Under such situations, the recruitment or promotion of managers or executives who exhibit increased hubristic tendency may serve as a possible means of boosting innovation. However, firms should be alerted to the potential tendency of such executives to over-invest in R&D and may consider proper management coaching (as explained below) to avert negative consequences.

¹⁸ We acknowledge that R&D and product innovation are vital for firm survival and growth. However, excessive focus on R&D and value creation, particularly without complementary value appropriation efforts, can have an adverse effect on a firm's performance.

Our findings guide firms on how and when they should offer management/executive training. According to Garman et al. (2000), firms neither universally nor regularly recognize the importance of psychological training in management coaching practices. Our findings suggest that it is unwise to ignore the psychological elements, especially those related to hubris, when coaching managers. The mental status of managers can change over time (Tang et al. 2015a); hence, firms should consider mandatory executive coaching in a timely manner when the corporate governing body detects a hubristic tendency among management. Licensed psychologists with expertise in psychological dynamics and assessment may be ideal candidates for coaches. Appropriate psychological training can be especially important for younger firms, for which hubris has a stronger effect on marketing resource allocation according to our results.

Limitations and directions for future research

In this study, we tracked corporate managerial hubris for a large number of firms over 10 years by text mining their press releases (Loughran and McDonald 2011; Huang et al. 2013; Yan 2015; Lee et al. 2017). Although our approach is consistent with prior studies, future researchers could identify and develop nuanced measures of the other factors that may be aligned with hubris, such as narcissism and risk-seeking, and formally differentiate them from one another using discriminant validity checks. Because of the large number and wide range of firms/industries/press releases in this study, we were unable to directly account for the specific purpose of each press release. Although we mitigated the potential bias caused by such unobservables using the IV approach following the literature (e.g., Germann et al. 2015), future research can consider explicitly controlling for the uniqueness of each press release (doing so may require extensive human coding and validation and/or sophisticated computerized tools).

Our study takes the first step to link managerial hubris with marketing strategy by examining its effects on advertising and firm strategic emphasis. Future research can examine the effects of managerial hubris on other aspects of marketing strategy, such as promotion, branding strategy, new product success, and channels. More broadly, the link between managers' psychological traits and a firm's marketing actions is under-explored and presents numerous research opportunities, such as comparing the effects of different types of psychological traits on various marketing activities.

Acknowledgements This work was supported by the 2017 Research Fund (1.170022.01) of UNIST (Ulsan National Institute of Science and Technology) and Hankuk University of Foreign Studies Research Fund of 2016. Xiong would like to acknowledge research support from the University of Massachusetts Boston.

Appendix

Table 7 Variable operationalization

Variable name	Definition	Measure
Hubris	Corporate managerial hubris	Proportion of positive and strong modal words, identified based on Loughran and McDonald (2011)'s dictionary, to total number of words used in all the press releases for a firm in a year
aHubris	Corporate managerial hubris (an alternative measure)	Proportion of positive words, identified based on Loughran and McDonald (2011)'s dictionary, to total number of words used in all the press releases for a firm in a year
Firm_Maturity	Composite score of firm maturity based on firm age, sales growth, and dividend payout	Refer to Table 1 in Anthony and Ramesh (1992, p. 207)
Corporate_Governance	Corporate governance index from the Investor Responsibility Research Center (IRRC)	24 minus IRRC's index on the weakness of corporate governance
Ind_Competition	Industry competition	1 minus Herfindahl index, which is the sum of the squares of each firm's market share in an industry
Ind_Strategic_Emphasis	Industry's strategic emphasis between advertising and R&D	Industry average of strategic emphasis for all the firms excluding a focal firm
Firm_Size	Firm size	Log of total number of employees
Firm_Slack	Firm financial slack	Working capital divided by total assets
CMO_Power	Presence of powerful CMO	A dummy on whether a firm has at least one top-paid CMO in its top management team

References

- Aktas, N., de Bodt, E., Bollaert, H., & Roll, R. (2016). CEO narcissism and the takeover process: From private initiation to deal completion. *Journal of Financial and Quantitative Analysis*, 51(1), 113–137.

- Anthony, J. H., & Ramesh, K. (1992). Association between accounting performance measures and stock prices: A test of the life cycle hypothesis. *Journal of Accounting and Economics*, 15(2), 203–227.
- Aspara, J., & Tikkanen, H. (2013). Creating novel consumer value vs. capturing value: Strategic emphases and financial performance implications. *Journal of Business Research*, 66(5), 593–602.
- Baber, W. R., Fairfield, P. M., & Haggard, J. A. (1991). The effect of concern about reported income on discretionary spending decisions: The case of research and development. *Accounting Review*, 66(4), 818–829.
- Balkin, D. B., & Montemayor, E. F. (2000). Explaining team-based pay: A contingency perspective based on the organizational life cycle, team design, and organizational learning literatures. *Human Resource Management Review*, 10(3), 249–269.
- Bayus, B. L., Jain, S., & Rao, A. G. (1997). Too little, too early: Introduction timing and new product performance in the personal digital assistant industry. *Journal of Marketing Research*, 34(1), 50–63.
- Boulton, T. J., & Campbell, T. C. (2016). Managerial confidence and initial public offerings. *Journal of Corporate Finance*, 37, 375–392.
- Bulan, L. T., & Subramanian, N. (2009). The firm life cycle theory of dividends. In K. H. Baker (Ed.), *Dividends and Dividend Policy* (pp. 201–213). Hoboken: Wiley.
- Castañer, X., & Kavadi, N. (2013). Does good governance prevent bad strategy? A study of corporate governance, financial diversification, and value creation by French corporations, 2000–2006. *Strategic Management Journal*, 34(7), 863–876.
- Chakravarty, A., & Grewal, R. (2011). The stock market in the driver's seat! Implications for R&D and marketing. *Management Science*, 57(9), 1594–1609.
- Chakravarty, A., & Grewal, R. (2016). Analyst earning forecasts and advertising and R&D budgets: Role of agency theoretic monitoring and bonding costs. *Journal of Marketing Research*, 53(4), 580–596.
- Chandy, R., & Tellis, G. (1998). Organizing for radical product innovation: The overlooked role of willingness to cannibalize. *Journal of Marketing Research*, 35(4), 474–487.
- 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(3), 351–386.
- Claxton, G., Owen, D., & Sadler-Smith, E. (2015). Hubris in leadership: A peril of unbridled intuition? *Leadership*, 11(1), 57–78.
- 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(8), 797–819.
- Currim, I. S., Lim, J., & Kim, J. W. (2012). You get what you pay for: The effect of top executives' compensation on advertising and R&D spending decisions and stock market return. *Journal of Marketing*, 76(5), 33–48.
- Cycyota, C. S., & Harrison, D. A. (2002). Enhancing survey response rates at the executive level: Are employee-or consumer-level techniques effective? *Journal of Management*, 28(2), 151–176.
- Deephouse, D. L. (1999). To be different, or to be the same? It's a question (and theory) of strategic balance. *Strategic Management Journal*, 20(2), 147–166.
- Donaldson, T. (1999). Making stakeholder theory whole. *Academy of Management Review*, 24(2), 237–241.
- Finkelstein, S., & Hambrick, D. C. (1990). Top-management-team tenure and organizational outcomes: The moderating role of managerial discretion. *Administrative Science Quarterly*, 35(3), 484–503.
- Galasso, A., & Simcoe, T. S. (2011). CEO overconfidence and innovation. *Management Science*, 57(8), 1469–1484.
- Garman, A. N., Whiston, D. L., & Zlatoper, K. W. (2000). Media perceptions of executive coaching and the formal preparation of coaches. *Consulting Psychology Journal: Practice and Research*, 52(3), 201–205.
- Germann, F., Ebbes, P., & Grewal, R. (2015). The chief marketing officer matters! *Journal of Marketing*, 79(3), 1–22.
- Ghemawat, P. (1991). *Commitment: The dynamics of strategy*. New York: The Free Press.
- Gompers, P. A., Ishii, J. L., & Metrick, A. (2003). Corporate governance and equity prices. *Quarterly Journal of Economics*, 118(1), 107–155.
- Goodstein, L. D., & Lanyon, R. I. (1999). Applications of personality assessment to the workplace: A review. *Journal of Business and Psychology*, 13(3), 291–322.
- Griffin, D., & Tversky, A. (1992). The weighing of evidence and the determinants of confidence. *Cognitive Psychology*, 24(3), 411–435.
- Hambrick, D. C. (2007). Upper echelons theory: An update. *Academy of Management Review*, 32(2), 334–343.
- Hambrick, D. C., & Abrahamson, E. (1995). Assessing managerial discretion across industries: A multimethod approach. *Academy of Management Journal*, 38(5), 1427–1441.
- Hambrick, D. C., & Finkelstein, S. (1987). Managerial discretion: A bridge between polar views of organizational outcomes. *Research in Organizational Behavior*, 9, 369–406.
- Hambrick, D. C., & Mason, P. A. (1984). Upper echelons: The organization as a reflection of its top managers. *Academy of Management Review*, 9(2), 193–206.
- Hambrick, D. C., Finkelstein, S., Cho, T. S., & Jackson, E. M. (2005). Isomorphism in reverse: Institutional theory as an explanation for recent increases in intraindustry heterogeneity and managerial discretion. *Research in Organizational Behavior*, 26, 307–350.
- Han, K., Mittal, V., & Zhang, Y. (2017). *Relative strategic emphasis and firm idiosyncratic risk: The moderating role of relative performance and demand instability*. Forthcoming: Journal of Marketing.
- Hannan, M. T., & Freeman, J. (1984). Structural inertia and organizational change. *American Sociological Review*, 49(2), 149–164.
- Hannan, M. T., & Freeman, J. (1989). *Organizational ecology*. Cambridge: Harvard University Press.
- Harrison, D. A., & Shaffer, M. A. (1994). Comparative examinations of self-reports and perceived absenteeism norms: Wading through Lake Wobegon. *Journal of Applied Psychology*, 79(2), 240.
- Haunschild, P. R., & Miner, A. S. (1997). Modes of interorganizational imitation: The effects of outcome salience and uncertainty. *Administrative Science Quarterly*, 42(3), 472–500.
- Hayward, M. L., & Hambrick, D. C. (1997). Explaining the premiums paid for large acquisitions: Evidence of CEO hubris. *Administrative Science Quarterly*, 42(1), 103–127.
- Hayward, M. L., Shepherd, D. A., & Griffin, D. (2006). A hubris theory of entrepreneurship. *Management Science*, 52(2), 160–172.
- Hilary, G., & Menzly, L. (2006). Does past success lead analysts to become overconfident? *Management Science*, 52(4), 489–500.
- Hill, A., Kern, D., & White, M. (2014). Are we overconfident in executive overconfidence research? An examination of the convergent and content validity of extant unobtrusive measures. *Journal of Business Research*, 67(7), 1414–1420.
- 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(4), 297–319.
- Huang, X., Teoh, S. H., & Zhang, Y. (2013). Tone management. *The Accounting Review*, 89(3), 1083–1113.
- Industry Week. (2007). *Is executive hubris ruining companies?* <http://www.industryweek.com/companies-amp-executives/executive-hubris-ruining-companies>.
- Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305–360.
- Jordan, R. R. (1999). *Academic writing course: Study skills in English* (Vol. 160). Longman.

- Joseph, K., & Richardson, V. J. (2002). Free cash flow, agency costs, and the affordability method of advertising budgeting. *Journal of Marketing*, 66(1), 94–107.
- Josephson, B. W., Johnson, J. L., & Mariadoss, B. J. (2016). Strategic marketing ambidexterity: Antecedents and financial consequences. *Journal of the Academy of Marketing Science*, 44(4), 539–554.
- Kahneman, D., & Tversky, A. (1995). Conflict resolution: A cognitive perspective. In K. Arrow, R. H. Mnookin, L. Ross, A. Tversky, & R. Wilson (Eds.), *Barriers to conflict resolution* (pp. 44–61). New York: Norton.
- Kang, W., & Montoya, M. (2014). The impact of product portfolio strategy on financial performance: The roles of product development and market entry decisions. *Journal of Product Innovation Management*, 31(3), 516–534.
- Kashmiri, S., Nicol, C. D., & Arora, S. J. (2017). *Me, myself, and I: Influence of CEO narcissism on firms' innovation strategy and the likelihood of product-harm crises*. Forthcoming: Journal of the Academy of Marketing Science.
- Keats, B. W., & Hitt, M. A. (1988). A causal model of linkages among environmental dimensions, macro organizational characteristics, and performance. *Academy of Management Journal*, 31(3), 570–598.
- Kelly, D., & Amburgey, T. L. (1991). Organizational inertia and momentum: A dynamic model of strategic change. *Academy of Management Journal*, 34(3), 591–612.
- Kim, M., Boyd, D. E., Kim, N., & Yi, C. H. (2016). CMO equity incentive and shareholder value: Moderating role of CMO managerial discretion. *International Journal of Research in Marketing*, 33(4), 725–738.
- Knowledge@Wharton. (2015). *How overconfident CEOs could take down the firm*.
- Kor, Y. Y. (2006). Direct and interaction effects of top management team and board compositions on R&D investment strategy. *Strategic Management Journal*, 27(11), 1081–1099.
- Krasnikov, A., & Jayachandran, S. (2008). The relative impact of marketing, research-and-development, and operations capabilities on firm performance. *Journal of Marketing*, 72(4), 1–11.
- Kurt, D., & Hulland, J. (2013). Aggressive marketing strategy following equity offerings and firm value: The role of relative strategic flexibility. *Journal of Marketing*, 77(5), 57–74.
- Larcker, D. F., Richardson, S. A., & Tuna, I. (2007). Corporate governance, accounting outcomes, and organizational performance. *The Accounting Review*, 82(4), 963–1008.
- Laseter, T. (2016). The line between confidence and hubris. *Strategy & Leadership*, Issue 86, (November 21, 2016).
- Lee, J. M., Hwang, B. H., & Chen, H. (2017). Are founder CEOs more overconfident than professional CEOs? Evidence from S&P 1500 companies. *Strategic Management Journal*, 38(3), 751–769.
- Li, J., & Tang, Y. I. (2010). CEO hubris and firm risk taking in China: The moderating role of managerial discretion. *Academy of Management Journal*, 53(1), 45–68.
- Loughran, T., & McDonald, B. (2011). When is a liability not a liability? Textual analysis, dictionaries, and 10-Ks. *The Journal of Finance*, 66(1), 35–65.
- Malmendier, U., & Tate, G. (2008). Who makes acquisitions? CEO overconfidence and the market's reaction. *Journal of Financial Economics*, 89(1), 20–43.
- March, J. G. (1981). Decisions in organizations and theories of choice. In a. Van de Ven and W. F. Joyce (eds.), *Perspectives on Organization Design and Behavior*, 205–244. New York: Wiley.
- McAlister, L., Srinivasan, R., & Kim, M. (2007). Advertising, research and development, and systematic risk of the firm. *Journal of Marketing*, 71(1), 35–48.
- McNulty, T., & Pettigrew, A. (1999). Strategists on the board. *Organization Studies*, 20(1), 47–74.
- Mehta, N., Chen, X., & Narasimhan, O. (2008). Informing, transforming, and persuading: Disentangling the multiple effects of advertising on brand choice decisions. *Marketing Science*, 27(3), 334–355.
- Mela, C. F., Gupta, S., & Lehmann, D. R. (1997). The long-term impact of promotion and advertising on consumer brand choice. *Journal of Marketing Research*, 34(2), 248–261.
- Miller, D., Kets de Vries, M. F., & Toulouse, J. M. (1982). Top executive locus of control and its relationship to strategy-making, structure, and environment. *Academy of Management Journal*, 25(2), 237–253.
- Min, S., Kalwani, M. U., & Robinson, W. T. (2006). Market pioneer and early follower survival risks: A contingency analysis of really new versus incrementally new product-markets. *Journal of Marketing*, 70(1), 15–33.
- Mizik, N., & Jacobson, R. (2003). Trading off between value creation and value appropriation: The financial implications of shifts in strategic emphasis. *Journal of Marketing*, 67(1), 63–76.
- Moorman, C., & Miner, A. S. (1997). The impact of organizational memory on new product performance and creativity. *Journal of Marketing Research*, 34(1), 91–106.
- Morgan, N. (2012). Marketing and business performance. *Journal of the Academy of Marketing Science*, 40(1), 102–119.
- Nath, P., & Mahajan, V. (2011). Marketing in the c-suite: A study of chief marketing officer power in firms' top management teams. *Journal of Marketing*, 75(1), 60–77.
- Palmer, T. B., & Wiseman, R. M. (1999). Decoupling risk taking from income stream uncertainty: A holistic model of risk. *Strategic Management Journal*, 20(11), 1037–1062.
- Pathan, S. (2009). Strong boards, CEO power and bank risk-taking. *Journal of Banking & Finance*, 33(7), 1340–1350.
- Petersen, M. A. (2009). Estimating standard errors in finance panel data sets: Comparing approaches. *The Review of Financial Studies*, 22(1), 435–480.
- Philippe, D., & Durand, R. (2011). The impact of norm-conforming behaviors on firm reputation. *Strategic Management Journal*, 32(9), 969–993.
- Porac, J. F., Thomas, H., & Baden-Fuller, C. (1989). Competitive groups as cognitive communities: The case of Scottish knitwear manufacturers. *Journal of Management Studies*, 26(4), 397–416.
- Shen, W., & Cho, T. S. (2005). Exploring involuntary executive turnover through a managerial discretion framework. *Academy of Management Review*, 30(4), 843–854.
- Simon, M., & Houghton, S. M. (2003). The relationship between overconfidence and the introduction of risky products: Evidence from a field study. *Academy of Management Journal*, 46(2), 139–149.
- Sorescu, A. B., & Spanjol, J. (2008). Innovation's effect on firm value and risk: Insights from consumer packaged goods. *Journal of Marketing*, 72(2), 114–132.
- Sridhar, S., Narayanan, S., & Srinivasan, R. (2014). Dynamic relationships among R&D, advertising, inventory and firm performance. *Journal of the Academy of Marketing Science*, 42(3), 277–290.
- Sundaramurthy, C. (1996). Corporate governance within the context of antitakeover provisions. *Strategic Management Journal*, 17(5), 377–394.
- Swaminathan, V., Murshed, F., & Hulland, J. (2008). Value creation following merger and acquisition announcements: The role of strategic emphasis alignment. *Journal of Marketing Research*, 45(1), 33–47.
- Tang, Y., Li, J., & Yang, H. (2015a). What I see, what I do: How executive hubris affects firm innovation. *Journal of Management*, 41(6), 1698–1723.
- Tang, Y., Qian, C., Chen, G., & Shen, R. (2015b). How CEO hubris affects corporate social (ir) responsibility. *Strategic Management Journal*, 36(9), 1338–1357.
- Teece, D. J. (1986). Profiting from technological innovation: Implications for integration, collaboration, licensing and public policy. *Research Policy*, 15(6), 285–305.

- Thompson, E. R., & Phua, F. T. (2005). Reliability among senior managers of the Marlowe–Crowne short-form social desirability scale. *Journal of Business and Psychology*, 19(4), 541–554.
- Varghese, S. (2009). *Beware Of Hubris*. <http://www.forbes.com/2009/08/24/hubris-gamblers-ruin-leadership-managing-varghese.html>.
- Vera, D., & Crossan, M. (2004). Strategic leadership and organizational learning. *Academy of Management Review*, 29(2), 222–240.
- Wangrow, D. B., Schepker, D. J., & Barker, V. L. (2015). Managerial discretion: An empirical review and focus on future research directions. *Journal of Management*, 41(1), 99–135.
- Wies, S., & Moorman, C. (2015). Going public: How stock market listing changes firm innovation behavior. *Journal of Marketing Research*, 52(5), 694–709.
- Wright, O. (2015). Monsanto chief admits ‘hubris’ is to blame for public fears over GM. In *The Independent* Accessed at www.independent.co.uk/news/science/monsanto-chief-admits-hubris-is-to-blame-for-public-fears-over-gm-10128951.html.
- Xiong, G., & Bharadwaj, S. (2011). Social capital of young technology firms and their IPO values: The complementary role of relevant absorptive capacity. *Journal of Marketing*, 75(6), 87–104.
- Xiong, G., & Bharadwaj, S. (2013). Asymmetric roles of advertising and marketing capability in financial returns to news: Turning bad into good and good into great. *Journal of Marketing Research*, 50(6), 706–724.
- Yan, S. (2015). Managerial attitudes and takeover outcomes: Evidence from corporate filings. *Journal of International Financial Markets Institutions and Money*, 35, 30–44.

Reproduced with permission of copyright owner. Further reproduction prohibited without permission.