CEO Oddness and Firm Investment Policy

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Abstract

We investigate the association between CEO oddness (the deviation from other CEOs in terms of the Big Five personality traits) and firm investment policy. We argue that CEOs are concerned about their career prospects and that these prospects - due to familiarity and similarity biases - decrease as their oddness increases. Thus, odd CEOs will engage in bold impression management to "compensate" for their oddness and such impression management will be reflected in the firm's investment policy. We derive testable hypotheses and in line with our theoretical arguments, we find that odd CEOs of S&P 1500 firms pursue a riskier (i.e., more acquisitions and R&D) and more focused (i.e., less industrial and geographical diversification) corporate investment policy. Such risky and focused investment policy is associated with lower, current profitability (ROA), but with more growth opportunities (Tobin's Q). In this sense, odd CEOs seem to sacrifice short-term performance for long-term opportunities. Our findings are important in understanding the interplay between CEO personality traits, corporate investment policies, and corporate performance.

JEL classification: G41, G30

Keywords: CEO personality traits; firm investment policy; corporate diversification, corporate risk; corporate performance.

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INTRODUCTION

We integrate research from corporate governance and impression management literatures to develop theory linking CEOs' personality profiles to firm outcomes, specifically firm investment policy. We build on the basic idea that differing from peers affects individuals' behaviors (Kang, Zhu, and Zhang, 2021) and create a meaningful reference point—the average CEO personality profile—to assess how different a CEO is from the peers. In general, we argue that CEOs are concerned about their career prospects and that these prospects decrease as their oddness—the extent to which their personality profile differs from the reference profile—increases. Because the audiences relevant to CEOs' career prospects know about their underlying personality profiles, odd CEOs will engage in impression management to influence their audiences' perception of their ability to enhance their career prospects. This impression management will be reflected in the firm's investment policy. We derive testable hypotheses that we proceed to empirically investigate using a dataset of 1,675 CEOs of non-financial S&P 1500 firms between 2007 and 2018.

Interest on CEOs' influence on firm behavior and performance is unabated. Drawing on Hambrick and Mason (1984), early upper echelons research focused on observable CEO characteristics—typically demographics such as age, tenure, educational background, or functional experience—as proxies for CEOs' idiosyncrasies (Finkelstein, Hambrick, and Cannella, 2009; Liu, Fisher, and Chen, 2018; Wang *et al.*, 2016). Later research acknowledged that the coarse nature of demographics makes them unreliable and imprecise indicators of underlying CEOs' psychological characteristics (Carpenter, Geletkanycz, and Sanders, 2004; Neely Jr *et al.*, 2020) and attention shifted to discrete personality traits, such as narcissism, hubris, or overconfidence (Chatterjee and Hambrick, 2007; Malmendier and Tate, 2005; Tang *et al.*, 2015). More recently, scholars have relied on appropriately validated comprehensive personality trait frameworks to establish the link

between CEO personality and firm behavior and performance. Specifically, recent work has drawn on the Big Five personality traits framework (Costa and McCrae, 1985) and shown that CEOs' personality traits—openness, conscientiousness, extraversion, agreeableness, and neuroticism (OCEAN)—affect firm behavior and performance (Gow *et al.*, 2016; Harrison *et al.*, 2020; Malhotra *et al.*, 2018).

Personality psychologists argue that personality traits reflect individual differences in behaviors, cognitions, and emotions, which are relatively stable over time (Almlund *et al.*, 2011; Funder, 2012; Naragon-Gainey and Watson, 2012). Research on CEOs' Big Five personality traits has linked discrete personality traits to firm outcomes, finding, for example, that CEOs high on extraversion are more likely to engage in M&As, do so more frequently, and acquire larger targets (Malhotra *et al.*, 2018), firms headed by CEOs high on conscientiousness exhibit less strategic flexibility (Nadkarni and Herrmann, 2010), or CEOs high on openness prefer less risky debt financing as reflected by net leverage (Gow *et al.*, 2016). It is unquestioned that this research has significantly increased our understanding of CEOs' influence on firm behavior and performance. However, in focusing on discrete personality traits and their respective effect on firm behavior and performance, this research falls short to consider CEOs' personality profiles, understood here as the summary of discrete personality traits. This is an important omission for two reasons: First, personality traits exert their influence simultaneously and second, the personality traits are (assumed) orthogonal (Thielmann *et al.*, 2021).

One particularly salient question emerging from the above omission is how to interpret situations where different personality traits have opposing effects on firm outcomes. For example, Herrmann and Nadkarni (2014) found that openness and extraversion relate positively to strategic change, while conscientiousness, agreeableness, and neuroticism negatively relate to strategic

change. Similarly, Harrison *et al.* (2020) showed that conscientiousness positively associates with total shareholder return, while extraversion has a detrimental effect on it. But, given that personality traits are orthogonal, it may well be that a CEO is, for example, high on conscientiousness *and simultaneously* high on extraversion. Hence, focusing on distinct personality traits and exploring them on a one-by-one basis may only tell half the story. Yet, to the best of our knowledge to date, no study has explored how CEOs' personality profiles affect firm outcomes. This is problematic because CEOs similar on one or more personality traits may still exhibit different personality profiles in case they differ along the remaining traits. Hence, not accounting for such differences may yield false conclusions simply because CEOs bring their personality profile, not just discrete personality traits, to any administrative situation (Simon, 1947).

To address this problem, we focus on firm investment policy and use the average CEO personality profile as a reference point to assess how different a CEO is from the peers. We posit that CEOs are concerned about their career prospects which are adversely affected by the extent to which their personality profile differs from the reference profile, i.e. their oddness. Consequently, odd CEOs are more likely to engage in impression management reflected in the firm's investment policy.

We specifically theorize that firms led by more odd CEOs will exhibit more risky investment behavior as reflected in R&D intensity, capital expenditures intensity, and acquisition intensity. We test our arguments using the linguistic tool developed by Harrison *et al.* (2019) to measure the personality traits and construct the personality profiles of 1,675 CEOs of non-financial S&P 1500 firms between 2007 and 2018.

We contribute to existing research in two primary ways. First, we extend prior research on CEO personality by showing that CEO personality profiles affect firm outcomes. Upper echelons scholars have recently shown that discrete CEO personality traits spur distinct firm behavior and performance and that different traits may even have opposing effects (Gow *et al.*, 2016; Herrmann *et al.*, 2014). However, to date, research has not explored the implications of CEOs bringing their personality profiles to an administrative situation. Yet, our findings reveal that a CEO personality profile perspective is valuable, as it complements prior research on CEO personality traits.

Second, we contribute to the literature on CEO impression management. While research has long recognized impression management as an important part of corporate leadership, it has not yet fully addressed CEO impression management in the context of CEO career concerns. As part of our theory development, we describe how CEOs use impression management to counter disadvantages in their career prospects due to their personality profiles being different.

THEORETICAL BACKGROUND

CEO Career Concerns and the Board of Directors

Research has documented that CEOs are concerned about their career prospects (Chari *et al.*, 2019; Fama, 1980; Holmström, 1999). The basic argument underlying most of this research is that CEOs desire to keep or even improve their jobs. Therefore, CEOs strive to provide confirmatory evidence of them being the right person for the job to their board of directors. Alternatively, seeing their current job as springboard to their next appointment, CEOs may strive to impress the board of potential future employers (Chari *et al.*, 2019). Either way, the board is the relevant audience for CEOs' career concerns.

Despite relatively broad statutory authority, evidence suggests that boards play a major role in only few corporate decisions (Hermalin and Weisbach, 2003), the most important of which are arguable those relating to the selection, monitoring, and retention (or dismissal) of the CEO (Finkelstein *et al.*, 2009; Hermalin, 2005; Hermalin *et al.*, 2003). Much of the work in this area has focused on the information asymmetry between boards and (potential) CEOs. One stream of research deals with boards' monitoring and how monitoring aimed at reducing information asymmetry may affect boards' evaluation of their CEOs (Hermalin, 2005; Holmström, 1999). Another stream of research applies the information asymmetry to the context of CEO selection, arguing that information asymmetry thrives when boards select outsiders over insiders (Zajac, 1990; Zhang, 2008) and that selecting an outsider may therefore lead to more extreme performance outcomes (Quigley *et al.*, 2019). Overall, this research has shown that information asymmetry in the board-CEO relationship significantly affects boards' decisions and, as such, CEOs' career prospects.

Beyond the influence of information asymmetry, scholars have shown that similarity between boards and CEOs plays a significant role in important board decisions. The conceptual basis for this research is the similarity-attraction paradigm (Byrne, 1971; Tsui and O'Reilly III, 1989), which posits that individuals have a basic need for a consistent view of the world (Montoya and Horton, 2013). Because of this need, individuals favor stimuli that reinforce their worldview. Similarity provides such a reinforcing stimulus and, thus, creates positive feelings, ultimately leading to attraction (Byrne, 1971; Montoya *et al.*, 2013). Considerable research has documented that similarity in attributes such as demographics, attitude, or personality traits increases interpersonal attraction and liking, whereas dissimilarity increases repulsion (Montoya *et al.*, 2013; Tsui *et al.*, 1989).

Empirical evidence supports the similarity-attraction paradigm in board-related decisions. For example, Zajac and Westphal (1996) showed that when boards are more powerful than the incumbent CEO, the board is more likely to change CEO characteristics towards their own demographic profile. Similarly, Davidson, Nemec, and Worrell (2006) report that boards select CEOs that are similar to their age and Borokhovich, Parrino, and Trapani (1996) found that firms with relatively more outside directors on the board were more likely to appoint outside CEOs (for a review, see Westphal and Zajac, 2013).

Notably, the consequences of interpersonal attraction go beyond hiring decisions. Scholars have shown that similarity-attraction applies to the context of performance evaluation, finding supporting evidence that similarity leads to more favorable evaluations (e.g. Tsui *et al.*, 1989; Zalesny and Kirsch, 1989). In short, interpersonal attraction leads to a bias in evaluation decisions. Because evaluation biases are most common where performance information is ambiguous, boards' evaluation of their CEOs are likely more favorable as similarity increases (Zajac *et al.*, 1996).

The previously cited research focuses on the effects of information asymmetry and similarity-attraction in situations of interpersonal evaluation. Much of this research assumes that the actors are passive bystanders. The primary argument underlying our research is that, as odd CEOs face a disadvantage in terms of career prospects because of issues related to information asymmetry and similarity-attraction, they will take distinct actions, which can counteract the disadvantage and subsequently increase their future career prospects. However, research has yet to consider that CEOs may take distinct actions to overcome potential personal disadvantages they expect to arise because of information asymmetry and similarity attraction.

CEO Impression Management

Research on impression management originally stems from social psychology (Tedeschi, 1981). Nonetheless, it has long been recognized as an essential concept in the corporate context (Gardner and Martinko, 1988). Impression management describes the process by which actors attempt to create, maintain, or otherwise influence audiences' perception of them (Bozeman and Kacmar, 1997; Leary and Kowalski, 1990). The reason to engage in impression management is that the impression actors make on their audiences affects how their audiences treat them (Leary *et al.*, 1990). To date, impression management has been applied to both, the organizational level and the individual level (for reviews of work on the organizational level see, for example, Bolino *et al.*, 2008; Elsbach, 2003).

At the individual level of analysis, impression management research has focused on how individuals try to influence their image in the eyes of others in their firms, for example, their supervisors. Scholars have studied impression management in the context of job interviews, performance appraisals, and career advancements (for a review, see Bolino *et al.*, 2008). The research specifically focusing on how CEOs attempt to influence others' perception of them involves CEOs' board appointments at other firms (Stern and Westphal, 2010), support for other CEOs during communication with journalists (Westphal *et al.*, 2012), earnings management (Chen *et al.*, 2015) or CEOs' intended reduction of the stock price in the period prior to stock option grants (Quigley *et al.*, 2020). Overall, this research has shown that CEOs take distinct actions to create a desired impression in the eyes of their audiences. However, research has yet to consider how CEO personality may provide an impetus to engage in impression management and what distinct actions CEOs may take to address their career concerns.

Following Leary *et al.* (1990), impression management involves two distinct processes, namely impression motivation and impression construction. Whereas impression motivation describes the degree to which individuals are motivated to control how their audiences see them, impression construction refers to the distinct tactics that individuals use to affect their audiences' impression of them in the desired direction. We argue that a context particularly relevant for impression management is CEO career concerns. As we will detail below, we posit that odd CEOs are particularly motivated to engage in impression management due to disadvantages resulting from information asymmetry and similarity-attraction. To counter these disadvantages and create the desired impression in the eyes of their boards, odd CEOs are particularly likely to use risky investments as an impression management tactic.

THEORY DEVELOPMENT AND HYPOTHESES

Odd CEOs' Career Prospect Disadvantages

Personality psychologists posit that individuals' unique personalities are not only reflected in the actions they take but also in the language they use (Funder, 2012; Pennebaker and King, 1999). The insight that language use reveals personality has important implications, the most important of which is that the use of language is observable.

CEOs operate at the strategic apex of their firms. Their position formally empowers them to make substantive decisions and anticipating, articulating, and managing change to navigate their firms through increasingly complex and dynamic competitive landscapes is the essence of their job (Andrews, 1971). To explain and justify their course of action, CEOs frequently interact with various audiences, including, but not limited to, their boards, investors, analysts, or journalists. The language CEOs use during these interactions is observable to audiences. Audiences have

plenty of possibilities to assess CEOs' personalities and such assessments tend to be accurate judgments (Vazire and Carlson, 2011). Thus, CEOs can be certain that audiences can detect their personality pretty accurately and, as a result, form an understanding of how much their personality differs from the CEO peers. Of the different audiences that may assess CEOs' personalities, those particularly relevant for CEOs' career concerns are boards—either their own or those of potential employers.

Over the past years, US corporate boards have reshaped their composition along various dimensions (Spencer Stuart, 2021), including a substantial decrease in interlocking directorates (Chu and Davis, 2016). However, one aspect that is still characteristic of boards is that a substantial share of the members is active or former CEOs (Spencer Stuart, 2021). Brickley, Linck, and Coles (1999), for example, found that nearly 88% of CEOs retiring at 64,65, or 66 held at least one board seat two years after their retirement, 42% held three or more seats, and 28% held four or more seats. Notably, Spencer Stuart (2021) reported that 43% of the chairs of the nominating/governance committee, which oversees CEO evaluation, development, and succession planning, were active or retired CEOs, chairs, vice chairs, presidents, or COOs. The presence of active or retired CEOs on boards and their influence on the evaluation and appointment of CEOs, however, is consequential for one group: Odd CEOs.

Per definition, odd CEOs have personality profiles that differ from the reference profile, the average CEO personality profile. As such, we expect that odd CEOs are at a disadvantage in terms of career prospects. We base prediction on the two aforementioned theoretical perspectives, information asymmetry and similarity-attraction. First, from an information asymmetry perspective (Zajac, 1990; Zhang, 2008), odd CEOs are at a disadvantage because they are difficult to read for boards. Much like with an outside CEO, information asymmetry thrives as CEO

oddness increases (Quigley *et al.*, 2019). Non-odd CEOs have personality profiles that are relatively similar to those of board members, which is why boards are likely to perceive a deep familiarity with such personality profiles. In contrast, odd CEOs are difficult to calculate for boards, and, as a result, boards can only roughly infer, or estimate, odd CEOs' future courses of action (Quigley *et al.*, 2019). Because of their difficulties in reading odd CEOs, boards may overlook or misinterpret important aspects of their personality and, as a result, misinterpret the degree of fit with their firms' requirements.

Second, from a similarity-attraction perspective (Byrne, 1971; Zajac *et al.*, 1996), odd CEOs are at a disadvantage simply because they are not similar to board members regarding their personality profile. Because Odd CEOs' personality profiles are different, they do not serve as stimuli that reinforce board members' worldviews. Rather, the dissimilarity increases boards' repulsion towards odd CEOs (Montoya *et al.*, 2013; Tsui *et al.*, 1989). Also, while interpersonal attraction results in frequent communication and high social integration, interpersonal repulsion results in the opposite (Tsui *et al.*, 1989). Boards and odd CEOs are less likely to interact frequently and less likely to develop a good working relationship, both of which intensify boards' difficulties in reading odd CEOs. However, interaction is also imperative in boards' evaluation of their CEOs. Because material strategic decisions occur at low frequency and their performance effect are ambiguous and, thus, difficult to disentangle from those of concurrent events, boards' evaluation of their CEOs will be subject to evaluation bias (Zajac *et al.*, 1996). For odd CEOs, this implies relatively negative evaluations.

The essential insight of our theory is that odd CEOs are at a disadvantage concerning their career prospects—irrespective of whether this results from information asymmetry or interpersonal repulsion. Thus, if odd CEOs want to secure their career prospects, they need to

counter this disadvantage. Clearly, odd CEOs cannot change their personality profile. To counter the disadvantage and secure their career prospects, odd CEOs need to provide an impression of them being suitable CEOs, which is strong enough to push their oddness into the background. While the disadvantage resulting from their oddness represents their impression management motivation, the impression construction refers to the specific tactics they employ to crease the desired impression (Leary *et al.*, 1990). Prior research has shown that tactics CEOs employ include, for example, earnings management (Chen *et al.*, 2015), corporate social responsibility (Lee *et al.*, 2020), or social influence (Westphal *et al.*, 2012). In the following, we reason that odd CEOs use risky investments as an impression management tactic.

Risky Investments as Impression Management Tactic

Because the true ability CEOs is unknown, boards typically assess CEOs' quality in terms of their ability to increase firm performance (Finkelstein *et al.*, 2009; Jenter and Lewellen, 2021). Hence, the theoretically ideal impression management tactic for odd CEOs to construct the desired impression and signal to their audiences that they are suitable CEOs is the delivery of improved firm performance. Unfortunately, the ambiguity surrounding firm performance prohibits odd CEOs from doing so. However, though odd CEOs cannot use firm performance for signalling, they still know that they can construct their desired impression through the choice of actions. Importantly, their audiences need to observe their actions; otherwise, odd CEOs cannot expect to improve their audiences' impression of them.

Once class of actions directly observable by odd CEOs' audiences is their investments. Specifically, the risk odd CEOs take with their investments is likely to be helpful in managing their audiences' impression of them (Chari *et al.*, 2019). Foregoing risky investments is unlikely

to help odd CEOs to construct their desired impression. On the contrary, avoiding risk may yield their audiences to see them as being effort-averse managers engaging in managerial shirking (Bertrand and Mullainathan, 2003). Conversely, taking more risks is likely to allow odd CEOs to construct their desired impression (Hermalin, 1993; Hirshleifer, 1993; Prendergast and Stole, 1996). Ample empirical evidence has documented a positive relationship between managerial ability and risk in firm investment behavior (Yung and Chen, 2018). Because their audiences associate risky investments with managerial ability, odd CEOs can construct the desired impression by showing a more risky investment behavior. Because boards want to keep or hire high-ability CEOs, the successful constructed impression is likely to overcompensate for the career disadvantage resulting from oddness. Thus, we hypothesize:

Hypothesis 1: *CEO oddness is positively associated with the risk in firm investment policy*

FINDINGS

(THIS PART OF THE PAPER TO BE FINALIZED)

We investigate to which extent deviations from the average CEO in the realm of the Big Five personality traits lead to divergent corporate investment behavior in a sample of non-financial S&P 1500 firms in the period 2007-2018. Specifically, we construct an index of CEO oddness, which combines deviations of the individual CEO from the average CEO in the Big Five personality traits.

We plot the standardized values of CEO traits (Figure 1). The measures of CEO's Big Five personality traits (openness, conscientiousness, extraversion, agreeableness, and neuroticism) range from 1 (extremely low) to 7 (extremely high) as in Harrison et al. (2019). In each year, the standard deviation and mean value of each of CEO traits are obtained. The standardized value is

computed as the value minus the mean value, divided by the standard deviation. Then, we split the sample into the low and high groups based on CEO oddness. Figure 1 shows that especially extraversion diverges between CEOs.

We present the summary statistics (Table 1) and a univariate analysis (Table 2). The latter reports the mean values of variables for the sub-groups (terciles) classified by CEO oddness. The univariate analysis indicates that odd CEOs are associated with 1) more investments, 2) less diversification, 3) more risk, 4) lower profitability, and 5) higher Tobin's Q. Furthermore, odd CEOs seem to be overrepresented in large firms.

We show that odd CEOs are exposed to higher turnover in general (Table 3, Panel A). However, such turnover may be voluntary or involuntary. Thus, we also show that odd CEOs are exposed to more dismissals due to job performance or personal issues (Table 3, Panel B). These findings support our argument that odd CEOs are at a disadvantage compared to more ordinary CEOs because of familiarity and similarity biases.

We find that CEO oddness is associated with an increase in corporate investments (Table 4). This increase is of a general nature and is due for more normal investment activities (Capex) as well as more extraordinary investment activities (M&A and R&D).

Furthermore, we find that CEO oddness is not only related to the level of corporate investments but also related to the nature of these corporate investments (Table 5). Thus, an odd CEO pursues more focused investments by reducing both industrial and geographical diversification. This observation is true both when we analyze 1) more slow-moving state variables such as number of foreign countries and foreign sales ratio in relation to geographical diversification and number of business segments and concentration of sales in relation to industrial diversification and 2) more discrete, action-based variables in relation to corporate acquisitions.

The latter observation related to corporate acquisitions indicates that the association between CEO oddness and corporate investments may be of a causal nature rather than just a pure association. Roll (1986) argues that acquisitions reflect individual decisions. We find that CEO oddness is negatively associated with foreign acquisition value and positively associated with domestic and focusing acquisition value – thus highlighting that the odd CEO does not want geographical diversification but prefers focused, domestic acquisitions.

The divergent investment behavior of the odd CEO is associated with increased corporate risk as measured by various measures of stock return volatility and ROA volatility (Table 6). Furthermore, it is associated with higher valuation (Tobin's Q) and reduced profitability (ROA). Thus, CEO oddness seems to be associated with an inefficient corporate investment behavior that increases risk and reduces profitability. However, CEO oddness is associated with an increase in investment opportunities and thus valuation (Tobin's Q) which signifies that the short-term reduction in profitability ("a bird in the hand") is offset by the potential exercise of valuable growth options in the long term ("two birds in the bush").

Our results are robust to alternative measures of corporate diversification (Table IA.1). Our results are also robust to a Heckman's (1979) two-stage selection-bias correction model (Table IA.2). Furthermore, our results are robust to an extended version of CEO oddness where we include CEO overconfidence and CEO narcissism (Table IA.3, Panel A). The correlation between CEO oddness and CEO overconfidence is 0.00 and highly insignificant (not tabulated). The corresponding correlation between CEO oddness and CEO narcissism is -0.06 and highly significant (not tabulated). Both CEO overconfidence and CEO narcissism have been associated with increased corporate investments (Malmendier & Tate, 2005; Malmendier & Tate, 2008; Chatterjee and Hambrick, 2007; Ham et al., 2018). Given the insignificant (between CEO oddness

and CEO overconfidence) and negative (between CEO oddness and CEO narcissism) correlations, our results are not likely to be driven by an omitted variable bias in relation to CEO overconfidence and/or CEO narcissism. Our results are also robust to a restricted version of CEO oddness where we exclude one trait at a time (Table IA.3, Panels B-F). Finally, our results are not driven by the financial crises or by small firms (Table IA.4, Panels A-B), nor by the two industries, energy and health, that show the highest occurrence of odd CEOs (Table IA.4, Panel C).

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Figure 1. Radar charts of CEO traits: Low vs. high CEO oddness

Figure 1 plots the standardized values of CEO traits. The measures of CEO's Big Five personality traits (openness, conscientiousness, extraversion, agreeableness, and neuroticism) range from 1 (extremely low) to 7 (extremely high) as in Harrison et al. (2019). In each year, the standard deviation and mean value of each of CEO traits are obtained. The standardized value is computed as the value minus the mean value, divided by the standard deviation. Then, we split the sample into the low and high groups based on CEO oddness. Refer to Appendix for detailed variable descriptions.

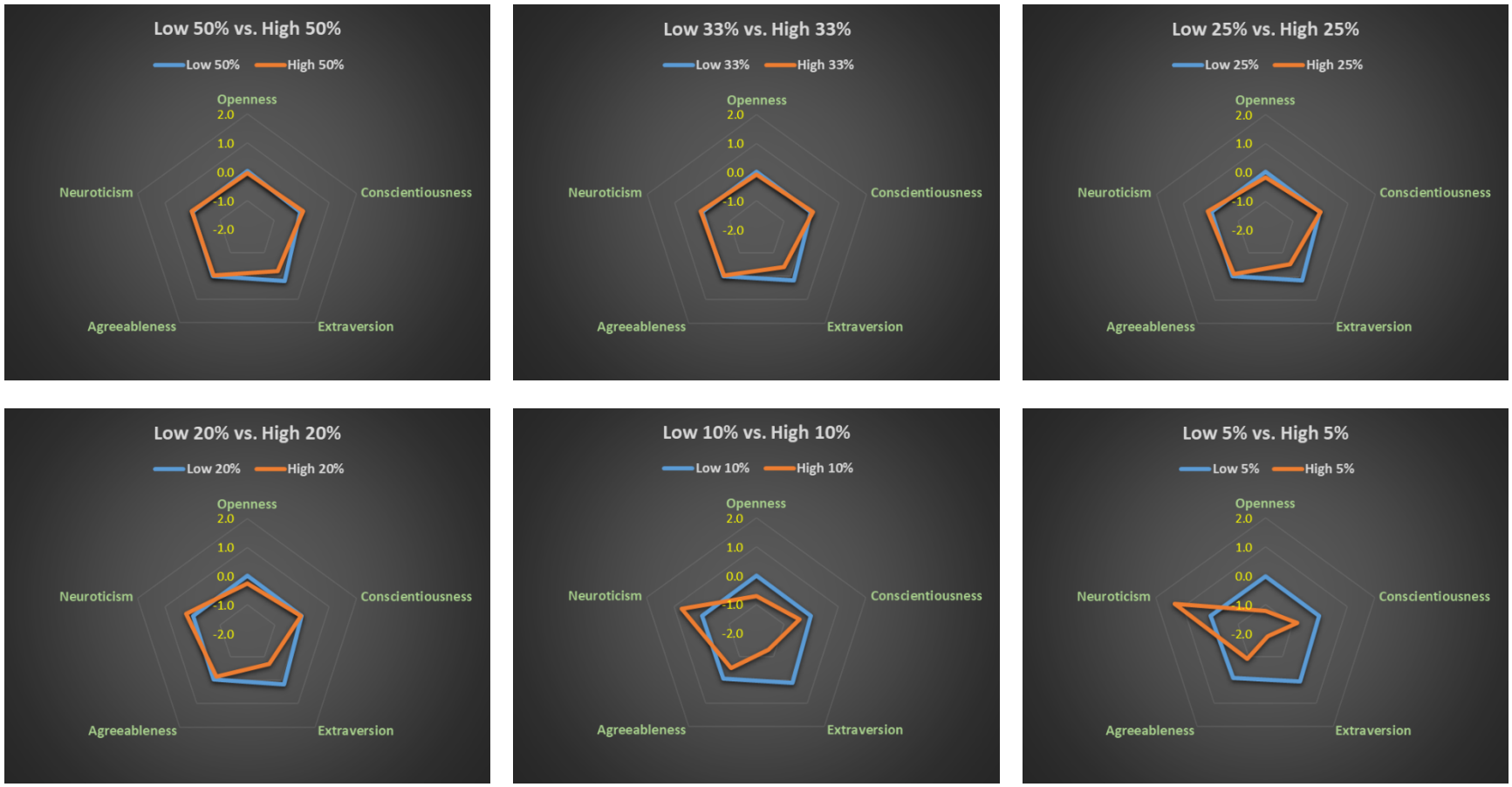

Table 1. Summary statistics

This table documents the summary statistics of the variables examined in the paper. All variables are winsorized at 1% level. Refer to Appendix 1 for detailed variable descriptions.

Variables	N	Mean	Standard deviation	10th percentile	Median	90th percentile
Corporate policies, stock volatility, and valuation						
R&D/sales	9,487	0.086	0.509	0.000	0.005	0.169
CAPX/sales	9,471	0.086	0.288	0.011	0.034	0.140
Total acquisition value/sales	1,969	0.292	0.502	0.020	0.110	0.723
Number of foreign countries	7,427	2.380	1.026	0.693	2.398	3.714
Foreign sales ratio	9,483	0.280	0.292	0.000	0.210	0.719
Number of business segments	8,279	1.264	0.498	0.693	1.386	1.946
Concentration of sales	8,279	0.694	0.292	0.293	0.702	1.000
Proportion of foreign acquisition value	1,969	0.237	0.413	0.000	0.000	1.000
Proportion of domestic and focusing acquisition value	1,969	0.265	0.432	0.000	0.000	1.000
Total risk	9,425	0.052	0.026	0.027	0.045	0.083
Idiosyncratic risk	9,425	0.039	0.025	0.020	0.034	0.064
Systematic risk	9,425	1.069	0.582	0.510	1.041	1.685
ROA volatility	8,631	0.043	0.073	0.006	0.022	0.094
Tobin's q	9,215	1.576	1.367	0.514	1.194	3.014
CEO characteristics						
CEO oddness	9,492	0.775	0.461	0.317	0.653	1.406
CEO age	9,492	4.037	0.121	3.871	4.043	4.174
CEO tenure	9,492	1.828	0.845	0.693	1.946	2.890
Female CEO	9,492	0.031	0.173	0.000	0.000	0.000
CEO duality	9,492	0.416	0.493	0.000	0.000	1.000
CEO incentives	9,492	2.638	4.781	0.114	1.232	5.745
CEO stock ownership	9,492	0.011	0.019	0.000	0.003	0.039
Firm characteristics						
Size	9,492	21.550	1.554	19.571	21.481	23.885
Book-to-market	9,492	0.602	0.255	0.283	0.584	0.934
Leverage	9,492	0.218	0.180	0.000	0.204	0.457
ROA	9,492	0.059	0.119	-0.024	0.063	0.159
Institutional ownership	9,492	0.706	0.305	0.000	0.817	0.965

Table 2. Univariate analysis

This table reports the mean values of variables for the sub-groups (terciles) classified by CEO oddness. The last column shows the tests of mean differences between low and high CEO oddness groups. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. All continuous variables are winsorized at the 1 and 99 percentiles. Refer to Appendix 1 for detailed variable descriptions.

	CEO oddness			(3) – (1)
	(1) Low	(2) Medium	(3) High	
Corporate policies, stock volatility, and valuation				
R&D/sales	0.040	0.047	0.172	0.132***
CAPX/sales	0.044	0.048	0.166	0.121***
Total acquisition value/sales	0.263	0.247	0.367	0.104***
Number of foreign countries	2.390	2.482	2.259	-0.131***
Foreign sales ratio	0.311	0.285	0.245	-0.066***
Number of business segments	1.277	1.295	1.218	-0.059***
Concentration of sales	0.687	0.669	0.726	0.039***
Proportion of foreign acquisition value	0.259	0.245	0.207	-0.053**
Proportion of domestic and focusing acquisition value	0.216	0.260	0.318	0.102***
Total risk	0.050	0.051	0.054	0.004***
Idiosyncratic risk	0.038	0.039	0.041	0.004***
Systematic risk	1.049	1.049	1.111	0.062***
ROA volatility	0.033	0.040	0.055	0.022***
Tobin's q	1.563	1.491	1.674	0.111***
CEO characteristics				
CEO oddness	0.366	0.661	1.301	0.935***
CEO age	4.034	4.034	4.044	0.010***
CEO tenure	1.853	1.807	1.825	-0.027*
Female CEO	0.021	0.033	0.040	0.019***
CEO duality	0.423	0.388	0.438	0.014
CEO incentives	2.581	2.712	2.619	0.038
CEO stock ownership	0.010	0.013	0.010	0.000
Firm characteristics				
Size	21.333	21.517	21.801	0.469***
Book-to-market	0.597	0.609	0.599	0.002
Leverage	0.217	0.216	0.223	0.006
ROA	0.069	0.064	0.045	-0.024***
Institutional ownership	0.715	0.705	0.697	-0.018***

Table 3 CEO turnover and dismissal rates

This table reports CEO turnover and dismissal rates in the following years. We split the sample into the low oddness and high oddness groups if a CEO's oddness is included in the bottom and top terciles, respectively. It also shows *p*-values in the mean difference tests. Refer to Appendix for detailed variable descriptions.

	CEO oddness			(3) – (1)
	(1) Low	(2) Medium	(3) High	
Panel A: CEO turnover rates				
Year [0, 1]	0.096	0.098	0.100	0.004
Year [0, 2]	0.181	0.184	0.195	0.013
Year [0, 3]	0.261	0.269	0.284	0.023*
Year [0, 4]	0.335	0.356	0.371	0.035**
Year [0, 5]	0.407	0.434	0.456	0.049***
Year [0, 6]	0.469	0.501	0.527	0.058***
Year [0, 7]	0.528	0.563	0.595	0.067***
Year [0, 8]	0.583	0.622	0.653	0.070***
Year [0, 9]	0.626	0.677	0.690	0.064***
Year [0, 10]	0.669	0.726	0.727	0.058**
Panel B: CEO dismissal rates				
Year [0, 1]	0.022	0.024	0.025	0.003
Year [0, 2]	0.044	0.045	0.048	0.004
Year [0, 3]	0.061	0.062	0.067	0.006
Year [0, 4]	0.074	0.077	0.083	0.009
Year [0, 5]	0.085	0.089	0.097	0.012*
Year [0, 6]	0.092	0.099	0.105	0.013*
Year [0, 7]	0.099	0.107	0.113	0.014*
Year [0, 8]	0.104	0.112	0.119	0.015*
Year [0, 9]	0.109	0.115	0.122	0.014*
Year [0, 10]	0.112	0.118	0.125	0.013

Table 4. Odd CEOs and Investments

This table reports the estimated coefficients of ordinary least squares models where the dependent variables are corporate investment measures. For CEO age, CEO tenure, size, and firm age, we log-transform the variables after adding a value of 1. Standard errors are adjusted for clustering at the firm level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. All continuous variables are winsorized at the 1 and 99 percentiles. Refer to Appendix 1 for detailed variable descriptions.

	R&D/sales	CAPX/sales	Total acquisition value/sales
	(1)	(2)	(3)
CEO oddness	0.115***	0.072***	0.084**
	(4.96)	(3.45)	(2.50)
CEO age	-0.052	-0.040	0.037
	(-0.69)	(-0.88)	(0.34)
CEO tenure	0.023**	0.015	0.016
	(2.22)	(1.51)	(0.80)
Female CEO	-0.031	-0.015	-0.078*
	(-1.62)	(-1.46)	(-1.72)
CEO duality	-0.025***	-0.010	-0.012
	(-2.63)	(-1.03)	(-0.51)
CEO incentives	-0.001	0.000	0.009***
	(-0.73)	(0.27)	(2.66)
CEO stock ownership	-1.100*	-0.330	-2.795***
	(-1.93)	(-1.12)	(-3.72)
Size	-0.017***	-0.008	-0.050***
	(-3.48)	(-1.41)	(-4.90)
Book-to-market	-0.576***	-0.110*	-0.242***
	(-4.85)	(-1.92)	(-2.94)
Leverage	-0.164**	0.071	0.227**
	(-2.19)	(1.32)	(2.56)
ROA	-2.562***	-0.435	-0.711**
	(-4.19)	(-1.50)	(-2.17)
Institutional ownership	-0.081*	-0.014	-0.169***
	(-1.82)	(-0.61)	(-2.96)
Constant	1.167***	0.411*	1.256***
	(2.59)	(1.95)	(2.74)
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	9,487	9,471	1,969
R-squared (Pseudo R-squared)	0.386	0.257	0.155

Table 5. Odd CEOs and Diversification

This table reports the estimated coefficients of ordinary least squares models where the dependent variables are corporate diversification measures. For the number of foreign countries, the number of business segments, CEO age, CEO tenure, size, and firm age, we log-transform the variables after adding a value of 1. Standard errors are adjusted for clustering at the firm level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. All continuous variables are winsorized at the 1 and 99 percentiles. Refer to Appendix 1 for detailed variable descriptions.

	Global diversification		Industrial diversification		M&A activity	
	Number of foreign countries	Foreign sales ratio	Number of business segments	Concentration of sales	Proportion of foreign acquisition value	Proportion of domestic and focusing acquisition value
	(1)	(2)	(3)	(4)		
CEO oddness	-0.293***	-0.070***	-0.081**	0.050**	-0.063**	0.074**
	(-4.60)	(-3.69)	(-2.20)	(2.37)	(-2.34)	(2.24)
CEO age	-0.163	-0.053	0.035	-0.056	-0.092	0.158
	(-0.82)	(-0.91)	(0.31)	(-0.87)	(-0.92)	(1.48)
CEO tenure	-0.024	0.000	-0.013	0.008	0.021	-0.039**
	(-0.91)	(0.03)	(-0.86)	(0.85)	(1.42)	(-2.36)
Female CEO	0.099	-0.017	-0.083	0.010	-0.052	-0.017
	(0.77)	(-0.50)	(-0.99)	(0.21)	(-0.91)	(-0.24)
CEO duality	0.041	-0.036***	0.017	-0.006	0.011	-0.013
	(0.88)	(-2.86)	(0.65)	(-0.39)	(0.46)	(-0.53)
CEO incentives	0.002	-0.001	-0.003	0.002*	-0.001	0.007**
	(0.37)	(-1.01)	(-1.04)	(1.67)	(-0.29)	(2.50)
CEO stock ownership	-1.535	-0.545	-0.106	0.290	-0.135	1.049
	(-1.11)	(-1.30)	(-0.13)	(0.62)	(-0.17)	(1.35)
Size	0.397***	0.053***	0.087***	-0.048***	0.023***	-0.018*
	(20.24)	(9.19)	(7.71)	(-7.10)	(2.60)	(-1.81)
Book-to-market	-0.342***	-0.013	0.161***	-0.078**	-0.005	0.047
	(-3.23)	(-0.42)	(2.99)	(-2.35)	(-0.08)	(0.78)
Leverage	-0.635***	-0.183***	-0.136	0.051	-0.165**	0.154*

	(-3.84)	(-4.22)	(-1.63)	(1.04)	(-2.31)	(1.79)
ROA	-0.299*	0.004	0.036	0.079	-0.054	0.106
	(-1.77)	(0.09)	(0.57)	(1.55)	(-0.54)	(0.93)
Institutional ownership	0.032	-0.027	-0.031	-0.000	-0.003	0.046
	(0.39)	(-1.01)	(-0.71)	(-0.01)	(-0.07)	(1.14)
Constant	-5.430***	-0.560**	-0.579	1.860***	0.193	-0.201
	(-6.31)	(-2.29)	(-1.22)	(6.99)	(0.50)	(-0.49)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,427	9,483	8,279	8,279	1,969	1,969
R-squared	0.401	0.229	0.178	0.185	0.034	0.085

Table 6. Odd CEOs, Stock Return Volatility, Valuation, and Profitability

This table reports the estimated coefficients of ordinary least squares models where the dependent variables are stock return volatility, valuation, and profitability. For CEO age, CEO tenure, size, and firm age, we log-transform the variables after adding a value of 1. Standard errors are adjusted for clustering at the firm level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. All continuous variables are winsorized at the 1 and 99 percentiles. Refer to Appendix 1 for detailed variable descriptions.

	Total risk	Idiosyncratic risk	Systematic risk	ROA volatility	Tobin's q	ROA
	(1)	(2)	(3)	(4)	(5)	(6)
CEO oddness	0.005***	0.005***	0.068***	0.023***	0.330***	-0.029***
	(4.79)	(4.21)	(3.02)	(5.62)	(3.76)	(-3.61)
CEO age	-0.006*	-0.006**	0.014	-0.002	-0.622**	0.041*
	(-1.78)	(-2.01)	(0.21)	(-0.13)	(-2.07)	(1.82)
CEO tenure	0.000	-0.000	0.009	0.000	0.033	-0.001
	(0.04)	(-0.90)	(0.95)	(0.06)	(0.87)	(-0.34)
Female CEO	-0.000	-0.000	-0.059	-0.008*	-0.006	0.006
	(-0.27)	(-0.30)	(-1.42)	(-1.92)	(-0.05)	(1.10)
CEO duality	-0.001*	-0.001**	-0.031**	-0.004	0.164***	0.003
	(-1.95)	(-2.10)	(-2.22)	(-1.25)	(2.72)	(0.96)
CEO incentives	0.000*	0.000*	0.002	0.000	0.076***	0.002***
	(1.74)	(1.73)	(1.63)	(0.78)	(10.09)	(3.56)
CEO stock ownership	0.032	0.037**	0.305	-0.218***	-3.844*	0.033
	(1.48)	(2.06)	(0.56)	(-3.37)	(-1.93)	(0.22)
Size	-0.005***	-0.005***	0.007	-0.011***	-0.179***	0.009***
	(-19.15)	(-18.57)	(1.01)	(-6.17)	(-5.75)	(3.16)
Book-to-market	0.022***	0.020***	0.136***	-0.023***		-0.173***
	(12.06)	(6.46)	(3.29)	(-3.45)		(-17.08)
Leverage	0.015***	0.010***	0.164***	0.013	0.302	-0.051***
	(6.00)	(3.43)	(3.07)	(1.15)	(1.38)	(-4.63)
ROA	-0.032***	-0.028***	-0.229***	-0.129***	2.513***	
	(-10.20)	(-9.92)	(-3.48)	(-7.53)	(3.72)	

Institutional ownership	-0.007***	-0.008***	0.009	-0.015***	0.051	0.018
	(-4.78)	(-4.21)	(0.25)	(-3.52)	(0.48)	(1.56)
Constant	0.167***	0.166***	0.453	0.299***	7.101***	-0.159
	(12.81)	(12.79)	(1.58)	(4.28)	(5.78)	(-1.17)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9,425	9,425	9,425	8,631	9,068	9,335
R-squared	0.516	0.323	0.060	0.175	0.244	0.238

Appendix 1. Variable descriptions

Variables	Descriptions
	Corporate policies, stock volatility, and valuation
R&D/sales	R&D expenditures divided by sales at the beginning of the year. Data sources: Compustat.
CAPX/sales	Capital expenditures divided by sales at the beginning of the year. Data sources: Compustat.
Total acquisition value/sales	The total transaction value of all acquisitions divided by sales at the beginning of the year. We only include the acquisitions that are eventually successful. Data sources: Thomson Reuters Securities Data Company (SDC) Platinum and Compustat.
Number of foreign countries	The number of foreign countries where the firm's subsidiaries are located. It is transformed by taking the natural log after adding 1. Data sources: Orbis.
Number of foreign subsidiaries	The number of foreign subsidiaries. It is transformed by taking the natural log after adding 1. Data sources: Orbis.
Concentration of foreign subsidiaries	A Herfindahl index, which is measured based on the firm's foreign subsidiaries. Concentration of foreign subsidiaries = $\sum_j \left(NFS_{i,j,t}\right)^2 \Big/ \left(\sum_j NFS_{i,j,t}\right)^2$, where $NFS_{i,j,t}$ is the firm i's number of foreign subsidiaries in country j in year t. This variable captures the degree of concentration of the foreign subsidiaries across foreign countries. It ranges from 0 to 1, where a value close to 1 indicates that most of the firm's subsidiaries are located in one or few countries. Data sources: Orbis.
Cultural distance	The average value of six cultural distance measures based on Hofstede's cultural dimensions (PDI, IDV, MAS, UAI, LTO, and IND). Cultural distance (CD) $= \sum_j w_{j,t} \mid CD_{j,t} - CD_{i,t} \mid$, where $CD_{j,t}$ is the value of CD in country j in year t and the value of $CD_{i,t}$ in the firm's country, U.S. The absolute difference of each country's CD value from that of the U.S. is multiplied by the weight $w_{j,t}$, which is computed as the ratio of the number of foreign subsidiaries located in country j divided by the total number of foreign subsidiaries in year t. CD is one of the Hofstede's cultural dimensions: 1) *PDI* is the cultural dimension that expresses the degree to which the less powerful members of a society accept and expect that power is distributed unequally, 2) *IDV* is the cultural dimension that expresses a preference for a loosely-knit social framework in which individuals are expected to take care of only themselves and their immediate families, 3) *MAS* is the cultural dimension that expresses a preference in society for achievement, heroism, assertiveness, and material rewards for success. Society at large is more competitive, 4) *UAI* is the cultural dimension that expresses the degree to which the members of a society feel uncomfortable with uncertainty and ambiguity, 5) *LTO* is the cultural dimension that expresses the degree the society embraces, or does not embrace long-term devotion to traditional, forward thinking values, and 6) *IND* the cultural dimension that expresses the degree that allows relatively free gratification of basic and natural human drives related to enjoying life and having fun. Data sources: Hofstede Insights and Orbis.
Foreign sales ratio	The ratio of foreign sales to total sales. Data sources: Compustat Historical Segments.

Number of business segments	The number of business segments. It is transformed by taking the natural log after adding 1. Data sources: Compustat Historical Segments.
Industrial diversification	An indicator that takes 1 if the number of business segments is greater than 1. Data sources: Compustat Historical Segments.
Concentration of sales	A Herfindahl index, which is measured based on the firm's sales in business segments. Concentration of segments = $\sum_s \left(Sales_{i,s,t}\right)^2 \Big/ \left(\sum_s Sales_{i,s,t}\right)^2$, where $Sales_{i,s,t}$ is the firm i's sales in segment s in year t. It ranges from 0 to 1, where a value close to 1 indicates that most of the firm's sales are concentrated in one or few segments. Data sources: Compustat Historical Segments.
Concentration of assets	A Herfindahl index, which is measured based on the firm's assets in business segments. Concentration of segments = $\sum_s \left(Assets_{i,s,t}\right)^2 \Big/ \left(\sum_s Assets_{i,s,t}\right)^2$, where $Assets_{i,s,t}$ is the firm i's sales in segment s in year t. It ranges from 0 to 1, where a value close to 1 indicates that most of the firm's assets are concentrated in one or few segments. Data sources: Compustat Historical Segments.
Concentration of employees	A Herfindahl index, which is measured based on the firm's employees in business segments. Concentration of segments = $\sum_s \left(Employees_{i,s,t}\right)^2 \Big/ \left(\sum_s Employees_{i,s,t}\right)^2$, where $Employees_{i,s,t}$ is the firm i's sales in segment s in year t. It ranges from 0 to 1, where a value close to 1 indicates that most of the firm's employees are concentrated in one or few segments. Data sources: Compustat Historical Segments.
Proportion of foreign acquisition value	The total transaction value of foreign acquisitions divided by that of all acquisitions in year t. We only include the acquisitions that are eventually successful. Data sources: Thomson Reuters Securities Data Company (SDC) Platinum.
Proportion of domestic and focusing acquisition value	The total transaction value of domestic and focusing acquisitions divided by that of all acquisitions in year t. We only include the acquisitions that are eventually successful. Data sources: Thomson Reuters Securities Data Company (SDC) Platinum.
Total risk	Standard deviation of weekly stock returns. Data sources: CRSP.
Idiosyncratic risk	Standard deviation of residuals obtained from the regression of weekly excess stock returns on the four factors of Carhart (1997). Data sources: CRSP and Kenneth French's site, https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.
Systematic risk	The estimated coefficient of market risk premium in the regression of weekly excess stock returns on the four factors of Carhart (1997). Data sources: CRSP and Kenneth French's site, https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.
Tobin's q	It is computed as [market value of common equity + preferred stock liquidating value + long-term debt − (short-term assets − short-term liabilities)] / total assets. Data sources: Compustat.

ROA volatility	The standard deviation of ROA from year *y*-2 to *y*, where ROA is computed as income before extraordinary items divided by total assets at the beginning of the year. Data sources: Compustat.
	CEO characteristics
CEO oddness	It is an index of CEO oddness, which combines five dimensions of CEO traits (CEO openness, conscientiousness, extraversion, agreeableness, and neuroticism). Each trait variable ranges from 1 (extremely low) to 7 (extremely high). In each year, the absolute standardized difference for an individual trait variable is calculated by the absolute difference between the trait variable and the mean value and dividing by the standard deviation. CEO oddness is computed as the average of the absolute standardized differences in traits. Data sources: Conference calls (Factiva and Nexis Uni) and Open Language Chief Executive Personality Tool (OLCPT) in Harrison et al. (2019).
CEO oddness (extended)	It is an index of CEO oddness, which adds CEO narcissism and overconfidence in addition to the five traits. CEO narcissism is the number of the singular pronouns divided the sum of singular pronouns and plural pronouns in the CEO speech, which is obtained in the Q&A sessions of quarterly earnings conference calls. It is a continuous score between 0 (extremely non-narcissistic) and 1 (extremely narcissistic) per construction. CEO overconfidence is an option-based overconfidence measure as in Malmendier and Tate (2005). CEO overconfidence is the value per exercisable option divided by the average strike price. The value per exercisable option is the total value of the exercisable but unexercised options divided by the number of those options. The average strike price is the average stock price at the time the option-value is determined minus the value per exercisable option. We use a cutoff rate of 67% for CEO overconfidence. CEO overconfidence is an indicator, which takes 1 from the first year in which CEO's overconfidence is greater than 67% in two or more years. Data sources: Conference calls (Factiva and Nexis Uni) and Open Language Chief Executive Personality Tool (OLCPT) in Harrison et al. (2019), Conference calls (Factiva and Nexis Uni), and ExecuComp.
CEO oddness (no *)	It is an index of CEO oddness, which omits one trait at a time in the calculation. Data sources: Conference calls (Factiva and Nexis Uni) and Open Language Chief Executive Personality Tool (OLCPT) in Harrison et al. (2019).
CEO age	The age of CEO. It is transformed by taking the natural log after adding 1. Data source: ExecuComp.
CEO tenure	Number of years the CEO has been in the position. It is transformed by taking the natural log after adding 1. Data source: ExecuComp.
Female CEO	An indicator that takes 1 if the CEO is female. Data source: ExecuComp.
CEO duality	An indicator that takes a value of 1 if the CEO also serves as the board chairman, and 0 otherwise. Data sources: ExecuComp.
CEO incentives	The sum of unexercised options (exercisable + unexercisable) and restricted stock holdings scaled by total compensation. Data sources: ExecuComp.
CEO stock ownership	The ratio of the firm's common shares owned by the CEO to the firm's total number of common outstanding shares. Data sources: ExecuComp.
	Firm characteristics
Size	Total assets. It is transformed by taking the natural log after adding 1. Data sources: Compustat.

Book-to-market	The ratio of book-value to market-value of firm. Data sources: Compustat.
Leverage	The ratio of total debt to market value of total assets. Data sources: Compustat.
ROA	Income before extraordinary items divided by total assets at the beginning of the year. Data sources: Compustat.
Institutional ownership	The proportion of shares owned by institutions. Data sources: Thomson Reuters.
Distance from similar firms	It is the average distance from the same industry firms that have similar size, value, and past return. We classify firms into two groups by total assets, book-to-market ratio, and previous year return and use the Fama-French 12 industry classification to define the industries. Distance from similar firms is the average distance (in miles) from the firms in the similar characteristics group and same industry. It is transformed by taking the natural log after adding 1. Data sources: Compustat, Kenneth French's site (https://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html), and Bill McDonald's site (https://www3.nd.edu/~mcdonald/) for the information on firm's address.

Internet Appendix to

Odd CEOs and Corporate Investment Policies

Table IA.1. Alternative Measures of Corporate Diversification

This table reports the estimated coefficients of ordinary least squares models (columns 1 to 5) and probit model (6) where the dependent variables alternative corporate diversification measures. For the number of foreign countries, the number of foreign subsidiaries, CEO age, CEO tenure, size, and firm age, we log-transform the variables after adding a value of 1. Standard errors are adjusted for clustering at the firm level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. All continuous variables are winsorized at the 1 and 99 percentiles. Refer to Appendix 1 for detailed variable descriptions.

	Number of foreign subsidiaries	Concentration of foreign subsidiaries	Cultural distance	Concentration of assets	Concentration of employees	Industrial diversification
	(1)	(2)	(3)	(4)	(5)	(6)
CEO oddness	-0.381***	0.060***	-1.148**	0.054**	0.096***	-0.219**
	(-4.14)	(3.05)	(-2.14)	(2.05)	(2.68)	(-2.07)
CEO age	-0.020	0.055	-0.407	0.085	0.018	0.044
	(-0.07)	(0.87)	(-0.25)	(0.91)	(0.15)	(0.13)
CEO tenure	-0.028	0.009	-0.354	0.001	0.011	-0.031
	(-0.74)	(1.08)	(-1.63)	(0.05)	(0.74)	(-0.68)
Female CEO	0.169	-0.040	-0.497	-0.020	0.093	-0.243
	(1.13)	(-1.22)	(-0.38)	(-0.28)	(1.09)	(-0.96)
CEO incentives	0.035	-0.009	0.581	-0.001	-0.021	0.071
	(0.54)	(-0.69)	(1.56)	(-0.03)	(-0.84)	(0.95)
CEO duality	0.001	-0.001	0.000	0.002	0.003	-0.011*
	(0.19)	(-0.54)	(0.01)	(1.02)	(1.15)	(-1.67)
Size	-1.447	0.090	-15.927	0.037	-0.088	1.667
	(-0.82)	(0.19)	(-1.39)	(0.06)	(-0.10)	(0.66)
Book-to-market	0.620***	-0.071***	0.585***	-0.051***	-0.064***	0.162***
	(21.66)	(-12.04)	(3.44)	(-5.88)	(-5.94)	(4.93)
Leverage	-0.169	0.051	-0.697	-0.061	-0.125**	0.550***
	(-1.19)	(1.50)	(-0.78)	(-1.44)	(-2.29)	(3.38)
ROA	-0.616***	0.186***	-3.515***	0.129**	0.047	-0.105
	(-2.72)	(3.77)	(-2.90)	(2.04)	(0.55)	(-0.43)
Previous return	-0.442**	-0.022	0.737	-0.024	-0.144**	0.655***
	(-2.00)	(-0.36)	(0.46)	(-0.46)	(-2.15)	(2.71)

Institutional ownership	0.037	-0.054*	-0.556	0.020	0.038	-0.073
	(0.32)	(-1.93)	(-0.74)	(0.60)	(0.90)	(-0.59)
Constant	-10.033***	1.683***	5.600	1.294***	1.582***	-3.168**
	(-8.53)	(6.17)	(0.79)	(3.40)	(3.30)	(-2.23)
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Observations	7,427	7,427	7,427	8,279	8,279	8,279
R-squared	0.434	0.258	0.160	0.110	0.119	(0.097)

Table IA.2. Selection-bias Correction Model

This table reports the estimated coefficients of Heckman's (1979) two-stage selection-bias correction model, where probit model (column 1) and ordinary least squares models (columns 2 to 5) are used. For CEO age, CEO tenure, size, and firm age, we log-transform the variables after adding a value of 1. Standard errors are adjusted for clustering at the firm level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. All continuous variables are winsorized at the 1 and 99 percentiles. Refer to Appendix 1 for detailed variable descriptions.

	CEO similarity	R&D/sales	Domestic and focusing acquisition value	Total risk
	(1)	(2)	(4)	(5)
CEO oddness		0.115***	0.074**	0.005***
		(4.97)	(2.22)	(4.80)
CEO age	-0.741***	-0.114	0.106	-0.009**
	(-2.58)	(-1.22)	(0.99)	(-2.46)
CEO tenure	-0.028	0.020**	-0.051***	-0.000
	(-0.77)	(1.98)	(-2.85)	(-0.38)
Female CEO	-0.200	-0.033*	-0.018	-0.001
	(-1.15)	(-1.67)	(-0.26)	(-0.33)
CEO incentives	-0.035	-0.027***	-0.020	-0.001**
	(-0.57)	(-2.86)	(-0.84)	(-2.12)
CEO duality	-0.000	-0.001	0.008***	0.000*
	(-0.05)	(-0.76)	(2.91)	(1.75)
Size	0.287	-1.101*	0.803	0.032
	(0.14)	(-1.93)	(1.02)	(1.48)
Book-to-market	0.078***	-0.010*	0.013	-0.005***
	(2.99)	(-1.83)	(0.73)	(-14.26)
Leverage	-0.084	-0.583***	-0.017	0.022***
	(-0.65)	(-4.87)	(-0.25)	(11.66)
ROA	-0.105	-0.168**	0.122	0.015***
	(-0.55)	(-2.22)	(1.42)	(5.96)
Previous return	-0.301	-2.586***	-0.046	-0.034***
	(-1.33)	(-4.20)	(-0.33)	(-10.44)
Institutional ownership	-0.171	-0.095**	0.002	-0.008***
	(-1.63)	(-1.97)	(0.04)	(-5.11)
Distance from similar firms	-0.569***			
	(-5.06)			
Inverse Mills ratio		-0.094**	-0.220*	-0.005*
		(-2.17)	(-1.91)	(-1.77)
Constant	5.205***	1.255***	-0.603	0.172***
	(3.50)	(2.66)	(-1.29)	(12.93)
Industry fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	9,487	9,487	1,969	9,425
R-squared (Pseudo R-squared)	(0.027)	0.387	0.088	0.517

Table IA.3. Robustness Tests

This table reports the estimated coefficients of ordinary least squares models where the dependent variables are corporate policies and stock return volatility. For CEO age, CEO tenure, size, and firm age, we log-transform the variables after adding a value of 1. Standard errors are adjusted for clustering at the firm level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. All continuous variables are winsorized at the 1 and 99 percentiles. Refer to Appendix 1 for detailed variable descriptions.

	R&D/sales	Domestic and focusing acquisition value	Total risk
	(1)	(2)	(4)
Panel A: Using CEO oddness (extended)			
CEO oddness (extended)	0.151***	0.107**	0.006***
	(4.65)	(2.46)	(4.41)
Controlling variables	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	9,487	1,969	9,425
R-squared	0.386	0.086	0.515
Panel B: Using CEO oddness (no OPE)			
CEO oddness (no OPE)	0.121***	0.083**	0.005***
	(5.38)	(2.55)	(4.91)
Controlling variables	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	9,487	1,969	9,425
R-squared	0.387	0.086	0.516
Panel C: Using CEO oddness (no CON)			
CEO oddness (no CON)	0.122***	0.065**	0.005***
	(5.49)	(2.03)	(4.98)
Controlling variables	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	9,487	1,969	9,425
R-squared	0.388	0.084	0.516
Panel D: Using CEO oddness (no EXT)			
CEO oddness (no EXT)	0.105***	0.066**	0.005***
	(3.35)	(2.18)	(5.25)
Controlling variables	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	9,487	1,969	9,425
R-squared	0.386	0.084	0.517

Panel E: Using CEO oddness (no AGR)			
CEO oddness (no AGR)	0.111***	0.067**	0.005***
	(5.30)	(2.05)	(4.66)
Controlling variables	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	9,487	1,969	9,425
R-squared	0.386	0.084	0.516
Panel F: Using CEO oddness (no NEU)			
CEO oddness (no NEU)	0.081***	0.068**	0.004***
	(4.13)	(2.13)	(3.72)
Controlling variables	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	9,487	1,969	9,425
R-squared	0.382	0.084	0.514

Table IA.4. Alternative Samples

This table reports the estimated coefficients of ordinary least squares models where the dependent variables are corporate policies and stock return volatility. In Panel A, we exclude the financial crisis period (2008 – 2009). In Panel B, we exclude small firms whose total assets are less than 500 million dollars. In Panel C, we exclude energy and health industries. For CEO age, CEO tenure, size, and firm age, we log-transform the variables after adding a value of 1. Standard errors are adjusted for clustering at the firm level. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. All continuous variables are winsorized at the 1 and 99 percentiles. Refer to Appendix 1 for detailed variable descriptions.

	R&D/sales	Domestic and focusing acquisition value	Total risk
	(1)	(2)	(4)
Panel A: Excluding financial crisis (2008 – 2009)			
CEO oddness	0.110***	0.080**	0.005***
	(4.67)	(2.44)	(5.26)
Controlling variables	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	7,968	1,721	7,919
R-squared	0.373	0.092	0.374
Panel B: Excluding small firms (< $500 million)			
CEO oddness	0.077***	0.087**	0.004***
	(4.60)	(2.59)	(4.43)
Controlling variables	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	8,306	1,787	8,250
R-squared	0.309	0.089	0.465
Panel C: Excluding energy and health industries			
CEO oddness	0.009*	0.060*	0.004***
	(1.89)	(1.67)	(3.24)
Controlling variables	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	7,872	1,583	7,827
R-squared	0.394	0.042	0.521