SAIM KASHMIRI and VIJAY MAHAJAN*

This research examines the influence of chief executive officers' (CEOs') political ideologies—specifically, their degree of political liberalism (i.e., support for the Democratic Party relative to the Republican Party)—on firms' innovation propensity (i.e., rate of new product introductions [NPIs]). The authors propose that CEOs' degree of political liberalism positively affects their firms' rate of NPIs. This impact is weakened, however, when CEOs have low power, when a high proportion of their compensation comes from equity, when the marketing department has high influence in the top management team, and when the economy is growing. Liberal CEOs' greater rate of NPIs is associated with superior Tobin's q but also higher stock return volatility. Findings based on observations of 421 publicly listed U.S. firms from 2006 to 2010 provide considerable support for the authors' hypotheses. The authors also examine changes in firms' rate of NPIs and performance around CEO turnovers and find corroborating evidence for their thesis. These results highlight the role of executives' personal values in shaping firms' innovation strategy as well as the risks and rewards associated with aggressive NPIs.

Keywords: political ideology, innovation, marketing influence, shareholder value, firm risk

Online Supplement: http://dx.doi.org/10.1509/jmr.14.0110

Values That Shape Marketing Decisions: Influence of Chief Executive Officers' Political Ideologies on Innovation Propensity, Shareholder Value, and Risk

The strategic decisions taken by chief executive officers (CEOs) significantly affect the lives of many stakeholders. Not surprisingly, an increasingly popular research stream that draws its theoretical foundations from upper echelon theory (Hambrick and Mason 1984) explores how CEOs' demographic attributes shape their decisions (e.g., Baker and Mueller 2002; Bertrand and Schoar 2003). A relatively small, more recent body of work also highlights the influence of CEOs' personal values, such as their political ideologies, on corporate strategy. Firms that are led by Republican-leaning CEOs, for example, have been found to exhibit lower levels of corporate debt, lower capital and research-and-development (R&D) expenditures (Hutton, Jiang, and Kumar 2014), lower emphasis on corporate social responsibility (CSR; Chin, Hambrick, and Trevino 2013), and a lower degree of tax avoidance (Christensen et al. 2015) than firms led by Democratic-leaning CEOs. Surprisingly, even though CEOs are also directly or indirectly involved in several strategic marketing decisions, some of which are critical drivers of business success, research investigating the role of CEOs' personal values in shaping strategic marketing outcomes remains scant. A key marketing outcome, for example, for which research on the role of CEOs' values is almost nonexistent, is new product introductions (NPIs).

New product introductions are engines of firm growth and fundamental drivers of shareholder value (Cohen, Eliashberg,

*Saim Kashmiri is Assistant Professor of Marketing, University of Mississippi (e-mail: skashmiri@bus.olemiss.edu). Vijay Mahajan is John P. Harbin Centennial Chair in Business, Department of Marketing, McCombs School of Business, University of Texas at Austin (e-mail: vijay.mahajan@mccombs.utexas.edu). Coeditor: Robert Meyer; Associate Editor: Christine Moorman.

ISSN: 0022-2437 (print)
1547-7193 (electronic)

Journal of Marketing Research
Vol. LIV (April 2017), 260–278
DOI: 10.1509/jmr.14.0110

and Ho 1997). Not surprisingly, researchers have called for work that sheds light on the factors that increase firms' rate of innovation (e.g., Piening and Salge 2015). Yet our knowledge about how some firms become leading innovators remains strikingly underdeveloped. The scant work on the antecedents of innovation has focused primarily on such factors as the level of industry competitiveness (Piening and Salge 2015) and executives' compensation structure (Currim, Lim, and Kim 2012; Manso 2011). We know little about whether firms' propensity to innovate is influenced by their CEOs' personal values.

In this article, we address the important research gaps in the intersection between the role of CEO values and the antecedents of firm innovation. We address these gaps by investigating whether and how the personal values of CEOs directly or indirectly shape firms' innovation strategy. Specifically, we examine whether CEOs' degree of political liberalism (i.e., support for the Democratic Party relative to the Republican Party) is likely to affect the rate with which their firms introduce new products, and we consider factors that are likely to moderate this relationship. We also investigate whether differences between liberal and conservative CEOs' rate of NPIs are likely to translate into differences in firms' market performance.

We focus our attention on CEOs' political ideologies, rather than other personal values, because we expect CEOs' political ideologies to be important, diverse, and stable enough to be broadly consequential in influencing firms' strategic behavior (Chin, Hambrick, and Trevino 2013; Hutton, Jiang, and Kumar 2014). Our empirical study of 421 CEOs of large publicly listed U.S. firms supports our conceptual framework and shows that CEOs' political liberalism is positively associated with firms' innovation propensity (i.e., rate of NPIs). Furthermore, the link between CEO liberalism and innovation propensity is moderated by CEOs' power, their compensation structure, their marketing department's influence in the top management team (TMT), and the state of the economy. We also find evidence that firms led by liberal CEOs are likely to perform better with regard to their Tobin's q, but this superior performance comes at the cost of greater stock return volatility. Finally, we observe that liberal CEOs' higher rate of NPIs partially mediates their firms' market performance.

We make four important contributions to existing research on the corporate impact of CEO values. First, by theorizing and finding empirical support that the impact of CEOs' political ideologies extends not only to corporate policies, as prior researchers have found (Chin, Hambrick, and Trevino 2013; Hutton, Jiang, and Kumar 2014), but also to a key strategic marketing outcome, we reveal that the impact of CEOs' political ideologies on firm behavior has been understated. We highlight that the likely impact of a CEO's political ideology on a marketing outcome critical for business success—the firm's rate of NPIs—is an important factor for board members to consider during their hiring decisions.

Second, whereas prior research on the impact of CEOs' political ideologies on firms' strategic behavior has primarily investigated the main effect of this relationship (e.g., Christensen et al. 2015; Hutton, Jiang, and Kumar 2014), we develop and test a set of hypotheses about the *contexts* under which we expect the political ideology–NPI relationship to be attenuated. Specifically, we investigate the role of two CEO characteristics (CEO power and compensation structure), a TMT characteristic (marketing department power in the TMT), and an environmental factor (state of the economy) in moderating the effect of CEOs' political liberalism on firms' rate of NPIs. In doing so, we provide important insights to board members and compensation committees on the factors they can use to monitor and control the marketing impact of CEOs' political ideologies.

Third, a key limitation of prior research on CEOs' political ideologies is that it has mostly explored and documented a significant *association* between political ideologies and certain firm outcomes without investigating causality. In contrast, we include in our analysis the relationship between changes in CEOs' political orientation around CEO turnovers and changes in CEOs' innovation propensity and highlight that the impact of CEO liberalism on firm innovation is at least partly causal (i.e., driven at least partly by CEOs actively changing firms' innovation strategy). We therefore provide a clearer, more nuanced understanding of the process through which CEOs' political ideologies influence firm behavior.

Finally, prior researchers have shed little light on whether differences between liberal and conservative CEOs' corporate policies lead to differences in long-term firm performance. Admittedly, Hutton, Jiang, and Kumar (2014) find that firms run by conservative CEOs perform better than those run by liberal CEOs in terms of their return on assets (ROA). However, the authors acknowledge that ROA is a short-term, backward-looking performance metric and that conservative CEOs' reductions in R&D and tangible assets, while providing a short-term profitability gain, "could be costly to shareholders in the long run" (Hutton, Jiang, and Kumar 2014, p. 1307). Indeed, marketing scholars have highlighted that ROA fails to reflect the dynamic, long-term effect of marketing actions such as innovations (Mizik 2010; Rust et al. 2004). In addition, Hutton, Jiang, and Kumar (2014) do not test whether differences in the performance of firms run by liberal and conservative CEOs are mediated by differences in CEOs' corporate policies. Consequently, we extend prior research by analyzing the impact of CEOs' political ideologies on a key long-term, forward-looking measure of firm value (Tobin's q) as well as a measure of firm risk (stock return volatility). Furthermore, we hypothesize and test whether differences in liberal and conservative CEOs' rate of NPIs are likely to mediate their differences in performance. Thus, we provide a more complete view of the positive and negative impact of CEOs' political ideologies on different types of performance metrics, and a richer understanding of the mediating mechanism linking CEOs' political ideologies to market performance.

We organize the rest of our article as follows: First, we discuss the literature on the psychological differences between liberal and conservative CEOs. Second, in light of this literature, we set forth our hypotheses about the expected relationship between CEOs' political ideologies, firms' rate of NPIs, and firm performance, and the moderating role of CEO, TMT, and environmental factors. We then describe our empirical analysis, discuss our results, and present our conclusions.

THEORETICAL FRAMEWORK

Psychological Traits Associated with Political Liberalism: Higher Risk Tolerance and Greater Openness to Ambiguity

Although political ideology is a multidimensional concept, many people identify themselves along the liberal–conservative continuum (Jost et al. 2003). Prior research has revealed that a key difference between people who belong to the

two ideological extremes relates to their openness to ambiguity and tolerance of change (Conover and Feldman 1981; Jost et al. 2003). Indeed, prior researchers have argued that the core components of political conservatism comprise resistance to change and fear of uncertainty (e.g., Giddens 1998).

A large stream of empirical research on the psychological differences between politically liberal versus conservative people is consistent with the notion of political conservatives having a greater fear of losses (Jost et al. 2003). Relatedly, political conservatives have been found to have a stronger preference for familiar versus unfamiliar stimuli (Glasgow and Cartier 1985), a greater concern for financial and job security (Atieh, Brief, and Vollrath 1987), a stronger aversion to ambiguity and uncertainty (Jost et al. 2003), and higher degrees of risk aversion and uncertainty avoidance (McAllister and Anderson 1991) than those who are less politically conservative (for a meta-analysis, see Jost et al. 2003). In summary, in light of prior research, we expect politically liberal CEOs to, on average, exhibit higher risk tolerance and greater openness to ambiguity than their politically conservative counterparts.[1]

Behavioral Consistency Theory: Application to CEOs' Strategic Marketing Decisions

One may wonder whether politically liberal CEOs are also likely to exhibit higher risk tolerance in their strategic *marketing* decisions. The behavioral consistency theory (Cain and McKeon 2016; Cronqvist, Makhija, and Yonker 2012) sheds light on this hitherto unanswered question by asserting that people tend to behave consistently across different personal and professional domains and that this consistent behavior is driven by their core values. This theory helps explain the positive association between political, economic, and social conservatism (Jost et al. 2003) and is in line with recent empirical evidence that the distinguishing personality traits of politically liberal people—higher risk tolerance and openness to ambiguity—serve as important determinants of these people's decisions across several fields, including the fields of consumer behavior, economics, and finance (Jost et al. 2003; Khan, Misra, and Singh 2013).

Behavioral consistency theory has helped explain the corporate decisions of senior executives. For example, Cain and McKeon (2016) show that CEOs who are sensation-seeking in their personal lives (i.e., those possessing private pilots' licenses) are also likely to develop sensation-seeking corporate policies involving greater acquisition activity. Malmendier and Tate (2005) document that CEOs who exhibit overconfidence in their personal security portfolios also show overconfidence in their corporate investment decisions, and Chyz (2013) reports that CEOs who are personally more tax aggressive engage in more tax avoidance activities for their firms.

Prior researchers have also found support for the behavioral consistency theory while investigating the distinguishing behavior of politically liberal and conservative CEOs across multiple personal and professional domains. For example, Cronqvist, Makhija, and Yonker (2012) document that politically conservative CEOs tend to demonstrate greater risk aversion in their personal financing as well as their corporate leverage choices. Hutton, Jiang, and Kumar (2014) reveal that politically liberal CEOs' greater risk tolerance is manifested in their firms' less conservative financing and investing policies (i.e., higher R&D, higher capital expenditure, and higher debt-to-equity ratios). Likewise, Chin, Hambrick, and Trevino (2013) find that liberal CEOs tend to invest in CSR initiatives, the rewards of which are uncertain, even when the financial performance of these firms is weak. Hutton, Jiang, and Kumar (2015) also document another risky behavior of liberal CEOs: a higher likelihood of engaging in securities fraud. Finally, Christensen et al. (2015) find that firms with Republican-leaning top executives engage in less tax avoidance than firms with Democratic-leaning executives, noting that executives "with a more conservative political orientation are more risk averse and thus may act more cautiously in establishing their firm's tax position" (Christensen et al. 2015, p. 1919). The behavioral consistency theory, which asserts that people tend to behave consistently across diverse situations, would therefore suggest that liberal CEOs' greater risk tolerance and openness to ambiguity would also be manifested in their strategic marketing decisions. Next, we formally hypothesize the relationship between CEOs' political ideologies and a key strategic marketing choice: firms' rate of NPIs.

Impact of CEOs' Political Ideologies on Firms' Rate of NPIs

Firms differ significantly in their rate of NPIs, and one factor likely to influence firms' propensity to innovate is CEOs' inclination to undertake risks. Prior research has revealed that NPIs carry significant financial risks. Studies have shown that 40%–90% of all newly introduced products fail (Gourville 2006) owing to unpredictability and instability of customer tastes, product quality shortcomings, issues with the marketing mix, changes in legal or technological environments, and effective competitor response. Firms that introduce a new product also expose themselves to an intangible reputational risk associated with the new product not meeting customer expectations or featuring in a product-harm crisis (Dawar and Lei 2009). A product-harm crisis results in significant tangible costs such as compensatory damages, legal fees, and product recall costs, along with huge intangible costs involving dilution of brand equity, deterioration in product quality perceptions, and damage to overall firm reputation (e.g., Rhee and Haunschild 2006; Van Heerde, Helsen, and Dekimpe 2007). Prior research has suggested that newly launched products are more likely to encounter product-harm crises, and consumer penalties associated with product-harm crises are also more severe for crises involving new products: in such cases, consumers lack memory-based, proattitudinal information to unconsciously defend the products (e.g., Dawar and Lei 2009).

Finally, the risk associated with NPIs is exacerbated by the fact that NPIs require high investments and long gestation periods: Unlike such initiatives as sales promotions, which are relatively less costly and more immediate in their returns, investments in new products are associated with relatively high costs and long delays in reaping market returns (Sood and Tellis 2009). Given that NPIs tend to require high investments, have long gestation periods of development, and carry a high risk of failure, CEOs are often reluctant to introduce new products, with NPIs requiring CEOs to inculcate in their firms a culture of failure tolerance (Manso 2011; Tian and Wang 2014). In light of the risks associated with NPIs,

[1]We do not suggest that politically conservative CEOs do not take risks. On the contrary, we argue that while all CEOs take risks to some extent, we expect politically liberal CEOs to have *relatively* higher risk tolerance than their conservative counterparts, on average.

we expect CEOs who are more risk tolerant and open to ambiguity to be more eager to introduce new products. As discussed previously, liberal CEOs tend to be more risk tolerant and open to ambiguity across multiple domains. Thus, we expect firms led by liberal CEOs to be more proactive in regard to their rate of NPIs.

H_1: The greater the political liberalism of a firm's CEO, the higher the firm's rate of NPIs is likely to be.

Factors Moderating the Link Between CEO Liberalism and Firms' Rate of NPIs

A person's political ideology does not operate in a vacuum. On the contrary, the effects of one's political ideology on one's decision making are bounded by the situation, such that these effects are accentuated when situational characteristics are congruent with one's ideology (Brockner and Higgins 2001). In organizational contexts, CEOs' power, their incentive structure, TMT, and economic characteristics are key situational variables (Brockner and Higgins 2001; Feng, Morgan, and Rego 2015; Sanders and Hambrick 2007). Next, we formally hypothesize the moderating role of these situational variables in the link between CEOs' political ideologies and NPIs.

CEO power. Prior research has suggested that CEOs who are more powerful are better able to imprint their personal values, personalities, and inclinations on major corporate outcomes (e.g., Finkelstein 1992; Finkelstein, Hambrick, and Cannella 2009). This phenomenon is observed because powerful CEOs are in a stronger position to use such mechanisms as raises and promotions, hiring, and firing to exert control over their subordinates (e.g., Zajac and Westphal 1996). Powerful CEOs are also less constrained by board members and therefore in a stronger position to make independent strategic decisions without significant board interference. Thus, this stream of research suggests that, for more powerful CEOs, differences between liberal and conservative CEOs' risk tolerance are more likely to translate into differences in their respective firms' rate of NPIs. In contrast, CEOs with relatively low power are likely to face stronger constraints in making or influencing strategic marketing choices, and therefore their personal values are less likely to shape their firm's innovation strategy. Thus, we hypothesize,

H_{2a}: The impact of CEOs' political liberalism on firms' rate of NPIs is weakened when CEOs have low power.

CEO's incentive structure. Agency theorists argue that while CEOs differ in their intrinsic tendencies to take risks, compensating CEOs using a high proportion of equity awards can help decrease this heterogeneity by aligning CEOs' risk propensities with those of shareholders (Jensen and Murphy 1990). In particular, a stock option gives the CEO the right to purchase a share of the firm's stock within a specified period of time for a fixed price, providing the CEO an upside potential with limited downside risk. Indeed, researchers have found that risk-averse CEOs' propensity to engage in risky endeavors such as acquisitions is increased when the proportion of equity (stock and option awards) as a part of their total compensation is high (Sanders and Hambrick 2007). Similarly, Currim, Lim, and Kim (2012) show that while managers display risk aversion in their R&D and advertising expenditures, an increase in CEOs' equity-to-bonus ratio results in an increase in firms' R&D and advertising expenditures.

As such, agency theory literature suggests that equity-based compensation is a means to incentivize managers who are naturally risk averse to take larger risks (Sanders and Hambrick 2007). By aligning CEOs' risk propensities with those of shareholders, equity-based compensation reduces the heterogeneity that otherwise exists among CEOs in their intrinsic tendencies to take risks. Given these arguments, we expect that when CEOs' equity–pay ratios are high, both liberal and conservative CEOs are likely to have relatively high incentives to take risks, and this CEO–shareholder incentive alignment is likely to minimize differences between liberal and conservative CEOs' risk propensities. For such CEOs, we expect the incremental impact of their political ideologies on firms' rate of NPIs to be relatively small. By contrast, for CEOs with low equity–pay ratios, their incentives are not aligned to the goal of shareholder value maximization. In a backdrop of incentive misalignment, we expect CEOs' personal values to play a more meaningful role in influencing the degree to which they take risks and, in turn, the speed with which their firms introduce new products.

H_{2b}: The impact of CEOs' political liberalism on firms' rate of NPIs is weakened when CEOs have greater equity–pay ratios.

Marketing department's influence in the TMT. The marketing department typically plays a central role in strategic marketing decisions, such as those involving innovation (Nath and Mahajan 2008). When the influence of the marketing department in a TMT is high, the CEO is likely to play a more passive role in strategic decisions involving innovation, leading to an attenuation of the impact of CEOs' political ideologies on firms' rate of NPIs. Scholars of upper echelon theory have also suggested that firms whose marketing departments hold high influence in the TMT are likely to introduce more new products as part of their innovation strategy because marketing, being an output function, emphasizes growth through the discovery of new products and markets (e.g., Finkelstein, Hambrick, and Cannella 2009). From this perspective, we expect that when the marketing department has a high degree of influence in firms' TMTs, firms—regardless of their CEOs' political orientations—are likely to have relatively high rates of NPIs, and the difference between liberal and conservative CEOs in regard to their firms' rate of NPIs is likely to be minimized. However, when the marketing department plays a more passive role in the TMT, CEOs' personal values (e.g., liberal vs. conservative) are likely to play a more central role in shaping firms' innovation strategy. Thus, we hypothesize,

H_{2c}: The impact of CEOs' political liberalism on firms' rate of NPIs is weakened when the marketing department has high influence in the TMT.

Economic cycle. Finally, during periods of economic growth, with consumer spending being relatively high, the chance of new product failure is relatively low, and managers are more eager to introduce new products (Axarloglou 2003). Conversely, the significant drop in consumer spending during economic recessions increases the odds of new product failure, resulting in most firms significantly cutting back on their NPIs (Axarloglou 2003; Srinivasan, Lilien, and Sridhar 2011). Given liberal CEOs' greater tolerance of risk and ambiguity, we expect them to be proactive in their NPIs, even when CEOs in general cut back on these introductions. Thus, during

periods of economic contractions, we expect the differences between liberal and conservative CEOs' rate of NPIs to be magnified. Conversely, the higher, more stable levels of consumer demand during periods of economic growth are likely to decrease the chance of new product failure, elicit high propensity to innovate from even conservative CEOs, and decrease the differences between liberal and conservative CEOs' rate of NPIs. In summary,

H_{2d}: The impact of CEOs' political liberalism on firms' rate of NPIs is weakened when the economy is not under a recession.

Relationship Between CEOs' Political Liberalism, Shareholder Value, and Risk

We expect that liberal CEOs' greater rate of NPIs is in turn associated with superior shareholder value (i.e., higher Tobin's q) but also higher firm risk (i.e., higher stock return volatility). Several researchers have argued that NPIs, particularly those that are breakthrough in nature, are inherently risky because they are associated with a lower likelihood of firm survival (Min, Kalwani, and Robinson 2006). These researchers have suggested that firms with high rates of NPIs suffer from a "curse of innovation" because NPIs have high rates of failure (Neff 2005), with consumers systematically undervaluing them in favor of more familiar existing products (Gatignon and Robertson 1985; Gourville 2006). Furthermore, high rates of breakthrough innovations have been found to be associated with high stock return volatility (Grinblatt and Titman 1998; Sorescu and Spanjol 2008), presumably because pursuing such innovations takes away firms' resources from other, relatively safer projects, such as those aimed at increasing consumers' awareness of existing products. Thus, we expect a higher rate of NPIs to mediate the link between a CEO's political liberalism and higher firm risk.

Although innovation is inherently risky, new products, particularly breakthrough ones, have been found to generate economic rents even after accounting for an increase in firm risk (Sorescu and Spanjol 2008). Researchers have shown that introducing new products leads to positive abnormal returns and, subsequently, an increase in market value (Rao, Chandy, and Prabhu 2008; Sood and Tellis 2009), positive stock returns (Srinivasan et al. 2009), an increase in Tobin's q (Kashmiri and Mahajan 2014; Sorescu and Spanjol 2008), and an increase in market-to-book ratio (Tellis, Prabhu, and Chandy 2009). Prior research has also revealed that firms tend to exhibit a lower rate of NPIs than is justified from a shareholder value maximization perspective: managers play a ratchet game, slowing down introduction of new products (Moorman et al. 2012). Agency theory also postulates that managers are more risk averse than shareholders and engage less in risky actions (e.g., launching new products) than is justified from a firm value maximization perspective (Jensen and Meckling 1976). In summary,

H_3: The greater the political liberalism of a firm's CEO, the higher the firm's shareholder value is likely to be.

H_4: The higher shareholder value of firms with liberal CEOs is likely to be mediated by the firms' higher rate of NPIs.

H_5: The greater the political liberalism of a firm's CEO, the higher the firm risk is likely to be.

H_6: The higher risk of firms with liberal CEOs is likely to be mediated by the firms' higher rate of NPIs.

METHODOLOGY AND DATA

Sample

Our sample consisted of 421 large publicly listed U.S. firms, whose performance was tracked annually across five years (2006–2010). To reach our sample, we searched the Execucomp and Wharton Research Data Services GMI Ratings databases for publicly listed U.S. firms that met the following criteria: the CEO of the firm (1) was appointed between 2003 and 2005 and (2) remained the CEO from the appointment year to at least 2010. We imposed the first filter because we wanted to consider the impact of CEO values on firms' strategic decisions from the outset of these CEOs' tenure. Furthermore, by limiting our sample to firms that experienced CEO turnover during 2003–2005, we were also able to investigate the impact of changes in CEOs' political ideologies on changes in firms' strategic behavior. We imposed the second filter because we were interested in exploring how the values of one CEO alone affected each firm's behavior during the entire five years the firm was observed. Our sample of 421 firms belonged to a diverse set of industries, representing eight different one-digit Standard Industrial Classification (SIC) codes. Web Appendix A provides further details of our sample firms.

Data Sources and Measures

Data were collected annually from 2006 to 2010. Table 1 lists the variables we used in our analyses, provides their definitions, and highlights their sources.

Measurement of CEO's political liberalism. "CEO's political liberalism" was the focal independent variable in our analysis. Following Chin, Hambrick, and Trevino (2013), we measured each CEO's political liberalism by the degree to which the CEO supported the Democratic (more liberal) political party as opposed to the Republican (more conservative) political party. In doing so, we used data on individual political contributions available from the Center for Responsive Politics (www.opensecrets.org), as contributions from CEOs are considered a reflection of their personal ideology (Chin, Hambrick, and Trevino 2013). We coded CEOs' contribution records for the 16 years prior to 2006 for which political contribution figures were available in the database (i.e., 1990–2005). We carefully verified the contributions of each CEO by checking middle names, addresses, occupations, and employer information, excluding people whose names were similar to those of our CEOs. We used Hoover's and executive biographies on company websites to help confirm each donor CEO's identity.

Following Chin, Hambrick, and Trevino (2013), we considered the following four indicators while calculating a CEO's political liberalism: (1) the number of donations the CEO made to Democratic recipients divided by the total number of donations the CEO made to Republican and Democratic recipients, (2) the dollar amount of donations the CEO made to Democratic recipients divided by the total dollar amount of donations the CEO made to Republican and Democratic recipients, (3) the number of distinct Democratic recipients to which the CEO made donations divided by the total number of distinct recipients of either party to which the CEO made donations, and (4) the number of years (over the 16-year time frame) the CEO made donations to Democratic recipients divided by the total number of years the CEO made donations to either Democratic or Republican recipients. If the denominator

Table 1
VARIABLE DEFINITIONS AND SOURCES

Variable	*Definition and Sources*
1. CEO's political liberalism	The average of four indicators measured over the 16-year period prior to 2006 (i.e., 1990–2005): (1) the number of donations the CEO made to Democratic recipients divided by the total number of donations the CEO made to Republican or Democratic recipients, (2) the dollar amount of donations the CEO made to Democratic recipients divided by the total amount of donations the CEO made to recipients from either party, (3) the number of distinct Democratic recipients to which the CEO made donations divided by the total number of distinct recipients of either party to which the CEO made donations, and (4) the number of years (over the 16-year time frame) the CEO made donations to Democratic recipients divided by the number of years the CEO made donations to either Democratic or Republican recipients. If the denominator was 0 for any of these indicators, we assumed a ratio of .50 for that indicator. (Source: www.opensecrets.org)
2. Tobin's q	Calculated according to Chung and Pruitt's (1994) formula: (share price at end of calendar year × number of common stock outstanding at end of calendar year + liquidating value of the firm's preferred stock + current liabilities – current assets + book value of long-term debt)/book value of total assets. (Source: Compustat)
3. Stock return volatility	Standard deviation of daily stock returns each calendar year, expressed as a percentage. (Source: Center for Research in Security Prices)
4. NPIs	Total number of new products introduced by a firm in the year of observation. A graduate research assistant and one of the authors independently studied firms' product-related press releases to separate the NPI news from other product-related news. Interjudge reliability was 96%, and disagreements were subsequently resolved by discussion. (Primary source: S&P Capital IQ database; secondary sources: Factiva, LexisNexis, PR Newswire, Reuters, company websites)
5. Radical NPIs	New product introductions that met the following conditions: (1) no other product in the industry was comparable to them and (2) the product brought significant customer benefits. (Source: S&P Capital IQ database, LexisNexis)
6. Incremental NPIs	New product introductions that failed to meet at least one of the two conditions of radical NPIs. These NPIs comprised new products that were similar to existing products in the industry and/or did not deliver significant customer benefits. A graduate research assistant and one of the authors studied the NPI announcements of each firm in the S&P Capital IQ database as well as news reports of these NPIs in the LexisNexis database. Using this classification scheme, the coders independently classified each NPI as radical or incremental. If information about the two conditions of radical innovations was not available through the new product announcements, news reports, and press releases, the coders classified such an NPI as incremental. Interjudge reliability was 87%, and differences were subsequently reconciled by discussion.
7a. CEO power (compensation-based)	Natural logarithm of (CEO's overall compensation divided by the total compensation of the top five most highly paid executives of the firm). (Source: Execucomp; DEF-14A proxies)
7b. CEO power (four-indicator measure)	We considered four alternative indicators of CEO power that have been used in prior research. Specifically, we measured (1) CEO duality as a dummy variable indicating whether the CEO was also the board chairman, (2) CEO's stock ownership as percentage of the firm's outstanding shares held by the CEO, (3) sole board insider as a dummy variable that took the value of 1 if the CEO was the only insider in the board, and (4) percentage of outside directors appointed after the CEO's appointment as the percentage of outside directors appointed during the CEO's tenure until the year of observation. We standardized the scores of these four indicators and combined their standard scores into a single index of CEO power.
8. CEO's equity–pay ratio	We calculated the ratio of the CEO's stock and option awards (in dollars) to the CEO's total compensation. As an alternative measure, we calculated the ratio of option awards to the CEO's total compensation. (Source: Execucomp; DEF-14A proxies)
9. Marketing influence in TMT	We recorded the following five indicants for each firm-year: (1) the number of TMT members with marketing titles as a proportion of the total number of TMT executives; (2) a dummy variable indicating whether a marketing executive was mentioned among the top five most highly compensated TMT members in the firm's proxy statement; (3) the hierarchical level of the highest-level marketing executive in the TMT, where president was recorded as 6, executive vice president as 5, senior vice president as 4, vice president as 3, other as 2, and no marketing executives as 1; (4) the cumulative hierarchical level of all the marketing executives in the firm's TMT; and (5) the number of responsibilities reflected in marketing TMT executives' job titles. We then combined these five indicants using principal component factor analysis. The five indicants loaded onto a single factor. We rescaled the saved Bartlett factor score between 1 and 100 and used it as our measure of marketing department's influence in the TMT in each firm-year.
10. Recession	Dummy variable = 1 for 2008 (a year in which, according to the National Bureau of Economic Research, the U.S. economy was under a recession for more than six months), and 0 for the years 2006, 2007, 2009, and 2010.
11. Firm age	Natural logarithm of the difference between the year of observation and the firm's founding year. (Sources: Compustat; firm website)
12. Firm size	Natural logarithm of total employees, where total employees were recorded in thousands. (Source: Compustat)
13. Globalization	The proportion of firm revenues from outside the United States. (Source: Compustat)
14. Diversification	Palepu's (1985) entropy measure of total diversification. (Source: Compustat)
15. Financial leverage	The ratio of long-term debt to total assets. (Source: Compustat)
16. CEO's age	Natural logarithm of the CEO's age. (Sources: Execucomp; Wharton Research Data Services GMI ratings; Hoover's)

Table 1
CONTINUED

Variable	*Definition and Sources*
17. CEO's generalist index	We considered four indicators that have been used in prior research to measure the degree to which the CEO is a generalist rather than a specialist in his or her experience: (1) number of different positions the CEO held in his or her career, (2) number of firms in which the CEO worked, (3) number of different four-digit SIC codes of the firms in which the CEO worked, and (4) dummy = 1 if the CEO worked for a conglomerate (i.e., a firm that reported more than one business segment). We standardized the scores of these four indicators and combined their standard scores into a single generalist index, with high scores indicating the CEO was more generalist than specialist in his or her experience.
18. CEO's marketing experience	Dummy variable = 1 if CEO had served in a marketing role in his or her career, and 0 otherwise. (Source: Mergent, company websites)
19. CEO's MBA degree	Dummy variable = 1 if CEO held an MBA degree, and 0 otherwise. (Source: Mergent, company websites)
20. CEO's prior CEO experience	Dummy variable = 1 if the CEO worked as the CEO of another firm in the past, and 0 otherwise. (Source: Mergent, company websites)
21. R&D intensity	(R&D expenditure/Total assets) × 100. Firms with missing data were coded as 0. (Source: Compustat)
22. Advertising intensity	(Advertising expenditure/Total assets) × 100. Firms with missing data were coded as 0. (Source: Compustat)
23. Risky outlays	We used the logged sum of three types of spending (in millions of dollars) for each firm-year as our aggregate measure of risky outlays: (1) R&D expenditure, (2) capital expenditures, and (3) acquisitions. (Source: Compustat)
24. Marketing alliance	Dummy variable = 1 if the firm entered into a marketing alliance in the year of observation. We defined marketing alliance as a formalized collaborative arrangement between two or more organizations focused on downstream value-chain activities, with possible forms of marketing alliances including collaborative arrangements dealing with cross-selling products, sharing brand names, advertising or promotion, distribution channels, sales force or sales offices, and marketing and service networks. A graduate research assistant and one of the authors independently studied the strategic alliance–related announcements of our sample firms in the S&P Capital IQ database and classified each alliance as marketing or nonmarketing. Interjudge reliability was 91%, with disagreements subsequently resolved through discussion. (Source: S&P Capital IQ database)

was zero for any of these indicators, we assumed a ratio of .50 for that indicator. For these calculations, we included contributions to individual candidates, party committees, and political action committees identified as either Republican or Democratic supporters. Political action committees whose political leanings were unclear were excluded from the calculations.

Four indicators designate different dimensions of a person's commitment to a political ideology: behavioral commitment, financial commitment, scope, and continuity of commitment, respectively (Chin, Hambrick, and Trevino 2013). Because these four indicators had similar means and variances, and all had a range of 0–1, we measured a CEO's overall political liberalism score as the simple average of the four indicators (Cronbach's alpha = .96). The scale of CEO's political liberalism measure ranged from 0 to 1, with scores above .50 indicating liberalism and scores below .50 indicating conservatism. On average, the CEOs in our sample leaned toward conservatism, with a mean political liberalism score of .43.

As highlighted previously, we selected the time period 1990–2005 to measure CEO liberalism and the time period 2006–2010 to observe firm outcome variables. We chose this design, wherein we measured our key independent variable (CEO liberalism) temporally before our dependent variables, to help address possible concerns about reverse causality (Kennedy 2003). Because prior research has suggested that political donation patterns are temporally stable (Chin, Hambrick, and Trevino 2013; Jost 2006), we did not expect the exclusion of the 2006–2010 time window to significantly influence CEO liberalism scores. Indeed, in unreported robustness checks, we used the time period 1990–2010 instead of 1990–2005 to measure CEO liberalism and found that CEO liberalism scores did not change significantly: in classifying CEOs with liberalism scores above .60 as "liberal" and those below .40 as "conservative," none of our sample CEOs switched between these two classifications. Our overall conclusions were also robust to the use of this alternative time window in the measurement of CEO liberalism.

Measurement of NPIs. Our primary source for collecting data on the number of NPIs was the S&P Capital IQ database, which provides excerpts from firms' product-related press releases, some of which feature NPI announcements. A graduate research assistant and one of the authors independently studied these press releases to separate the product introduction news from others.[2] Interjudge reliability was 96%, and disagreements were subsequently resolved by discussion.

Although we employed the total NPIs as a mediator in our framework, to gain additional insights we also distinguished between innovations on the basis of their degree of novelty. In line with previous research (e.g., Sorescu and Spanjol 2008; Tellis, Prabhu, and Chandy 2009), we defined "radical" NPIs as those that met the following conditions: (1) no other product in the industry was comparable to them and (2) they brought significant customer benefits through such means as noteworthy improvements in product features, introduction of novel new technologies, use of a completely new product formulation, or opening up of an entirely new market. We classified NPIs that were similar to existing products in the

[2]We also used several secondary sources of news about NPIs: Factiva, LexisNexis, PR Newswire, Reuters, and company websites. We used these sources to confirm the dates of NPIs recorded in the S&P Capital IQ database and to search for news reports of NPIs that may not have been captured in the S&P Capital IQ database.

industry and/or that did not deliver significant customer benefits as "incremental" NPIs. A graduate research assistant and one of the authors studied the NPI announcements made by each firm in the S&P Capital IQ database, as well as news reports and press releases of these NPIs in the LexisNexis database. Using the aforementioned classification scheme, the coders independently classified each NPI as radical or incremental. Given that radical innovations are relatively rare, if the coders could not find the necessary information from the company announcements, news reports, and press releases to ascertain whether a particular NPI met the conditions of a radical NPI, they classified it as incremental. Interjudge reliability was 87%, and differences were subsequently reconciled through discussion. On the whole, 4% of all NPIs were classified as radical, and the remaining 96% were classified as incremental. Web Appendix B provides illustrative examples of radical and incremental NPIs from our sample.

Measurement of CEO power. We used two alternative measures of CEO power. First, for each firm-year, using Execucomp and DEF-14A proxy statements, we measured CEO power as the natural logarithm of the ratio of the CEO's total compensation to the combined total compensation of the top five most highly paid executives of the firm (Finkelstein 1992). As an alternative measure of CEO power, we considered four indicators that have been used in prior research (e.g., Zhu and Chen 2015). Specifically, we measured (1) CEO duality as a dummy variable indicating whether the CEO was also the board chairman, (2) CEO's stock ownership as percentage of the firm's outstanding shares held by the CEO, (3) sole board insider as a dummy variable that took the value of 1 if the CEO was the only insider in the board, and (4) percentage of outside directors appointed after the CEO's appointment as the percentage of outside directors who had been appointed during the CEO's tenure until the year of observation. We standardized the scores of these four indicators and combined their standard scores into an alternative index of CEO power (Zhu and Chen 2015).

Measurement of CEO's equity–pay ratio. For each year of observation, we defined equity–pay ratio using Execucomp and firm proxies as the ratio of CEO's stock awards and option awards to total compensation. As an alternative measure of CEO's equity–pay ratio, we disregarded stock awards and considered the ratio of CEO's option awards to the CEO's total compensation.

Measurement of marketing department's influence in the TMT. We employed the approach of Feng, Morgan, and Rego (2015) in recording the following five indicants for each firm-year: (1) the number of TMT members with marketing titles as a proportion of the total number of TMT executives; (2) a dummy variable indicating whether a marketing executive was mentioned among the top five most highly compensated TMT members in the firm's proxy statement; (3) the hierarchical level of the highest-level marketing executive in the TMT, where president was recorded as 6, executive vice president as 5, senior vice president as 4, vice president as 3, other as 2, and no marketing executives as 1; (4) the cumulative hierarchical level of all the marketing executives in the firm's TMT; and (5) the number of responsibilities reflected in marketing TMT executives' job titles. We then combined these five indicants using principal component factor analysis. The saved Bartlett factor score was then rescaled between 0 and 100 and used as our measure of marketing department's influence in the TMT in each firm-year.

Measurement of recession. We followed the approach of prior researchers (Kashmiri and Mahajan 2014; Srinivasan, Lilien, and Sridhar 2011) and classified a calendar year as a recession year if more than six of its months occurred during a period of recession, as defined by the National Bureau of Economic Research. Under this method, the dummy variable recession took the value of 1 for the year 2008, and 0 for years 2006, 2007, 2009, and 2010.

Models

Model of firms' NPIs. We used a random-effects negative binomial regression to model firms' rate of NPIs.[3] We employed the following equation:

$$\begin{aligned}(1)\qquad &\text{New product introductions}_{it}\\ &= \delta_0 + \delta_1(\text{CEO's political liberalism})_i\\ &\quad + \delta_{2-11}(\text{Control variables})_{it}\\ &\quad + \delta_{12-18}(\text{One-digit SIC code})_i + \alpha_i + \varepsilon_{it},\end{aligned}$$

where i and t represented the firm i and the year t, respectively; $\delta_0, \ldots, \delta_{18}$ were the regression coefficients; NPIs and CEO's political liberalism were measured as discussed previously; control variables (measured as explained in Table 1) were firm age, firm size, globalization, diversification, financial leverage, CEO's age, CEO's generalist index, and three dummy variables (CEO's marketing experience, CEO's master of business administration [MBA] degree, and CEO's prior CEO experience); α_i and ε_{it} were unobserved randomly distributed error terms. In addition to including industry fixed effects, we controlled for globalization and diversification because firms with greater degrees of globalization and diversification, given the pressure to customize products to different countries' or different industries' unique customer needs, may be expected to introduce more new products. Similarly, larger firms may be more bureaucratic but may also have more resources, making them less or more likely to introduce new products. We controlled for firm age because a culture of innovativeness may be more prevalent in younger firms. We controlled for financial leverage to account for the possibility that firms with greater degrees of debt may be more or less pressured to introduce new products. We controlled for CEO's age because younger CEOs may be more entrepreneurial. We included CEO's generalist index to account for any differences in NPIs driven by the degree to which the CEO was a generalist versus a specialist. We also controlled for whether the CEO had prior marketing experience, an MBA degree, and prior CEO experience to account for differences in firms' NPIs driven by any of these CEO background characteristics.[4]

[3]We could not utilize a fixed-effects regression, because CEOs' political liberalism did not vary across time. Furthermore, fixed-effects models are problematic when the number of unique panels (CEOs in this study) is large but the number of time periods (years in this study) for which they are observed is small.

[4]Bertrand and Schoar (2003) used an alternative research design wherein they tracked the same executives across different firms over time. They constructed a unique manager–firm matched-panel data set in which the executives met the following criteria: (1) the executives served in the same role across at least two firms, (2) the different firms served by each executive were publicly listed, and (3) these firms were served by each executive for at least three years. We consider the Bertrand and Schoar approach superior to ours in that it helps control for unobservable characteristics of CEOs and firms. Although we acknowledge the advantages of the Bertrand and Schoar approach, a very small number of CEOs in our sample met the aforementioned criteria, resulting in very low statistical power. Thus, data limitations prevented us from applying the Bertrand and Schoar methodology in any meaningful way.

Models of firm performance: shareholder value and firm risk. We used Tobin's q as our measure of shareholder value, calculating Tobin's q using Chung and Pruitt's (1994) approximation. Prior literature has suggested that Tobin's q is a forward-looking performance metric that is appropriate for measuring the long-term impact of marketing actions (Rust et al. 2004). In addition to including industry fixed effects, we controlled for firm age, firm size, diversification, globalization, financial leverage, R&D intensity, and advertising intensity because prior research has shown that these variables can affect firm performance (e.g., Nath and Mahajan 2008). We also included several variables related to CEO characteristics: CEO's generalist index as well as three dummy variables: CEO's marketing experience, MBA degree, and prior CEO experience. We used a generalized least squares (GLS) random-effects regression to model shareholder value:

$$(2)\quad \text{Tobin's } q_{it} = \delta_0 + \delta_1(\text{CEO's political liberalism})_i + \delta_{2-12}(\text{Control variables})_{it} + \delta_{13-19}(\text{One-digit SIC code})_i + \alpha_i + \varepsilon_{it}.$$

We also used a GLS random-effects regression to model firm risk. We used stock return volatility (i.e., the standard deviation of daily stock returns over each calendar year) as our measure of firm risk. Prior researchers have used stock return volatility as a measure of total firm risk (Ronn and Verna 1986; Sorescu and Spanjol 2008), whereby total firm risk consists of two components: systematic risk and idiosyncratic risk. Work on portfolio theory (Markowitz 1952) has asserted that systematic risk typically affects the firm's shareholders only, whereas idiosyncratic risk affects the firm's shareholders, managers, and other stakeholders (Grinblatt and Titman 1998). The use of stock return volatility as a measure of firm risk therefore enabled us to fully capture the impact of CEO liberalism on the entire organization.[5]

$$(3)\quad \text{Stock return volatility}_{it} = \delta_0 + \delta_1(\text{CEO's political liberalism})_i + \delta_{2-12}(\text{Control variables})_{it} + \delta_{13-19}(\text{One-digit SIC code})_i + \alpha_i + \varepsilon_{it}.$$

ANALYSIS AND RESULTS

In Table 2, we present descriptive statistics and correlations for our measures, pooled over the period of observation. For all models discussed, the variance inflation factors were smaller than the benchmark of 10. The condition indices associated with the eigenvalues were also smaller than the benchmark of 30, and the correlations between independent variables were less than .50. Thus, our tests do not indicate a significant problem of multicollinearity (Kennedy 2003).

Analysis of Antecedents of NPIs

Table 3 shows the results of our random effects negative binomial regression with NPIs as the dependent variable. In the following subsections, we report the results of the moderation analysis and analysis of antecedents of shareholder value and firm risk.

[5]We encourage further research that analyzes the differential impact of CEO liberalism on the systematic and idiosyncratic risk components.

Main effect and moderation analysis. As Table 3 (Model 1) shows, we found support for H_1: firms with more liberal CEOs were likely to introduce more new products than firms with less liberal CEOs ($\beta_{\text{CEO liberalism}} = +.51$, $p < .05$). Among the control variables, we found firm size, diversification, CEO's generalist index, and CEO's marketing experience to be positively associated with NPIs.

In Models 2 and 3, we included the proposed moderators and their interaction terms with CEO liberalism as covariates. In Model 2, we used our first measures of CEO power (CEO's relative compensation), and CEO equity–pay ratio (stock and option awards to compensation ratio). In Model 3, we used our alternative measures. Analyzing the interaction effects of the proposed moderators, we found that the effect of CEO liberalism on NPIs was magnified for firms with high CEO power ($p < .01$ in Models 2 and 3), for firms with low marketing influence in the TMT ($p < .05$ in Models 2 and 3), and during a recession ($p < .05$ in Models 2 and 3), in support of H_{2a}, H_{2c}, and H_{2d}, respectively. However, we did not find support for H_{2b} in Model 2: the interaction term of CEO liberalism with equity–pay ratio (stock and option awards to compensation ratio) was not significant. The lack of support for H_{2b} in Model 2 may be driven by the fact that option awards, given their time-bound nature, play a stronger role than stock awards in reducing CEOs' heterogeneity with regard to their risk propensity (Sanders and Hambrick 2007). Indeed, in Model 3, H_{2b} was supported: the interaction effect of CEO liberalism with our alternative equity–pay ratio measure (option awards to compensation ratio) was negative and significant ($p < .05$).

To obtain further insights, we investigated whether CEO liberalism differentially influenced radical and incremental NPIs, with these two NPI types classified as explained previously. We found that firms with more liberal CEOs are likely to introduce a greater number of radical new products (Table 3, Model 4) and a greater number of incremental new products (Table 3, Model 5).[6]

Analysis of antecedents of shareholder value and firm risk. Table 4 summarizes the results of our GLS random effects regression with shareholder value (Tobin's q) as the dependent variable in Model 1 and firm risk (stock return volatility) as the dependent variable in Model 2. In Model 1, we found support for H_3: CEO's political liberalism had a positive and significant association with Tobin's q ($\beta_{\text{CEO liberalism}} = +.33$, $p < .05$). In Model 2, we found support for H_5: CEO's political liberalism was positively and significantly associated with firm risk ($\beta_{\text{CEO liberalism}} = +.60$, $p < .05$).

Mediation analysis. To test our proposed mediation, we used a bootstrapping approach recommended by Preacher and Hayes (2004). Table 5 presents the results of this approach, using STATA's "binary_mediation" macro with 1,000 bootstraps.

[6]Do liberal CEOs launch a greater proportion of radical NPIs? To answer this question, we calculated the proportion of radical introductions to total NPIs in each of the 1,243 firm years for which firms introduced new products and, using a GLS random-effects model, regressed this variable on the same set of independent variables shown in Table 3 (Models 1, 4, and 5). We found CEO liberalism to be positively and significantly associated with proportion of radial NPIs ($\beta = .02$, $p < .01$). This finding suggests that among firms that introduce new products, firms with liberal CEOs are likely to introduce a greater proportion of radical new products.

Table 2
DESCRIPTIVE STATISTICS AND CORRELATION COEFFICIENTS

	M	*SD*	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*
1. Firm value (Tobin's q)	1.12	1.4																	
2. Firm risk (stock return volatility [%])	3.53	2.86	.04*																
3. CEO's political liberalism	.43	.29	.14***	.09***															
4. Firm age (ln of age)	3.46	1.04	−.19***	−.19***	−.12***														
5. Firm size (ln of employees in '000s)	1.11	2.1	−.29***	−.24***	−.12***	.49***													
6. Globalization	.58	.38	−.03	−.07***	.06***	.09***	.08***												
7. Diversification	.36	.48	−.14***	−.10***	−.08***	.24***	.36***	−.03											
8. Financial leverage	.21	.22	−.001	−.002	−.03	.04**	.13***	.23***	−.01										
9. R&D intensity (%)	6.28	1.54	.39***	.16***	.06***	−.25***	.40***	−.18***	−.16***	−.12***									
10. Advertising intensity (%)	1.36	3.18	.03*	.003	.18***	.01	.10***	.09***	.03	.02	−.05**								
11. CEO's generalist index	.03	2.69	−.03	−.01	.05**	−.002	.15***	.04*	.08***	.07***	−.07***	.002							
12. CEO's marketing experience	.27	.44	.06***	−.04*	.07***	.05**	.05**	.03	.08***	−.03	.06***	.05**	.13***						
13. CEO's MBA degree	.39	.49	.01	−.04*	−.09**	.003	.01	−.003	−.003	.01	−.01	−.01	.11***	.13**					
14. CEO's prior CEO experience	.29	.45	.03	.06**	.05**	−.14***	−.10***	.001	−.06**	.003	.08**	−.03	.21***	−.08**	−.08**				
15. CEO power (four indicator measure)	1.07	5.54	.002	.05**	.02	.03	.02	−.01	.08**	−.01	−.06**	−.02	.11***	.03	.01	.09**			
16. CEO's equity-pay ratio (stock and option awards)	.44	.23	.05**	−.05*	.06**	.01	.14***	.03	.07***	−0.03	.07***	.02	.09***	.07***	.10***	−.02	.09***		
17. Marketing influence In TMT	38.9	22.3	−.03	−.04*	−.04*	−.001	.17***	−.01	−.01	.02	−.02	.04*	.12***	.11***	−.01	−.001	−.003	.13***	
18. NPIs	4.08	9.84	.06***	−.004	.16***	.06***	.13***	−.06***	.12***	−.04*	.02	.03	.07***	.18***	−.05**	.06***	.02	.10***	.19***

*$p < .10$.
**$p < .05$.
***$p < .01$.
Notes: Two-tailed significance levels. The table shows pooled correlation between 2,105 firm-year observations (421 firms observed annually from 2006 to 2010).

Table 3
RESULTS OF RANDOM-EFFECTS NEGATIVE BINOMIAL REGRESSION ANALYSIS WITH NPIS AS DEPENDENT VARIABLE

	Model 1 (DV: NPIs)	*Model 2 (DV: NPIs)*	*Model 3 (DV: NPIs)*	*Model 4 (DV: Radical NPIs)*	*Model 5 (DV: Incremental NPIs)*
Focal Independent Variable					
CEO's political liberalism	.51 (2.59)**	.45 (2.18)**	.43 (2.11)**	3.48 (5.45)***	.54 (2.66)***
Control Variables					
Firm age	.09 (1.55)	.12 (2.02)**	.12 (1.99)**	−.12 (−.62)	.09 (1.50)
Firm size	.06 (1.76)*	.06 (1.73)*	.06 (1.69)*	.14 (1.41)	.07 (1.81)*
Globalization	−.02 (−.15)	−.01 (−.01)	−.01 (−.06)	−.06 (−.14)	−.02 (−.08)
Diversification	.22 (2.08)**	.18 (1.74)*	.21 (1.96)**	.30 (1.03)	.23 (2.33)**
Financial leverage	−.18 (−.92)	−.14 (−.75)	−.10 (−.50)	.04 (.06)	−.17 (−.87)
CEO's age	.69 (1.38)	.72 (1.44)	.61 (1.22)	.73 (.49)	.66 (1.30)
CEO's generalist index	.09 (3.86)***	.09 (3.79)***	.09 (3.89)***	.13 (2.12)**	.10 (3.97)***
CEO's marketing experience	.25 (1.88)*	.13 (.82)	.13 (.95)	.95 (2.26)**	.25 (1.83)*
CEO's MBA degree	.06 (.45)	.13 (1.01)	.12 (.99)	−.28 (−.73)	.05 (.41)
CEO's prior CEO experience	.01 (.10)	−.06 (−.44)	−.001 (−.01)	.10 (.23)	.01 (.06)
Proposed Moderators					
CEO power (compensation-based measure)		−.18 (−2.48)**			
CEO power (four indicator measure)			−.01 (−1.26)		
CEO's equity–pay ratio (stock and option awards)		.31 (2.31)**			
CEO's equity–pay ratio (option awards only)			.36 (2.54)**		
Marketing influence in TMT		.01 (3.41)***	.01 (3.72)***		
Recession (dummy = 1)		−.09 (−1.82)*	−.08 (−1.76)*		
Interactions with Proposed Moderators					
CEO power (compensation-based measure) × CEO's political liberalism		.48 (3.11)***			
CEO power (four indicator measure) × CEO's political liberalism			.05 (3.03)***		
CEO's equity-pay ratio (stock and option awards) × CEO's political liberalism		−.01 (−.99)			
CEO's equity-pay ratio (options awards only) × CEO's political liberalism			−.82 (−1.98)**		
Marketing influence in TMT × CEO's political liberalism		−.02 (−2.86)**	−.01 (−2.56)**		
Recession × CEO's political liberalism		.30 (1.98)**	.31 (2.08)**		
Industry controls	Included	Included	Included	Included	Included
Constant	1.12 (2.57)**	1.65 (.81)	1.22 (2.81)***	17.63 (.17)	1.18 (2.70)***

*$p < .10$.
**$p < .05$.
***$p < .01$.

Notes: Two-tailed significance levels. The table shows coefficients, with z-values in parentheses. The coefficients of the seven one-digit SIC dummies have not been presented for the sake of simplicity. All continuous variables were mean-centered. DV = dependent variable. For all models, N = 2,105 observations (421 firms observed over a five-year period from 2006 to 2010). Model 1: Wald $\chi^2(18) = 88.10$, prob > $\chi^2 = .0001$; Model 2: Wald $\chi^2(26) = 185.27$, prob > $\chi^2 = .0001$: Model 3: Wald $\chi^2(26) = 202.8$, prob > $\chi^2 = .0001$; Model 4: Wald $\chi^2(18) = 56.05$, prob > $\chi^2 = .0001$; Model 5: Wald $\chi^2(18) = 90.34$, prob > $\chi^2 = .0001$.

In support of H_4 (Table 5, Panel A), we found that the positive link between CEO's political liberalism and Tobin's q was partially mediated by greater NPIs: the indirect effect of CEO's political liberalism on Tobin's q through NPIs was positive (mean indirect effect = +.013), and the 95% confidence interval of the indirect effect (+.005, +.028) did not contain zero. In an additional analysis (Table 5, Panel B), we found that both radical NPIs and incremental NPIs served as mediators in the link between CEO's political liberalism and Tobin's q, as evidenced by the indirect effects through each of these mediators being positive, and the 95% confidence interval of the indirect effects through each of these mediators not containing zeros.

As we show in Table 5, Panel A, contrary to H_6, NPIs in general did not mediate the link between CEO's political liberalism and firm risk. However, in an additional analysis

Table 4
RESULTS OF GLS RANDOM-EFFECTS REGRESSION ANALYSIS WITH TOBIN'S Q AND STOCK RETURN VOLATILITY AS DEPENDENT VARIABLES

	Model 1 (DV: Tobin's q)	*Model 2 (DV: Stock Return Volatility)*
Focal Independent Variable		
CEO's political liberalism	.33 (1.98)**	.60 (2.37)**
Control Variables		
Firm age	−.05 (−1.13)	-.20 (−2.55)**
Firm size	−.10 (−3.40)***	-.25 (−5.38)***
Globalization	.04 (.32)	−.48 (−2.41)**
Diversification	−.02 (−.20)	−.029 (−.18)
Financial leverage	.26 (1.54)	.58 (1.75)*
R&D intensity	.03 (14.73)***	.010 (1.93)*
Advertising intensity	.03 (2.24)**	.010 (.43)
CEO's generalist index	−.01 (−.52)	.02 (.64)
CEO's marketing experience	.17 (1.46)	−.23 (−1.35)
CEO's MBA degree	.05 (.53)	−.15 (−1.01)
CEO's prior CEO experience	−.04 (−.36)	.07 (.45)
Industry controls	Included	Included
Constant	1.05 (4.20)***	3.24 (8.77)***

*$p < .10$.
**$p < .05$.
***$p < .01$.
Notes: Two-tailed significance levels. The table shows coefficients, with z-values in parentheses. DV = dependent variable. For all models, independent variables also include seven one-digit SIC dummies. For the sake of simplicity, we do not present the coefficients of the seven one-digit SIC dummies. All continuous independent variables were mean-centered. For all models, N = 2,105 observations (421 firms observed over a five-year period from 2006 to 2010). Model 1: Wald $\chi^2(19) = 351.67$, prob > $\chi^2 = .00001$; Model 2: Wald $\chi^2(19) = 139.86$, prob > $\chi^2 = .00001$.

shown in Table 5, Panel B, we found that radical NPIs mediated the link between CEO's political liberalism and firm risk. More specifically, we found the indirect effect of CEO's political liberalism on firm risk through radical NPIs to be positive (mean indirect effect = +.009), and the 95% confidence interval of this indirect effect (+.002, +.018) did not contain zero. Incremental NPIs, however, did not mediate the link between CEO's political liberalism and firm risk. This

Table 5
MEDIATION ANALYSIS THROUGH BOOTSTRAPPING: RESULTS OF POOLED REGRESSION WITH TOBIN'S Q AND STOCK RETURN VOLATILITY AS DEPENDENT VARIABLES AND CEO'S POLITICAL LIBERALISM AS INDEPENDENT VARIABLE

A: NPIs as Mediators

	DV: Tobin's q		*DV: Stock Return Volatility*	
	Indirect Effect of IV on DV (via Mediator)		*Indirect Effect of IV on DV (via Mediator)*	
Mediator	*Standardized Coefficient (Bootstrap SE)*	*95% CI*	*Standardized Coefficient (Bootstrap SE)*	*95% CI*
NPIs	.013 (.005)**	(.005, .028)	.003 (.003)	(−.002, .009)

B: Radical and Incremental NPIs as Mediators

	DV: Tobin's q	*DV: Stock Return Volatility*	*DV: Tobin's q*	*DV: Stock Return Volatility*
	Indirect Effect of IV on DV (via Mediator)		*Indirect Effect of IV on DV (via Mediator)*	
Mediator	*Standardized Coefficient (Bootstrap SE)*	*95% CI*	*Standardized Coefficient (Bootstrap SE)*	*95% CI*
Radical NPIs	.025 (.009)***	(.012, .046)	.009 (.004)**	(.002, .018)
Incremental NPIs	.012 (.005)**	(.004, .025)	.002 (.003)	(−.002, .009)

**$p < .05$.
***$p < .01$.
Notes: Two-tailed significance levels. N = 2,105 firm-years. DV = dependent variable; IV = independent variable; CI = confidence interval. Coefficients are standardized. We included firm age, firm size, globalization, diversification, financial leverage, R&D intensity, advertising intensity, CEO's generalist index, CEO's marketing experience, CEO's MBA degree, CEO's prior CEO experience, and seven one-digit SIC dummies as control variables. We obtained the standardized coefficients from the statistical software STATA's binary_mediation macro. The overall conclusions were robust to the use of Preacher and Hayes's (2004) process macro. We obtained the standard errors and confidence intervals from bootstrapping with 1,000 replications. The 95% confidence interval was bias-corrected and accelerated.

additional analysis suggests partial support for H_6, with only one innovation type (radical NPIs) mediating the link between CEO's political liberalism and firm risk.[7]

Additional Analyses

Addressing endogeneity concerns: two-step instrumental variable regression. One could raise concerns about the exogeneity assumption of our key independent variable, CEO's political liberalism. Do firms' expected needs affect the political tilt of their CEOs' contributions? Is a liberal CEO more likely to be appointed if a corporate board expects the incoming CEO to increase NPIs? We partially ruled out these endogeneity concerns by measuring CEOs' political liberalism prior to their firms' observation period (i.e., our liberalism measure was based on the 16-year period [1990–2005] before the period in which firm behavior and performance was tracked [2006–2010]). Because all CEOs in our data were appointed between 2003 and 2005, most years from which our political liberalism measure was calculated were prior to the CEO's appointment, and as CEO's political liberalism temporally preceded both firm behavior and firm performance, endogeneity concerns were partially addressed.

Nevertheless, we conducted a two-step instrumental variable regression to test the robustness of our findings. In the first step following Hutton, Jiang, and Kumar (2014), we regressed CEO's political liberalism on the following four instruments: (1) gender (dummy variable, with female CEO = 1), (2) minority status (dummy variable, with nonwhite CEO = 1), (3) military service experience of the CEO (dummy variable, with CEO having a military background = 1), and (4) age of the CEO (natural logarithm of CEO's age at the start of the year 2003). As highlighted by Hutton, Jiang, and Kumar (2014), these instruments are valid because they are expected to be correlated with personal political ideologies in the general electorate but not expected to be correlated directly with firm performance. Furthermore, although these instruments may play a part in the firm–manager matching process, they cannot be changed after a CEO's appointment in response to the firm's changing business goals. Therefore, the instrumental approach can further address potential concerns about endogeneity in which the firm's needs could potentially affect the political leaning of its CEO's contributions.

In the first stage, as expected, we found CEO's political liberalism to be positively and significantly associated with gender (female = 1) and minority status (nonwhite = 1) and negatively and significantly associated with CEO age. In the second stage (results reported in Table 6), we included CEO's predicted political liberalism from the first stage as our key independent variable. As Table 6 reveals, our overall conclusions with regard to the effect of CEO's political liberalism on firm performance and firm risk remained the same, further addressing endogeneity concerns.

As a final test of endogeneity, we followed the approach of Chin, Hambrick, and Trevino (2013) and investigated a broader set of conditions that might lead to the appointment of liberal or conservative CEOs. One could argue that liberal CEOs are more likely to be appointed if the company headquarters is in a heavily Democratic state, if the company had been less (or more) proactive in its marketing actions before the CEO's appointment, and if the firm operated in certain industries (e.g., technology). We therefore first regressed our CEO liberalism measure on another set of potential antecedent factors: (1) location of the company's headquarters (dummy = 1 if the headquarters was located in one of the top ten most Democratically leaning states as rated by Gallup (Jones 2009): Washington, D.C., and the states of Rhode Island, Massachusetts, Hawaii, Vermont, New York, Connecticut, Maryland, Illinois, and Delaware); (2) pre-CEO NPIs (i.e., NPIs one year prior to the CEO's appointment year); and (3) seven one-digit SIC dummies. In an unreported analysis, the inclusion of the predicted value of CEO's political liberalism in the second regression step (with Tobin's q and stock return volatility separately used as the dependent variable) did not change our results, again allaying endogeneity concerns.

Changes in firms' rate of NPIs and performance surrounding CEO turnovers. If firms tend to hire CEOs with similar attributes over time, this firm-matching process should result in the influence of CEOs' political ideologies being felt passively because such new CEOs would maintain corporate culture and policies and, in turn, maintain firms' rate of NPIs and performance. In contrast, CEOs may affect firms' innovation strategy actively by changing corporate culture and policies, leading to changes in firms' rate of NPIs and performance. Turnovers in CEOs provide an interesting setting to investigate the process through which CEO liberalism influences firms' rate of NPIs.

Table 7 shows the results of our analysis in which (across different models) we regressed the change in firms' rate of NPIs and performance on the change in CEOs' political liberalism and other change variables. Here, we defined "change in CEO's political liberalism" as the political liberalism score of the new CEO minus the political liberalism score of the old CEO. We defined the change in time-variant measures as the average value of the measure in the years t + 2 and t + 3 minus the average value of the measure in the years t − 2 and t − 3, where t was the new CEO's appointment year. We did not include the years t + 1 and t − 1 in calculating the change variables because strategy variables have inertia and tend to respond with a delay to changes in executives' political orientation (Hutton, Jiang, and Kumar 2014).

As Table 7 shows, the analysis of changes in firms' rate of NPIs and firm performance around CEO turnovers reveals that CEOs' political orientation influences firms' innovation propensity and performance, at least in part, through an active process of CEOs changing corporate culture and policies. More specifically, an increase in CEO liberalism was associated with an increase in NPIs ($p < .05$). We also observed that an increase in CEO liberalism increased firm value ($p < .10$) and firm risk ($p < .05$). The association between change in CEO liberalism and change in Tobin's q, however, became statistically insignificant when we included "change in NPIs" as controls (Table 7, Model 2b). The lower significance levels of the coefficients in Table 7, relative to those in Tables 3

[7]We reanalyzed our mediation framework with the additional assumption that Tobin's q and stock return volatility (our two ultimate dependent variables) were correlated. Our overall conclusions were robust to this assumption: CEO liberalism continued to have a significant and positive total effect on both Tobin's q and stock return volatility. Furthermore, there was evidence of a significant and positive indirect effect of CEO liberalism on Tobin's q through NPIs and a significant and positive indirect effect of CEO liberalism on stock return volatility through radical NPIs. We present the results of this analysis in Web Appendix C.

Table 6
RESULTS OF IV REGRESSIONS OF TOBIN'S Q AND STOCK RETURN VOLATILITY ON CEO'S POLITICAL LIBERALISM

	DV: Firm Value (Tobin's q)		*DV: Firm Risk (Stock Return Volatility)*	
	IV Two-Step Regression		*IV Two-Step Regression*	
	Model 1	*Model 2*	*Model 3*	*Model 4*
Focal Independent Variable				
CEO's predicted political liberalism	.95 (1.76)*	.92 (1.68)*	2.14 (1.82)*	2.08 (1.75)*
Control Variables				
Firm age	−.03 (−1.18)	−.03 (−1.18)	−.23 (−3.28)***	−.22 (−3.27)***
Firm size	−.10 (−5.82)***	−.10 (−6.21)***	−.23 (−6.30)***	−.24 (−6.38)***
Globalization	.10 (1.32)	.12 (1.54)	−.40 (−2.43)**	−.39 (−2.34)**
Diversification	−.09 (1.38)	−.10 (−1.62)	−.05 (−.36)	−.05 (−.40)
Financial leverage	.34 (2.59)**	.36 (2.73)***	.59 (2.05)**	.57 (1.99)**
R&D intensity	.03 (14.93)***	.03 (14.76)***	.01 (2.91)**	.01 (2.95)***
Advertising intensity	.02 (2.61)***	.02 (2.57)**	.02 (1.25)	.02 (1.29)
CEO's generalist index	.01 (.62)	.01 (.53)	.03 (1.11)	.03 (1.08)
CEO's marketing experience	.15 (2.29)**	.10 (1.67)*	−.20 (−1.41)	−.23 (−1.59)
CEO's MBA	.02 (.38)	.04 (.64)	−.20 (−1.53)	−.18 (−1.44)
CEO's prior CEO experience	−.05 (−.71)	−.06 (−.99)	.08 (.57)	.07 (.49)
Proposed Mediator				
NPIs		.01 (3.82)***		.01 (1.13)
Industry controls	Included	Included	Included	Included
Constant	.68 (2.43)**	.61 (2.20)***	2.72 (4.46)**	3.42 (46.89)***

*$p < .10$.
**$p < .05$.
***$p < .01$.

Notes: Two-sided test of significance. DV = dependent variable; IV = instrumental variable. The table shows coefficients, with t-values in parentheses. We calculated CEO's predicted political liberalism after regressing this variable on gender (female CEO = 1), minority status (nonwhite CEO = 1), natural logarithm of CEO's age (at the start of the year 2003), and military service experience (CEO with military background = 1). For all models, independent variables also include seven one-digit SIC dummies. For simplicity, we do not present the coefficients of the seven one-digit SIC dummies. All continuous independent variables were mean-centered. For all models, N = 2,105 observations (421 firms observed over a five-year period from 2006 to 2010). The Wald tests of all models showed a *p*-value less than .00001.

and 4, may have been driven by the lower degrees of freedom and, subsequently, the lower power of our change models. Indeed, in unreported analysis, when we increased the power of our change models by continuing to include "change in NPIs" but dropping the insignificant control variables, the association between "change in CEO's liberalism" and "change in Tobin's q" became significant (at $p < .10$). Overall, our results highlight that the impact of CEOs' political ideologies on firms' innovation propensity and performance extends beyond passive firm–manager matching.

Investigating CEOs' risk aversion: analysis of CEOs' letters to shareholders, firms' risky outlays, and marketing alliance formations. Our argument that liberal CEOs are likely to introduce more NPIs rests on the premise that liberal CEOs tend to take more risks than conservative CEOs in their strategic decisions. Our premise was based on psychology literature and prior empirical findings that Republican CEOs have lower levels of corporate debt, lower capital and R&D expenditures (Hutton, Jiang, and Kumar 2014), and lower degrees of tax avoidance (Christensen et al. 2015). Nevertheless, we tested our premise in three ways.

First, recent research on strategic leadership has analyzed the words used in CEOs' letters to shareholders to capture CEO personality traits, values, and cognitions. For example, Short et al. (2010) have content analyzed CEOs' letters to shareholders to measure CEOs' entrepreneurial orientation (EO), with several EO subdimensions broadly reflecting a CEO's risk propensity and openness to ambiguity. Specifically, Short et al. derive a "dictionary" of EO-related words appearing in CEOs' letters to shareholders, the frequency of which (normalized to total shareholder letter words) can be used as nonintrusive measures of the five dimensions of CEOs' entrepreneurial orientation: risk taking, innovativeness, proactiveness, competitive aggressiveness, and autonomy (for the list of words, see Web Appendix D). Short et al. have demonstrated that their content analysis–based measures of CEOs' personality traits have strong construct validity. Therefore, following Short et al., we studied CEOs' letters to shareholders included in the 2006 and 2007 annual reports for our sample firms using the text-analysis software DICTION 7.0 (Hart 2000).[8]

Results of an ordinary least squares regression analysis reported in the Appendix (Table A1) revealed a significant association between CEO's political liberalism and three entrepreneurial orientation dimensions: risk taking ($p < .10$), innovativeness ($p < .05$), and proactiveness ($p < .05$). We also separated our firms into those with Democratic-leaning CEOs (i.e., those with CEO liberalism score greater than .50) and those with Republican-leaning CEOs (i.e., those with CEO liberalism score less than .50) and conducted a difference-in-means test between the two groups. As Table A2 shows, we found that Democratic-leaning CEOs had, on average, significantly higher proactiveness ($p < .05$) and marginally higher risk-taking and innovativeness scores ($p < .10$) than their Republican-leaning counterparts, in support of our central premise.

[8]Because 72 firms in our sample did not publish letters to shareholders as part of their 2006 and 2007 annual reports, we dropped these firms from our analysis, leaving a usable subsample of 349 firms.

Table 7

RESULTS OF REGRESSION ANALYSES WITH CHANGE IN VARIABLES AROUND CEO TURNOVER USED AS DEPENDENT AND INDEPENDENT VARIABLES

	DV: ΔNPIs	*DV: ΔTobin's q*		*DV: ΔStock Return Volatility*	
Independent Variables	*Model 1*	*Model 2a*	*Model 2b*	*Model 3a*	*Model 3b*
ΔCEO's political liberalism	.20 (2.08)**	.48 (1.73)*	.44 (1.56)	1.50 (2.39)**	1.52 (2.40)**
ΔFirm size	−.04 (−.57)	−.09 (−.45)	−.08 (−.40)	−.28 (−.60)	−.28 (−.61)
ΔGlobalization	.17 (.79)	1.37 (2.20)**	1.33 (2.14)**	1.97 (1.41)	1.98 (1.42)
ΔDiversification	−.11 (−1.29)	.10 (.38)	.12 (.48)	−1.09 (−1.94)**	−1.10 (−1.98)**
ΔFinancial leverage	−.37 (−2.07)**	−1.00 (−1.97)*	-.92 (−1.80)*	1.07 (.94)	1.04 (.91)
ΔCEO's generalist index	.07 (2.05)**	.12 (1.21)	.10 (1.05)	.22 (1.02)	.22 (1.04)
ΔCEO's marketing experience	.12 (1.95)*	.34 (1.97)*	.31 (1.81)*	−.01 (−.02)	.01 (.01)
ΔCEO's MBA	.05 (.76)	.01 (.06)	.01 (.01)	.23 (.58)	.24 (.59)
ΔCEO's prior CEO experience	.13 (1.51)	.03 (.13)	.01 (.01)	.25 (.46)	.26 (.48)
ΔNPIs			.22 (1.65)*		−.09 (−.28)
Industry controls	Included	Included	Included	Included	Included
Constant	.33 (1.98)**	−.12 (−.25)	−.19 (−.40)	−.48 (−.45)	−.45 (−.42)

*$p < .10$.
**$p < .05$.

Notes: Two-tailed significance levels. The table shows coefficients, with t-values in parentheses. DV = dependent variable. For all models, N = 421 observation (421 firms observed once). We defined ΔCEO's political liberalism as the political liberalism of the new CEO minus the political liberalism of the old CEO, with the political liberalism of the old and new CEOs measured using their respective political contribution data from www.opensecrets.org. For time-invariant CEO characteristics such as CEO's MBA or CEO's marketing experience, we defined Δ as the value of the variable for the new CEO minus the value of the variable for the old CEO. For other variables, the Δ prefix indicates the average value of the variable in the years t + 2 and t + 3 minus the average value of the variable in the years t − 2 and t − 3, where t was the year in which the new CEO was appointed. Thus, for example, ΔNPIs for a firm with a CEO appointed in 2004 signified the average number of new product introductions in the years 2006 and 2007 minus the average number of NPIs in the years 2001 and 2002. We did not include the years t + 1 and t − 1 in our measurement of the Δvariables, because strategy variables have inertia and tend to respond with a delay to changes in CEO values (Hutton, Jiang, and Kumar 2014). All dependent variables (being continuous) were modeled using an ordinary least squares regression.

Second, using Compustat, we collected data on three major corporate outlays that are known to have highly uncertain returns and are therefore considered risky: R&D, acquisitions, and capital expenditures. Prior researchers have used each of these three outlays as indicators of corporate risk taking (Hoskisson, Hitt, and Hill 1993; Sanders and Hambrick 2007). These outlays can also be considered substitutes for each other, and each outlay type provides only a partial picture of overall risky expenditure (Chatterjee and Hambrick 2011). Thus, following Chatterjee and Hambrick (2011) and Sanders and Hambrick (2007), we used the logged sum of the three forms of spending as an overall indicator of risky outlays for each firm-year.[9] We then regressed this indicator of risky outlays on CEO liberalism and several control variables that may be associated with risk taking. Appendix Table A3 (Model 1) reveals that CEO liberalism was positively associated with risky firm outlays ($p < .01$).

In an additional analysis reported in Table A3 (Model 2), we also used a random-effects logistic regression to regress firms' likelihood to form a marketing alliance on CEO liberalism and several controls. Marketing alliances, given their high failure rate, uncertainty about alliance partners' commitment, and ambiguity regarding the benefit of marketing assets provided by the partner firm, carry significant risks (Das and Teng 1996; Lee and Johnson 2010). We recorded marketing alliance formation as a binary variable, with details of the data collection methodology shared in Table 1. As Table A3 (Model 2) reveals, CEO liberalism was also positively associated with the likelihood of a marketing alliance formation ($p < .01$). Taken together, our analysis of CEOs' letters to shareholders, firms' risky outlays, and their marketing alliance formations provides strong corroborative evidence supporting our central premise that liberal CEOs tend to take more risks in their strategic decisions.

Predictive accuracy of models. How closely do our models predict our dependent variables? Would the effects of CEO liberalism be present in holdout samples? To answer these questions, we followed the tenfold cross-validation procedure. Following this procedure, we divided our sample randomly into ten subsamples of roughly equal size. We initially retained a single subsample for testing our models of antecedents of NPIs, Tobin's q, and stock return volatility, and we used the remaining nine subsamples combined as the training set for fitting the sample. This procedure was iterated ten times, with each of the ten subsamples used exactly once as the validation set. We then averaged the results from the ten iterations to produce a single estimation. CEO liberalism continued to be positively and significantly related to NPIs, Tobin's q, and stock return volatility in the single estimation. Furthermore, the mean squared errors of prediction for the predictive models of NPIs, Tobin's q, and stock return volatility were only 1.0%, 2.6%, and 1.1% higher, respectively, than the mean squared error of estimation of the same models prior to the tenfold cross-validation, suggesting a strong predictive accuracy. Web Appendix E presents the detailed results of our cross-validation procedure.

DISCUSSION AND IMPLICATIONS

Our results on a sample of U.S. publicly listed firms reveal that firms with liberal CEOs, on average, outperform those

[9]Across all firm-years, these three types of risky expenditures contributed approximately equally to their combined annual expenditure (R&D = 27%; capital = 38%; acquisitions = 35%). Thus, none of the three individual risky expenditure types had an overwhelming contribution toward our calculated index, and it was not necessary to standardize these three types of expenditures.

with conservative CEOs on a key forward-looking metric of firm value—Tobin's q. However, this superior market value comes with an important cost—a higher stock return volatility. The differential market performance of firms with liberal CEOs is partially mediated by their greater rates of NPIs. These differences in firms' innovation strategy, however, are moderated by CEOs' power, their compensation structure, the influence of the marketing department, and the state of the economy.

Our research contributes to the broader discussion of how senior managers inject their personal ideologies into corporate decisions. Although Hambrick and Mason (1984) emphasize the role of managerial values, the overwhelming majority of subsequent studies addressing upper echelons have examined only the effects of executives' demographic characteristics—particularly their tenure, functional backgrounds, and education. There is a dearth of studies investigating the impact of CEOs' personal values on corporate outcomes. Furthermore, the very few articles that *have* investigated the effect of CEOs' values considered only such outcome variables as CSR, level of diversification, capital structure, and degree of tax avoidance, with scant research investigating the impact of CEOs' values on firms' marketing strategies. Thus, we extend the limited literature on executives' values to a key marketing outcome critical for firms' long-term success: firms' propensity to innovate.

Our research also extends the limited literature on the antecedents of innovation. Because innovation is a key driver of firm success, researchers are being challenged to understand why some firms are more likely to innovate than others. To that end, with the primary responsibility of CEOs being the survival and success of their firms, and with anecdotal evidence of CEOs such as Apple's Steve Jobs and Google's Larry Page inculcating a culture of innovativeness in their firms, it may seem obvious that CEOs play a central role in shaping innovation outcomes. Surprisingly, however, prior literature on the link between CEO characteristics and firm innovation is mixed, with some researchers arguing that decisions pertaining to innovation are made by middle managers, and thus the role of CEOs in shaping firm innovation is trivial (e.g., Burgelman 1994). Our work adds to a very small research stream (Yadav, Prabhu, and Chandy 2007) that helps correct this view. We show that under certain boundary conditions pertaining to CEO power, incentive structure, role of the marketing department, and state of the economy, CEOs' political ideologies *do* have a significant impact on firms' rate of NPIs, and this innovation outcome, in turn, influences firms' performance. Thus, we suggest that further research should more closely examine the role of CEO values in firms' marketing behavior in general, and innovation outcomes in particular.

Our results also have important implications for managers, boards of directors, investors, and employees. To managers, we reveal that a high rate of NPIs has both positive and negative financial implications. A higher Tobin's q suggests that such proactive marketing behavior more than compensates shareholders for the additional risk. However, because stock return volatility is inversely related to a firm's survival probability (Grinblatt and Titman 1998), our results suggest that firms exhibiting proactive marketing behavior have greater probabilities of filing for bankruptcy, with negative repercussions for many firm stakeholders (Grinblatt and Titman 1998). Thus, managers can benefit by weighing the pros and cons of a proactive innovation strategy while formulating their decisions pertaining to NPIs.

To boards of directors, we emphasize that an executive's political ideology—a stable personal value—can easily be observed through the executive's political contributions record, and this observation can help board members assess the executive's propensity to innovate before the executive is hired. In contrast, most CEO personality traits studied by prior researchers (e.g., narcissism, hubris), though accurate predictors of a CEO's attitudes and behavior, are difficult to observe prior to the CEO's appointment. Furthermore, demographic characteristics such as age, tenure, functional background, and education, though easily observable, tend to be noisy proxies of CEOs' attitudes.

The higher Tobin's q and stock return volatility of firms with liberal CEOs also highlights that investors can benefit from analyzing CEOs' political contributions data when assessing the risk and return of different investment options. Portfolio theory (Markowitz 1952) predicts that in an efficient market, higher risk associated with owning a particular firm's stock is associated with higher return. Indeed, our results (firms with higher firm value tended to have higher firm risk) were in line with this expectation. Because investors differ in their risk-return preferences—some preferring a low return at a low risk, others desiring a higher return at a higher risk—our results suggest that a CEO's political ideology can serve as an effective signal, helping investors better assess whether the risk and return associated with holding a particular firm's stock is in line with their personal preferences. Furthermore, given that a consistently high rate of innovation of firms with liberal CEOs reflects a more central role of marketing in these firms (Nath and Mahajan 2008), marketing practitioners may consider a CEO's political ideology as a useful evaluative criterion when deciding which firm to work for.

Our research has a few limitations that necessitate further research. First, because private firms' secondary data were unavailable, we limited our sample to publicly listed U.S. firms. We encourage research exploring the generalizability of our results to privately held firms and firms outside the United States. Furthermore, although the forward-looking nature of Tobin's q made it an appropriate metric to employ to assess the financial impact of NPIs, this measure is not without its limitations. For example, investors' psychological biases of investors can affect Tobin's q (Demsetz and Villalonga 2001). Further research that involves other performance metrics would therefore be useful.

For the sake of simplicity, we also restricted our analysis to firms whose CEOs were appointed in 2003–2005 and did not change during the period of observation (2006–2010). Future studies can explore whether our results hold for firms whose CEOs' tenure was shorter than five years, and whether liberal and conservative CEOs are consistent in their propensity to innovate when changing firms. Here, the methodology of Bertrand and Schoar (2003), who constructed a sample of executives who had moved across at least two firms, is promising. We also encourage scholars to explore the impact of other executive values, personality traits, experiential backgrounds, and biological characteristics on innovation and various additional strategic marketing outcomes. Finally, future researchers may fruitfully explore how the political ideologies of entire TMTs and boards of directors influence strategic marketing decisions.

APPENDIX: EXPLORATION OF THE LINK BETWEEN CEO'S POLITICAL LIBERALISM AND RISK AVERSION

Table A1
RESULTS OF REGRESSION ANALYSIS WITH DIFFERENT DIMENSIONS OF THE CEO'S ENTREPRENEURIAL ORIENTATION AS DEPENDENT VARIABLES

	Dependent Variable				
	Risk Taking	*Innovativeness*	*Proactiveness*	*Competitive Aggressiveness*	*Autonomy*
Independent variable: CEO's political liberalism	.28 (1.79)*	1.06 (2.04)**	.68 (2.64)**	.23 (1.60)	.018 (.20)

*$p < .10$.
**$p < .05$.
Notes: Two-tailed significance levels. The table shows coefficients, with t-values in parentheses. Measurement of CEOs' five entrepreneurial orientation dimensions (risk taking, innovativeness, proactiveness, competitive aggressiveness, and autonomy) was based on computer-aided text analysis using the word lists presented in Web Appendix D. Word counts of each of the five dimensions were normalized to per 500 words in the shareholder letter. N = 349 firms (because 72 firms of the 421 firms in our sample did not publish letters to shareholders as part of their 2006 and 2007 annual reports, we dropped these firms from our analysis).

Table A2
DIFFERENCE-OF-MEANS TEST BETWEEN FIRMS WITH LIBERAL CEOS AND FIRMS WITH CONSERVATIVE CEOS

	Firms with Liberal CEOs	*Firms with Conservative CEOs*	*t-Value*
1. Number of firms	80	162	
2. Risk taking	.89	.70	1.69*
3. Innovativeness	6.35	5.80	1.85*
4. Proactiveness	2.22	1.88	2.08**
5. Competitive aggressiveness	1.19	1.18	.09
6. Autonomy	.34	.35	−.12

*$p < .10$.
**$p < .05$.
Notes: Two-tailed significance levels. N = 349 firms.

Table A3
RESULTS OF RANDOM-EFFECTS REGRESSION ANALYSIS WITH RISKY OUTLAYS AND MARKETING ALLIANCE FORMATION AS DEPENDENT VARIABLES

Dependent Variable	*Model 1: Risky Outlays*	*Model 2: Marketing Alliance*
Regression Type	*GLS Random Effects*	*Random-Effects Logit*
CEO's political liberalism	.79 (3.85)***	1.99 (8.16)***
Firm age	−.22 (−3.75)***	−.10 (−1.38)
Firm size	.69 (21.07)***	.20 (4.81)***
Globalization	−.49 (−3.17)***	−.62 (−3.31)***
Diversification	.71 (.75)	−.13 (−.85)
Financial leverage	.14 (.92)	−.14 (−.46)
CEO's equity–pay ratio (stock and option awards)	.22 (2.22)**	.74 (2.71)**
CEO's generalist index	−.01 (−.69)	.05 (1.80)*
CEO's marketing experience	−.02 (−.15)	.17 (1.14)
CEO's MBA degree	.04 (.35)	−.10 (−.75)
CEO's prior CEO experience	.13 (.94)	.31 (2.04)**
Industry controls	Included	Included
Constant	3.70 (9.93)***	−1.91 (−4.13)***

*$p < .10$.
**$p < .05$.
***$p < .01$.
Notes: Two-tailed significance levels. The table shows coefficients, with z-values in parentheses. We defined risky outlays as the log sum (in million $) of each firm-year's R&D expenditure, capital expenditure, and acquisitions. Industry controls included seven one-digit SIC dummies. All independent variables were mean-centered. For both models, N = 2,105 observations (421 firms observed over a five-year period from 2006 to 2010). Model 1: Wald $\chi^2(18) = 685.6$, prob > $\chi^2 = .0001$; Model 2: Wald $\chi^2(18) = 121.20$, prob > $\chi^2 = .0001$.

REFERENCES

Atieh, Jennifer, Arthur Brief, and David Vollrath (1987), "The Protestant Work Ethic Conservatism Paradox: Beliefs and Values in Work and Life," *Personality and Individual Differences*, 8 (4), 577–80.

Axarloglou, Kostas (2003), "The Cyclicality of New Product Introductions," *Journal of Business*, 76 (1), 29–48.

Baker, Vincent L., and George C. Mueller (2002), "CEO Characteristics and Firm R&D Spending," *Management Science*, 48 (6), 782–801.

Bertrand, Marianne, and Antoinette Schoar (2003), "Managing with Style: The Effect of Managers on Firm Policies," *Quarterly Journal of Economics*, 118 (4), 1169–208.

Brockner, Joel, and E. Tory Higgins (2001), "Regulatory Focus Theory: Implications for the Study of Emotions at Work," *Organizational Behavior and Human Decision Processes*, 61 (1), 35–66.

Burgelman, Robert A. (1994), "Fading Memories: A Process Theory of Strategic Business Exit in Dynamic Environments," *Administrative Science Quarterly*, 39 (1), 24–56.

Cain, Matthew D., and Stephen B. McKeon (2016), "CEO Personal Risk-Taking and Corporate Policies," *Journal of Financial and Quantitative Analysis*, 51 (1), 139–64.

Chatterjee, Arijit, and Donald C. Hambrick (2011), "Executive Personality, Capability Cues, and Risk Taking: How Narcissistic CEOs React to Their Successes and Stumbles," *Administrative Science Quarterly*, 56 (2), 202–37.

Chin, M.K., Donald C. Hambrick, and Linda K. Trevino (2013), "Political Ideologies of CEOs: Illustrative Evidence of the Influence of Executive Values on Corporate Social Responsibility," *Administrative Science Quarterly*, 58 (2), 197–232.

Christensen, Dane M., Dan S. Dhaliwal, Steven Boivie, and Scott D. Graffin (2015), "Top Management Conservatism and Corporate Risk Strategies: Evidence from Managers' Personal Political Orientation and Corporate Tax Avoidance," *Strategic Management Journal*, 36 (12), 1918–38.

Chung, Kee H., and Stephen W. Pruitt (1994), "A Simple Approximation of Tobin's q," *Financial Management*, 23 (3), 70–74.

Chyz, James A. (2013), "Personally Tax Aggressive Executives and Corporate Tax Sheltering," *Journal of Accounting and Economics*, 56 (2), 311–28.

Cohen, Moris A., Jehoshua Eliashberg, and Teck H. Ho (1997), "An Anatomy of a Decision Support System for Developing and Launching Line Extensions," *Journal of Marketing Research*, 34 (February), 117–29.

Conover, Pamela J., and Stanley Feldman (1981), "The Origins and Meaning of Liberal/Conservative Self-Identifications," *American Journal of Political Science*, 25 (4), 617–45.

Cronqvist, Henrik, Anil K. Makhija, and Scott E. Yonker (2012), "Behavioral Consistency in Corporate Finance: CEO Personal and Corporate Leverage," *Journal of Financial Economics*, 103 (1), 20–40.

Currim, Imran S., Jooseop Lim, and Joung W. Kim (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 (September), 33–48.

Das, T.K., and Bing-Sheng Teng (1996), "Risk Types and Inter-Firm Alliance Structure," *Journal of Management Studies*, 33 (6), 827–43.

Dawar, Niraj, and Jing Lei (2009), "Brand Crises: The Roles of Brand Familiarity and Crisis Relevance in Determining the Impact on Brand Evaluations," *Journal of Business Research*, 62 (4), 509–16.

Demsetz, Harold, and Belen Villalonga (2001), "Ownership Structure and Corporate Performance," *Journal of Corporate Finance*, 7 (3), 209–33.

Feng, Hui, Neil A. Morgan, and Lopo L. Rego (2015), "Marketing Department Power and Firm Performance," *Journal of Marketing*, 79 (September), 1–20.

Finkelstein, Sydney (1992), "Power in Top Management Teams: Dimensions, Measurement, and Validation," *Academy of Management Journal*, 35 (3), 505–38.

Finkelstein, Sydney, Donald C. Hambrick, and Albert A. Cannella (2009), *Strategic Leadership: Theory and Research on Executives, Top Management Teams, and Boards*. New York: Oxford University Press.

Gatignon, Hubert, and Thomas S. Robertson (1985), "A Propositional Inventory for New Diffusion Research," *Journal of Consumer Research*, 11 (4), 849–67.

Giddens, Anthony (1998), *The Third Way: The Renewal of Social Democracy*. Cambridge, UK: Polity Press.

Glasgow, M. Ruth, and Adrienne M. Cartier (1985), "Conservatism, Sensation-Seeking, and Music Preferences," *Personality and Individual Differences*, 6 (3), 393–95.

Gourville, John T. (2006), "Understanding the Psychology of New Product Development," *Harvard Business Review* (June), 99–106.

Grinblatt, Mark, and Sheridan Titman (1998), *Financial Markets & Corporate Strategy*. Homewood, IL: Richard D. Irwin.

Hambrick, Donald C., and Phyllis A. Mason (1984), "Upper Echelons: The Organization as a Reflection of Its Top Managers," *Academy of Management Review*, 9 (2), 193–206.

Hart, Roderick P. (2000), *DICTION 5.0: The Text-Analysis Program*. Thousand Oaks, CA: Sage Publications.

Hoskisson, Robert E., Michael A. Hitt, and Charles W.L. Hill (1993), "Managerial Incentives and Investment in R&D in Large Multiproduct Firms," *Organization Science*, 4 (2), 325–41.

Hutton, Irena, Danling Jiang, and Alok Kumar (2014), "Corporate Policies of Republican Managers," *Journal of Financial and Quantitative Analysis*, 49 (5/6), 1279–310.

Hutton, Irena, Danling Jiang, and Alok Kumar (2015), "Political Values, Culture, and Corporate Litigation," *Management Science*, 61 (12), 2905–25.

Jensen, Michael C., and William H. Meckling (1976), "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure," *Journal of Financial Economics*, 3 (4), 305–60.

Jensen, Michael C., and Kevin J. Murphy (1990), "Performance Pay and Top Management Incentives," *Journal of Political Economy*, 98 (2), 225–65.

Jones, Jeffrey M. (2009), "State of States: Political Party Affiliation," (accessed October 24, 2013), http://www.gallup.com/poll/114016/state-states-political-party-affiliation.aspx.

Jost, John T. (2006), "The End of the End of Ideology," *American Psychologist*, 61 (7), 651–70.

Jost, John T., Jack Glaser, Arie W. Kruglanski, and Frank Sulloway (2003), "Political Conservatism as Motivated Social Cognition," *Psychological Bulletin*, 129 (3), 339–75.

Kashmiri, Saim, and Vijay Mahajan (2014), "Beating the Recession Blues: Exploring the Link Between Family Ownership, Strategic Marketing Behavior and Firm Performance During Recessions," *International Journal of Research in Marketing*, 31 (1), 78–93.

Kennedy, Peter (2003), *A Guide to Econometrics*, 5th ed. Cambridge, MA: MIT Press.

Khan, Romana, Kanishka Misra, and Vishal Singh (2013), "Ideology and Brand Consumption," *Psychological Science*, 24 (3), 326–33.

Lee, Ruby P., and Jean L. Johnson (2010), "Managing Multiple Facets of Risk in New Product Alliances," *Decision Sciences*, 41 (2), 271–300.

Malmendier, Ulrike, and Geoffrey Tate (2005), "CEO Overconfidence and Corporate Investment," *Journal of Finance*, 60 (6), 2661–700.

Manso, Gustavo (2011), "Motivating Innovation," *Journal of Finance*, 66 (5), 1823–69.

Markowitz, Harry M. (1952), "Portfolio Selection," *Journal of Finance*, 7 (1), 77–91.

McAllister, Pamela, and Anthony Anderson (1991), "Conservatism and the Comprehension of Implausible Texts," *European Journal of Social Psychology*, 21 (2), 147–64.

Min, Sungwook, Manohar U. Kalwani, and William T. Robinson (2006), "Market Pioneer and Early Follower Survival Risks: A Contingency Analysis of Really New Versus Incrementally New Product-Markets," *Journal of Marketing*, 70 (January), 15–33.

Mizik, Natalie (2010), "The Theory and Practice of Myopic Management," *Journal of Marketing Research*, 47 (August), 594–611.

Moorman, Christine, Simone Wies, Natalie Mizik, and Fredrika J. Spencer (2012), "Firm Innovation and the Ratchet Effect Among Consumer Packaged Goods Firms," *Marketing Science*, 31 (6), 934–51.

Nath, Pravin, and Vijay Mahajan (2008), "Chief Marketing Officers: A Study of Their Presence in Firms' Top Management Teams," *Journal of Marketing*, 72 (January), 65–81.

Neff, Jack (2005), "Small Ball: Marketers Rely on Line Extensions," *Advertising Age* (April 11), 10–12.

Palepu, Krishna (1985), "Diversification Strategy, Profit Performance, and the Entropy Measure," *Strategic Management Journal*, 6 (3), 239–55.

Piening, Erk, and Torsten O. Salge (2015), "Understanding the Antecedents, Contingencies, and Performance Implications of Process Innovation: A Dynamic Capabilities Perspective," *Journal of Product Innovation Management*, 32 (1), 424–40.

Preacher, Kristopher, and Andrew Hayes (2004), "SPSS & SAS Procedures for Estimating Indirect Effects in Simple Mediation Models," *Behavior Research Methods, Instruments, & Computers*, 36 (4), 717–31.

Rao, Raghunath S., Rajesh K. Chandy, and Jaideep C. Prabhu (2008), "The Fruits of Legitimacy: Why Some New Ventures Gain More from Innovation Than Others," *Journal of Marketing*, 72 (July), 58–75.

Rhee, Mooweon, and Pamela R. Haunschild (2006), "The Liability of Good Reputation: A Study of Product Recalls in the U.S. Automobile Industry," *Organization Science*, 17 (1), 101–17.

Ronn, Ehud I., and Avinash K. Verma (1986), "Pricing Risk Adjusted Deposit Insurance: An Option-Based Model," *Journal of Finance*, 41 (4), 871–95.

Rust, Ronald, Tim Ambler, Gregory Carpenter, V. Kumar, and Rajendra K. Srivastava (2004), "Measuring Marketing Productivity: Current Knowledge and Future Directions," *Journal of Marketing*, 68 (October), 76–89.

Sanders, Gerard, and Donald Hambrick (2007), "Swinging for the Fences: The Effect of CEO Stock Options on Company Risk Taking and Performance," *Academy of Management Journal*, 50 (5), 1055–78.

Short, Jeremy C., J. Christian Broberg, Claudia C. Cogliser, and Keith H. Brigham (2010), "Construct Validation Using Computer-Aided Text Analysis (CATA): An Illustration Using Entrepreneurial Orientation," *Organizational Research Methods*, 13 (2), 320–47.

Sood, Ashish, and Gerard J. Tellis (2009), "Do Innovations Really Pay Off? Total Stock Market Returns to Innovation," *Marketing Science*, 28 (3), 442–56.

Sorescu, Alina B., and Jelena Spanjol (2008), "Innovation Effect on Firm Value and Risk: Insights from Consumer Packaged Goods," *Journal of Marketing*, 72 (March), 114–32.

Srinivasan, Raji, Gary Lilien, and Shrihari Sridhar (2011), "Should Firms Spend More on Research and Development and Advertising During Recessions?" *Journal of Marketing*, 75 (May), 49–65.

Srinivasan, Shuba, Koen Pauwels, Jorge Silva-Risso, and Dominique M. Hanssens (2009), "Product Innovations, Advertising, and Stock Returns," *Journal of Marketing*, 73 (January), 24–43.

Tellis, Gerard J., Jaideep C. Prabhu, and Rajesh K. Chandy (2009), "Radical Innovation Across Nations: The Pre-Eminence of Corporate Culture," *Journal of Marketing*, 73 (January), 3–23.

Tian, Xuan, and Tracy Y. Wang (2014), "Tolerance for Failure and Corporate Innovation," *Review of Financial Studies*, 27 (1), 211–55.

Van Heerde, Harald, Kristiaan Helsen, and Marnik G. Dekimpe (2007), "The Impact of a Product-Harm Crisis on Marketing Effectiveness," *Marketing Science*, 26 (2), 230–45.

Yadav, Manjit S., Jaideep C. Prabhu, and Rajesh K. Chandy (2007), "Managing the Future: CEO Attention and Innovation Outcomes," *Journal of Marketing*, 71 (October), 84–101.

Zajac, Edward J., and James D. Westphal (1996), "Who Shall Succeed? How CEO/Board Preferences and Power Affect the Choice of New CEOs," *Academy of Management Journal*, 39 (1), 64–90.

Zhu, David, and Guoli Chen (2015), "CEO Narcissism and the Impact of Prior Board Experience on Corporate Strategy," *Administrative Science Quarterly*, 60 (1), 31–65.