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ORIGINAL EMPIRICAL RESEARCH

Incentivizing CEOs to build customer- and employee-firm relations for higher customer satisfaction and firm value

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Abstract This research reveals customer- and employee-firm relations to be two routes by which firms can leverage executive incentive structures to create customer and firm value. Analyses of a unique dataset with multiple archival sources show that (1) increases in the proportion of CEOs' long-term equity-based compensation positively influence actions that build customer- and employee-firm relations as measured by the Kinder, Lydenberg, Domini & Co. (KLD) data source, (2) such effects are stronger in unstable markets, and (3) customer and employee relationship-building actions affect firm value both directly and indirectly via the mediator of customer satisfaction as measured by the American Customer Satisfaction Index (ACSI) data source. The findings have implications for the improvement of customer satisfaction, the role of marketing in the organization, and the design of CEO incentive packages leading to higher customer satisfaction and firm value.

Keywords CEO compensation · Customer-firm relations · Employee-firm relations · Customer satisfaction · Firm value

In recent years, the financial value of customer relationships has received growing attention among top executives (Anderson et al. 2004; Gupta et al. 2004; Luo 2009). Managers increasingly tend to see customer satisfaction as a valuable intangible asset and thus an important corporate target (e.g., Microsoft, AXA, Volkswagen, HSBC, and Boeing). However, finding the best incentives to induce top executives to build customer-firm relations and improve customer satisfaction is challenging. Although prior marketing research has demonstrated the relevance of incentives and reward systems for motivating employees (Hauser et al. 1994) and the sales force (Coughlan and Sen 1989; John and Weitz 1989), few studies have investigated the implications of CEO incentive package design for customer and firm value creation.

This paper explicates two routes of influence that firms can rely on as appropriate executive compensation structures for raising firms' customer satisfaction and market value. The first route depends on *external marketing* and operates through actions to build customer-firm relations. We conjecture that increases in the proportion of long-term equity-based compensation for CEOs will positively influence corporate engagement in long-term customer relationship management. In turn, actions to build customer-firm relations should translate into customer satisfaction and ultimately raise firm value. We also propose a second route, based on *internal marketing*. Our expectation is that long-term equity-based CEO compensation encourages actions to build employee-firm relations that will positively affect

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customer satisfaction and firm value. The two routes of influence converge at customer satisfaction, suggesting a mediational role of customer satisfaction in the effects on firm value of organizational actions to build customer and employee relations. No prior empirical study in either the marketing or management literature has investigated these linkages.

Our study makes several meaningful contributions. First, it conceptualizes and tests the vital role of CEO compensation structure as a key corporate governance policy fostering customer satisfaction. Further, we advance the satisfaction literature by examining the *antecedents* of customer satisfaction (Luo et al. 2010; Mithas et al. 2005). Past research has found significant outcomes of customer satisfaction, including increased shareholder value (Anderson et al. 2004; Luo and Bhattacharya 2006, 2009; Mittal et al. 2005), greater cash flows (Gruca and Rego 2005; Morgan and Rego 2006), and excess stock returns (Fornell et al. 2006; Luo et al. 2010).This study shows that when coping with low customer satisfaction, owners and shareholders should consider that the CEO's compensation structure might be part of the problem.

Second, this investigation sheds new light on distinct paths of influence based on internal and external relationship-building. We show that corporate actions fostering customer- and employee-firm relations are key *intermediate* processes in the quest to boost customer satisfaction. Our study extends the relationship marketing and market orientation literature by finding that firms can, through appropriate incentives, motivate CEOs to stimulate organization-wide actions that cement healthier relationships with customers and employees and thereby achieve higher firm value. Echoing the notion that "top management factors, a communication-action gap, and employee *esprit de corps* affect customer responses and business performance" (Kohli and Jaworski 1990, p. 8), we add that firms should use long-term incentives as instruments to motivate CEOs, who set the tone for the entire enterprise, to stimulate organizational *actions* that lead to superior firm value by assuring product safety, creating no harm to consumer welfare, and taking better care of employees.

Third, we develop a theoretical framework that examines how practices of customer relationship management (CRM) and top management compensation structures affect firm performance. Extending prior research on the direct link from CEO or CRM variables to firm performance (Krasnikov et al. 2009; Priem et al. 1999; Reinartz et al. 2004), our *sequential* framework suggests that a long-term equity-based pay structure at the top affects organizational conduct and, through resulting actions, has a far-reaching impact on customer liking and market performance outcomes.

Overall, to our knowledge, this paper is the first across the marketing, strategy, and finance disciplines to uncover two relational mechanisms—customer- and employee-firm relations—that link long-term CEO compensation structures to firms' customer satisfaction and market value. In the remainder of this article, we first provide an overview of our framework and hypotheses and then report research design and results. We conclude with implications of findings.

Theoretical framework and hypotheses

Four decades ago, marketing scholar Felton (1959) pointed out the need for "the board of directors, chief executives, and top-echelon executives to appreciate and foster a marketing state of mind within the firm" (p. 55). Top management commitment and reward systems may affect the generation, dissemination, and use of market and customer intelligence and, thus, affect firms' customer satisfaction. Top managers "play a critical role in shaping an organization's values and orientation toward being responsive to customer needs" (Jaworski and Kohli 1993, p. 55). Following this stream of research, our framework suggests that firms may use compensation as an incentive to encourage CEOs to build relationships with both customers and employees to create customer and firm value (i.e., from motivation to action to result).

Figure 1 provides our proposed framework. We expect increases in the proportion of CEOs' long-term equity-based compensation to positively influence organizational actions aimed at building customer and employee relationships. Such influences should be stronger in unstable markets. Further, building customer and employee relationships will affect firm value partially via the mediator of customer satisfaction. Finally, our framework includes a series of CEO-, firm-, and environment-level control variables that strengthen the rigor of logic and estimation.

In framing our study, we propose two theoretical routes. The first route of influence focuses on building relationships with external customers (i.e., long-term equity-based CEO compensation → actions to build *customer*-firm relationships → customer satisfaction → firm value). The second route pertains to building relationships with internal employees (i.e., long-term equity-based CEO compensation → actions to build *employee*-firm relationships → customer satisfaction → firm value). Next, we provide the logic for these links and develop the hypotheses.[1]

[1] The study presents a framework that links corporate actions to customer satisfaction to firm value. Similar to those in most ACSI studies (Anderson et al. 2004; Gruca and Rego 2005; Luo et al. 2010; Tuli and Bharadwaj 2009), the framework proposed here does not include intermediate variables/constructs such as loyalty and profit between customer satisfaction and firm value.

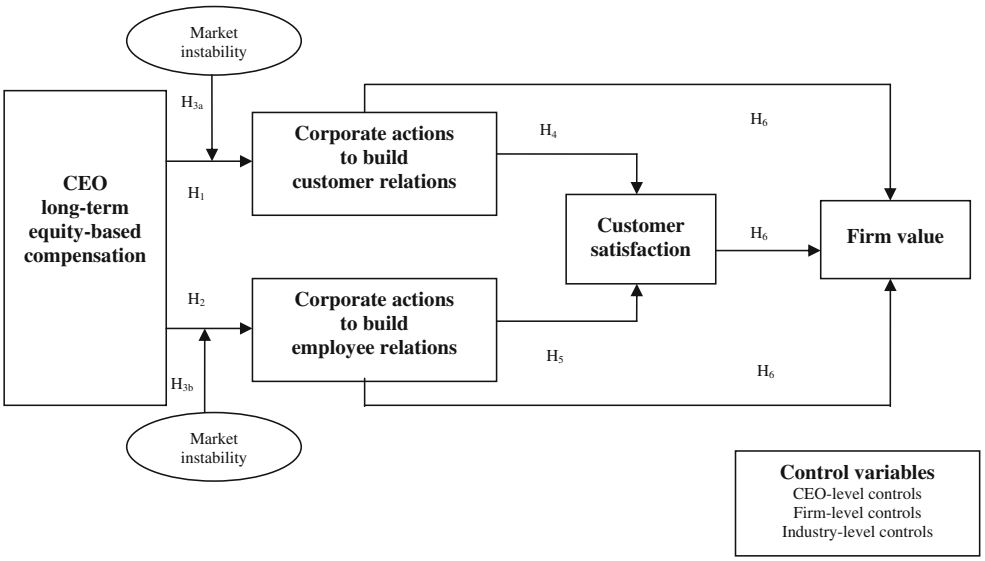

Fig. 1 Conceptual framework. CEO-level controls include stock ownership, tenure, chair, founder, total compensation, and internal CEO, while firm-level controls include size, leverage, advertising, sales growth, and CMO presence. Industry-level controls include market instability, number of segment, manufacturing, and market concentration

Long-term equity-based CEO compensation → actions to build customer-firm relationships

The corporate governance literature considers CEO compensation to be one of the most important of motivational levers (Fong et al. 2010; Miller 1995; Murphy 1999). Firms can use different types of CEO pay schemes to tie the interests of top executives to those of the firm's stakeholders, such as customers and employees, so that CEOs have the incentive to maximize the shareholder value of the firm. Essentially, CEO compensation falls into two categories: shorter-term fixed pay (annual salary fixed per contract) and longer-term equity-based pay (stock options and restricted stock grants) (Chhaochharia and Grinstein 2009; Kale et al. 2009). Agency theory suggests that long-term equity-based compensation provides more incentives for CEOs to better align with key stakeholders of the firm such as customers and employees. That is, fewer agency problems occur in terms of maximizing firm shareholder value rather than CEO personal reward.

We expect that increases in the proportion of long-term equity-based CEO pay (vis-à-vis short-term fixed pay) are positively related to CEO attention to customer equity and enhance corporate actions to build customer-firm relations. Because strong customer relationships are market-based assets that pay off in the long run, a long-term pay structure (rather than short-term) likely motivates CEOs to pay more attention to such market assets. The higher the equity-based pay, the more likely the CEOs' personal goals converge and identify with the firms' overall goals of serving the customer (Johnson and Ashforth 2008), which will motivate CEOs to rally the entire organization to build constructive customer-firm relationships.

More importantly, the marketing literature suggests that top management market-based reward systems and commitment positively influence the firm's market orientation (i.e., customer-oriented behaviors in the entire organization) and, thus, enhance customer satisfaction of the firm (Day 1990; Kohli and Jaworski 1990; Moorman 1995). This perspective supports the relevance of long-term equity-based CEO incentives for customer relationship development. Further, a higher proportion of short-term fixed CEO pay may induce myopic corporate behaviors that undercut marketing programs and harm long-term customer equity. In contrast, CEOs with a higher proportion of long-term pay have greater motivation to stay focused on actions that implement the marketing concept within the entire enterprise and build strong customer relationships. These actions include providing customers with innovative and safe products, creating customer welfare, and delivering customer value in the long run (Jaworski and Kohli 1993; Webster 1988). Thus,

H1: Positive changes in the proportion of long-term equity-based (or negative changes in the proportion of short-term fixed) CEO compensation are positively related to changes in corporate actions to build customer-firm relations.

Long-term equity-based CEO compensation → actions to build employee-firm relations

Establishing employee-firm relationships is an important long-term organizational goal and significantly affects customer value creation and organization performance (Brown et al. 2009; Hambrick 2007). We expect that CEOs with a higher proportion of long-term equity-based pay will be more engaged in promoting internal human capital and will use their influence to implement corporate actions to achieve higher employee identification with the firm

(Carpenter et al. 2004; Homburg et al. 2009). This expectation is consistent with stakeholder theory, which suggests that a long-term equity incentive structure (rather than short-term) offers CEOs more motivation to reduce employee turnover rates and enhance human capital in a long-term, relational fashion (as opposed to a short-term, transactional way) (Coombs and Gilley 2005; Wang et al. 2009). The greater CEOs' incentives to become long-term and relationship-oriented, the more actions the firm will take to provide benefits to employees and reduce work environment hazards, thus improving employee-firm relations.

H2: Positive changes in the proportion of long-term equity-based (or negative changes in the proportion of short-term fixed) CEO compensation are positively related to changes in corporate actions to build employee-firm relations.

Moderating role of market instability

We expect that the strength of the effects of CEO compensation structure on corporate actions to build customer and employee relations depends on market instability. Unstable markets often feature rapidly changing customer demands, short product cycles, and fierce market competition (Dobni and Luffman 2003).

We posit that in unstable markets, firms have a greater need to motivate CEOs with long-term compensation structures to build effective customer-firm relationships for several reasons. First, in unstable markets, competition for customers usually becomes intense because financially challenged players may aggressively court customers (Anderson et al. 2004; Gruca and Rego 2005). Further, customers in unstable markets tend to be less bound to suppliers, and product or service innovations pose a ubiquitous threat to long-term customer relations (Luo and Homburg 2007, 2008). Under these circumstances, to safeguard the long-term survival and success of a company, firms should present CEOs with long-term (rather than short-term) compensation structures to foster successful customer-firm relations (Tuli and Bharadwaj 2009). Indeed, the market orientation literature has suggested that in unstable, turbulent industries that are characterized by frequent, hard-to-forecast changes in customer preferences (Kohli and Jaworski 1990; Luo 2009), firms should set up long-term incentives (rather than a short-run fixed salary) for top managers so as to secure stronger customer-firm relations. Hence,

H3a: The effect of changes in the proportion of long-term equity-based CEO compensation on changes in corporate actions to build customer-firm relations is stronger in the case of high market instability.

A similar line of reasoning applies to a higher need for firms to use long-term CEO pay to foster stronger employee relations in unstable markets. Because unstable markets involve rapidly changing customer demands, short product cycles, and fierce competition, maintaining a good relationship with customers becomes challenging. Further, this task relies more on skilled employees and their customer services in unstable markets. At the same time, more competitor poaching of skilled employees occurs (Homburg et al. 2009). Therefore, to ensure continuing success in unstable markets, firms have a greater need to motivate CEOs with long-term (as opposed to short-term) compensation and provide incentives to enhance employee-firm relations (Wang et al. 2009).[2] Therefore,

H3b: The effect of changes in the proportion of long-term equity-based CEO compensation on changes in corporate actions to build employee-firm relations is stronger in the case of high market instability.

Actions to build customer-firm relations → customer satisfaction

The literature offers multiple conceptual explanations for the link between actions to build customer-firm relations and customer satisfaction. First, scholars have highlighted that, through continuous transactions, firms acquire relationship-specific knowledge. A key tenet of relationship marketing is that firms gain knowledge of buying patterns and preferences in continuous customer relations (Dwyer et al. 1987; Mithas et al. 2005). As relationship-specific knowledge grows through repeated interactions, firms with strong customer relations can more easily discover customer needs and design products to meet customer preferences, leading to higher customer satisfaction. Indeed, firms that court customers and build long-term relationships are likely to implement actions that directly aim to raise customer satisfaction (Anderson et al. 1997; Luo and Homburg 2007). Thus,

H4: Changes in corporate actions to build customer-firm relations positively influence changes in customer satisfaction of the firm.

Actions to build employee-firm relations → customer satisfaction

We propose several arguments that corroborate a hypothesis linking actions to build employee relations to customer satisfaction. One reason is that firms which strongly engage

[2] Indeed, prior studies imply that high market uncertainty creates urgency for firms to rally employee *esprit de corps* (Anderson and Robertson 1995; Kohli and Jaworski 1990). We thank an anonymous reviewer for this observation.

in binding their employees are more likely to retain their experienced and well trained personnel and, therefore, have more satisfied customers (Homburg et al. 2009; Mayer et al. 2009). Happy employees allow the firm to have happy customers. In contrast, unhappy, burnt-out employees and weak employee-firm relationships may impede the achieving of superior customer responsiveness and identification (Bhattacharya and Sen 2003; Dwyer et al. 1987; Hughes and Ahearne 2010), thus reducing customer satisfaction. Furthermore, continuous employee relations likely incur lower costs of employee turnover (Hoon and Phelps 1992; Kacperczyk 2009). Retaining employees might unlock resources that can be used to improve products or provide ancillary services that raise customer satisfaction. Therefore, firms that engage in binding their employees to the firm with better employee-firm relations will have more satisfied customers.

H5: Changes in corporate actions to build employee-firm relations positively influence changes in customer satisfaction.

Partial mediating role of customer satisfaction in the effects of customer- and employee-firm relations on firm value

Growing evidence demonstrates that customer satisfaction has a positive influence on firm performance outcomes. This link has been explained by the fact that firms with satisfied customers have, on average, higher levels of customer loyalty, cross-buying, positive word-of-mouth, and customer willingness to pay premium prices, all of which have been supposed to raise a firm's market value. Hence, the literature contains ample support for the satisfaction-performance link (Luo and Homburg 2007). Specifically, studies have found significant outcomes of customer satisfaction with high return and low risk (Fornell et al. 2006; Luo et al. 2010), including augmented cash flows (Gruca and Rego 2005) and stock returns (Anderson et al. 2004; Askoy et al. 2008) as well as diminished stock risk (Anderson and Mansi 2009; Luo et al. 2010; Tuli and Bharadwaj 2009).

Given the proposed effects of building customer and employee relations on customer satisfaction in H4 and H5 and the established impact of customer satisfaction on firm value, a logical expectation is that customer satisfaction serves as one of the underlying mechanisms through which actions to build customer and employee relations ultimately affect firm value.

However, "non-customer satisfaction routes" could exist, by which customer- and employee-firm relationships affect firm value. For instance, the literature contains pervasive evidence that building long-term relationships with customers would lead to greater share-of-wallet (Reichheld and Sasser 1990) and efficiency in customer communications (Luo and Homburg 2007; Luo and Donthu 2006), as well as reduced costs of servicing customers (Morgan and Rego 2006), all of which may also account for the final impact of *customer*-firm relations on firm value. Furthermore, the human capital literature in management suggests that firms endowed with stronger employee relations can enjoy higher levels of firm- and customer-specific job skills (Hitt et al. 2001), smaller employee turnover rates, and lower human resources and operations costs (Mayer et al. 2009), all of which may also explain the eventual impact of *employee*-firm relations on firm value (Srivastava et al. 1998). Thus:

H6: Changes in customer satisfaction partially mediate the associations between changes in corporate actions to build customer- and employee-firm relations and changes in firm market value.

Research design

Data

To test the hypotheses, this study compiles a unique dataset with multiple archival sources. Common method bias is reduced because of the use of different data sources. Table 1 reports the conceptual variables, measures, and data sources.

Measures

CEO long-term equity-based compensation We collect CEO compensation data from Standard & Poor's ExecuComp®, a dataset that provides comprehensive, detailed compensation information for more than 1,500 publicly traded firms. Although less applied in marketing, CEO compensation data from ExecuComp® has been widely used in management (Fong et al. 2010; Miller 1995) and finance (Chhaochharia and Grinstein 2009; Kale et al. 2009). ExecuComp® reports two different types of total compensation: shorter-term fixed (e.g., salary, bonus, and other fixed annual payments) and longer-term equity-based (e.g., stock options and restricted stock grants). Stock options give CEOs the right to buy company stocks in the future at a price level that is pre-determined. Restricted stock represents an actual grant of company stocks, but it often can only be sold or transferred under pre-determined conditions (e.g., in a certain number of years). Both types of equity awards are designed to motivate executives to focus on organizational long-run goals and shareholder value maximization rather than on short-term myopic objectives or personal gains (Murphy 1999).

Because this study's focus is compensation *structure*, we measure the proportion of CEO long-term equity compensation as change in the *percentage* of stock options and

Table 1 Variables, measures, and data sources 1994-2008

Variables	Measures	Data sources
Proportion of long-term equity-based CEO pay	Measured as percentage of stock options and restricted stock grants to total compensation assigned to a CEO during a given year	ExecuComp®
Actions to build customer relations	Measured as the strengths and concerns of organizational actions toward customers, i.e., how well firms take care of and build long-term relationships with external customers	KLD
Actions to build employee relations	Measured as the strengths and concerns of organizational actions toward employees, i.e., how well firms take care of and build long-term relationships with internal employees	KLD
Customer satisfaction	The American Customer Satisfaction Index (ACSI), firm-level overall customer satisfaction for about 200 large companies based on more than 50,000 customers each year	ACSI
Firm value	Changes in market capitalization of the firm, or Δ(share price × number of common stock outstanding)	CRSP COMPUSTAT
CMO presence	The presence or absence of a CMO in the top management team of the firm, i.e., vice president of marketing, senior or executive vice president of marketing	Company 10-K fillings
CEO tenure	The number of years of experience in the CEO office of a given company	ExecuComp® 10-K fillings
CEO stock ownership	Measured as the percentage of shares outstanding owned by the CEO	ExecuComp® 10-K fillings
CEO chair	A binary variable, coded as 1 if a firm's CEO is also the chair of its board of directors	ExecuComp® 10-K fillings
CEO founder	A binary variable, coded as 1 if a firm's CEO is also the founder of the firm	ExecuComp® 10-K fillings
CEO total compensation	The sum of long-term equity-based compensation and short-term fixed compensation (salary, bonus, and other fixed annual payments) scaled by firm assets	ExecuComp® 10-K fillings
CEO internal	A binary variable, coded as 1 if a firm's CEO has been in the firm before becoming CEO, as opposed to from another firm	ExecuComp® 10-K fillings
Firm size	The natural log of firms' number of employees	COMPUSTAT
Firm leverage	The ratio of book debt to book value of total assets	COMPUSTAT
Firm advertising	The ratio of advertising expenses to total assets	COMPUSTAT
Firm sales growth	The growth rate of firm sales revenue from year t-1 to year t	COMPUSTAT
Number of segments	Measured as the number of unique business segments in which the firm operates	Compact Disclosure
Manufacturing industries	A dummy variable for manufacturing industries versus non-manufacturing ones	COMPUSTAT
Market instability	The standard deviation of the five-year average sales growth across firms in a given industry	COMPUSTAT

restricted stock grants with respect to total compensation. This measure implies that the higher the proportion of long-term equity pay, the lower the short-term fixed salary pay would be. The stock option values were calculated with the Black-Scholes model (Carpenter et al. 2004; Kale et al. 2009). We control for total compensation scaled by firm assets when testing the implications of compensation structure.

Corporate actions to build customer relations This study uses the Kinder, Lydenberg, Domini & Co. (KLD) dataset to measure strengths of corporate actions to build long-term customer-firm relations. KLD ratings are based on multiple data sources, including annual surveys sent to firms' investor relations offices, firm SEC filings, annual reports, government surveys, general press releases, and academic journal research. The annual KLD index covers over 650 publicly traded firms, including S&P 500 firms and about 150 firms from the Domini Social Index (Coombs and Gilley 2005; Kacperczyk 2009; Surroca et al. 2010).

KLD measures the strengths and concerns of corporate actions in building long-term relations with external customers on the basis of ten separate dimensions,[3] which include product quality, product safety, benefits to economically disadvantaged customers, product strengths, R&D or innovation, marketing-contracting concerns, and antitrust

[3] More details of the specific items of KLD can be found in the Wharton Research Data Services (WRDS) data source from the Wharton School. The validity and reliability of KLD have been established (Coombs and Gilley 2005; Kacperczyk 2009; Surroca et al. 2010).

issues in the marketplace. Prior research has used this KLD measure of customer-firm relations because it can reflect "corporate attention to primary stakeholders of customers that impact firms' survival and exert considerable influence on corporate strategy" (Kacperczyk 2009, p. 269). We use the average net difference (ranging from −2 to +2) between strengths and concerns across the separate KLD items as the measure of quality of corporate actions in building relations with customers (Surroca et al. 2010).

Corporate actions to build employee relations Similarly, the KLD dataset is used to measure corporate actions to build long-term relations with internal employees. Its fourteen dimensions assess the strengths and concerns of corporate actions in building relations with employees. The specific dimensions include union relations, no-layoff policies, retirement benefits strength, cash profit sharing, employee involvement, health and safety strength, work-force reductions, and other concerns (Coombs and Gilley 2005; Surroca et al. 2010). Previous investigators hold that "KLD is the best data available for a comprehensive measure of firm-employee relations" (Wang et al. 2009, p. 8). Again, following the literature (Coombs and Gilley 2005; Wang et al. 2009), for the final measure we use the average net difference between strengths and concerns across the separate KLD items.

Customer satisfaction Data for customer satisfaction were drawn from the ACSI database, developed by the National Quality Research Center at the University of Michigan. This center interviews over 50,000 customers every year, using computer-aided telephone interviewing to survey over 200 customers per firm for nearly 200 companies from 40 industries. ACSI represents the nation's economy as a whole, covering all major economic sectors: manufacturing durables and non-durables, transportation, communications, finance, insurance, retail, utilities, and others. ACSI uses multiple items for multiple constructs to estimate the latent variable of overall customer satisfaction, which ranges from 1 to 100 for a given company. The ACSI, a unique measure of customer satisfaction, employs consistent interview procedures, survey methods, sampling, and estimation methods across firms and years. This measure is widely accepted in the marketing literature (e.g., Anderson et al. 2004; Gruca and Rego 2005; Luo 2007), and a comprehensive test of reliability appears in Fornell and colleagues (2006).

Firm value Firm value is measured as market capitalization, which is the closing stock price of the firm multiplied by the common stock shares outstanding. As suggested in the growing marketing-finance interface literature (Luo 2008; Srinivasan and Hanssens 2009), market capitalization is a forward-looking (rather than backward-looking) firm financial performance metric that captures the long-run prospects of firms' future cash flows. In addition, we use Tobin's q and risk-adjusted stock returns as alternative firm value measures (Luo et al. 2010) and find similar results.

Market instability We measured market instability with the standard deviation of five-year sales growth rates across firms in a given industry (Gruca and Rego 2005).

Merging ACSI, ExecuComp®, and KLD data sources, as well as COMPUSTAT and CRSP yielded a total of 1,218 firm-year data points for 87 firms over 14 years (1995 to 2008). We include all firms for which the necessary data are available on ACSI, ExecuComp®, KLD, COMPUSTAT, and CRSP. Table 2 reports the descriptive statistics and correlation matrix.

Table 2 Descriptives and correlations

	ΔLong-term equity-based CEO compensation	ΔActions to build customer relations	ΔActions to build employee relations	ΔCustomer satisfaction of the firm	ΔMarket value of the firm	ΔMarket instability
ΔLong-term equity-based CEO compensation	1.000					
ΔActions to build customer relations	0.272	1.000				
ΔActions to build employee relations	0.159	0.175	1.000			
ΔCustomer satisfaction of the firm	0.138	0.293	0.182	1.000		
ΔMarket value of the firm	0.091	0.135	0.117	0.216	1.000	
ΔMarket instability	−0.055	−0.037	−0.028	−0.033	−0.052	1.000
Mean	12.057	0.362	0.305	6.519	3.428	1.138
SD	26.168	0.484	0.471	8.692	1.266	0.829

Correlation values greater than .09 are significant at $p<.05$

Control variables

To rule out multi-dimensional alternative explanations, we have three layers of controls: CEO-, firm-, and industry-level. CEO-level controls include many corporate governance and board structure variables (e.g., CEO stock ownership, founder, chair, and internal CEOs) because they are related to both executive compensation and firm performance (i.e., ignoring them may introduce endogeneity bias) (Chhaochharia and Grinstein 2009; Kale et al. 2009; Tosi et al. 2000). We also control for CEO tenure, because the number of years of CEO experience is related to the CEO's market knowledge and his/her compensation package (Hambrick 2007).

At the firm level, we control for firm size, leverage, CMO presence, advertising, and sales growth. Also, at the industry level we control for number of business segments, manufacturing industry or others, and market concentration. These firm-level control variables account for differences among firm resources, financial strength, marketing spending, and market performance (McAlister et al. 2007), all of which can affect CEO compensation and firm value. We also account for the impact of CMO presence, because it is an indicator of top management's commitment to customer relationship and marketing expertise (Nath and Mahajan 2008). The industry-level controls allow us to factor in diversification effects, different types of industry environments, and market competition intensity, all of which may affect customer satisfaction and firm performance outcomes (Anderson et al. 2004; Luo and Homburg 2007, 2008).

Models

We develop a system of models to simultaneously test the associations between long-term equity-based CEO pay, actions to build customer and employee relations, customer satisfaction, and firm value. This system of simultaneous rather than separate equations offers two key advantages. First, because variables such as actions to build customer and employee relations as well as customer satisfaction are both independent and dependent variables in different equations, endogeneity problems may arise. Estimating all models as a simultaneous system alleviates this concern. Second, given the overlapping nature of the models, the error terms of different models are likely correlated. A simultaneous system can account for correlated errors and produce more efficient estimates with higher statistical efficiency. The system of regression models is as follows:

$$
\begin{cases}
\Delta MV_{it} = \beta_{10} + \beta_{11}\,\Delta ACSI_{it} + \beta_{12}\,\Delta ABC_{it} + \beta_{13}\,\Delta ABE_{it} + \beta_{14}\,\Delta LTP_{it} + \beta_{15}\,\Delta LTP_{it}\mathrm{x}\,\Delta MKT_{it} + \\
\qquad \beta_{1CEOcontrols}(CEOcontrols) + \beta_{1Firmcontrols}(Firmcontrols) + \beta_{1Industrycontrols}(Industrycontrols) + e_{1it}, \\
\Delta \mathrm{ACSI}_{it} = \beta_{20} + \beta_{21}\,\Delta ABC_{it} + \beta_{22}\,\Delta ABE_{it} + \beta_{23}\,\Delta LTP_{it} + \beta_{24}\,\Delta LTP_{it}\mathrm{x}\,\Delta MKT_{it} + \beta_{2CEOcontrols}(CEOcontrols) + \\
\qquad \beta_{2Firmcontrols}(Firmcontrols) + \beta_{2Industrycontrols}(Industrycontrols) + e_{2it}, \\
\Delta ABC_{it} = \beta_{30} + \beta_{31}\,\Delta LTP_{it} + \beta_{32}\,\Delta LTP_{it}\mathrm{x}\,\Delta MKT_{it} + \beta_{3CEOcontrols}(CEOcontrols) + \beta_{3Firmcontrols}(Firmcontrols) + \\
\qquad \beta_{3Industrycontrols}(Industrycontrols) + e_{3it}, \\
\Delta ABE_{it} = \beta_{40} + \beta_{41}\,\Delta LTP_{it} + \beta_{42}\,\Delta LTP_{it}\mathrm{x}\,\Delta MKT_{it} + \beta_{4CEOcontrols}(CEOcontrols) + \beta_{4Firmcontrols}(Firmcontrols) + \\
\qquad \beta_{4Industrycontrols}(Industrycontrols) + e_{4it},
\end{cases}
$$

where MV = market value, ACSI = customer satisfaction, ABC = actions to build customer relations, ABE = actions to build employee relations, LTP = proportion of long-term equity based CEO compensation, MKT = market instability, and ε = error term. CEO controls include stock ownership, tenure, chair, founder, total compensation, and internal CEO, while firm controls include size, leverage, advertising, sales growth, and CMO presence. Industry controls include market instability, number of segments, manufacturing, and market concentration.[4]

We estimate this system of equations with three-stage least squares to account for the assumption that the four dependent variables are endogenous in the system (i.e., firms with higher performance may achieve higher customer satisfaction and reward CEOs with higher equity-based pay). Consistent with prior studies on leading with possible endogeneity bias, we also employ instrumental variables. Specifically, we use the lagged-level values of endogeneous variables as instruments for their first differences (Arellano and Bond 1991; Tuli and Bharadwaj 2009). Thus, ACSI_{it-1} and further lags are instruments for $\Delta\mathrm{ACSI}_{it}$, ABC_{t-1} and further lags are instruments for $\Delta\mathrm{ABC}_{it}$, and ABE_{t-1} and further lags are instruments for $\Delta\mathrm{ABE}_{it}$. Results of Hansen (1982) tests of over-identifying restrictions did not reject the null hypothesis of valid instruments for all equations in

[4] Our dataset is cross-sectional and time-series, or in a panel data format. The results of a Chow F-test supported that our panel data (year-firm) are indeed poolable (Joshi and Hanssens 2010).

our modeling system.[5] Because cross-sectional time-series data may introduce threats such as serial correlation and heteroscedasticity, we rely on the Newey-West covariance matrix and quadratic Hill climbing optimization method to reduce such threats. In addition, this study controls for observed and unobserved heterogeneity in estimation. Observed heterogeneity is accounted for because we have used a comprehensive set of control variables at the CEO, firm, and industry levels. We use changes (rather than levels) in the dependent and independent variables in data analyses to control for unobserved heterogeneity due to time and industry effects (Gruca and Rego 2005; Luo et al. 2010). In addition, we check a variety of model assumptions with Durbin-Watson test, White's test, RESET test, Jarque-Bera test, variance inflation factor, and Breusch-Pagan test. None of the assumptions is violated in our data analyses (Morgan and Rego 2006). We also use one-year lagged firm value variables and run cross-sectional regressions each year. The magnitude and direction of the results are substantially consistent with those reported in Table 3.

Results

As Table 3 shows, changes in the proportion of long-term equity-based CEO compensation lead to a positive and significant impact (b=0.211, $p<.05$) on changes in actions to build customer relations, as expected. Therefore, H1 is supported. However, we find only marginal support for H2 because of the impact of changes in the proportion of long-term equity-based CEO compensation on changes in actions building employee relations (b=0.167, $p<.10$).

The interaction between market instability and long-term equity-based CEO compensation is positively related to changes in actions to build customer relations (b=0.057, $p<.05$), thus supporting H3a. We illustrate the effects in Fig. 2, which shows that the effect of the proportion of CEO equity-based pay on actions to build customer-firm relations is indeed stronger in high than in low market instability. Thus, when markets are unstable, long-term equity-based CEO compensation leads to more corporate actions to build customer relations. However, H3b is not supported, because the interaction item is not significant ($p>.10$). Moreover, actions to build both customer and employee relations have a positive impact on changes in customer satisfaction (b=.286, $p<.01$; b=2.05, $p<.05$, respectively). Thus, the data support both H4 and H5.

[5] We also employ the generalized method of moments (GMM) estimation technique, which produced essentially identical results in testing the hypotheses (Hansen 1982; Luo and Homburg 2007; Tuli and Bharadwaj 2009).

In testing the mediation hypothesis, we are aware of recent studies that provide stronger tests than the conventional three-step mediated regression approach (Baron and Kenny 1986). Specifically, a Bayesian mediation approach can account for possible biases due to omitted variables, measurement error, and inaccurate standard errors (Zhang et al. 2009). This technique is a more robust approach to testing mediation effects than non-Bayesian approaches (e.g., Zhao et al. 2010). Therefore, we employed the Markov chain Monte Carlo (MCMC) methods with a Gibbs sampling algorithm and 5,000 draws for burn-in (Zhang et al. 2009).

As Table 4 reports, results from the Bayesian-based MCMC approach support the partial mediation role of customer satisfaction. After entry of the mediator of customer satisfaction, the effects of actions to build customer relations drop from .439 ($p<.01$) to .351 ($p<.05$). Also, the effects of actions to build employee relations drop from .372 ($p<.01$) to .216 ($p<.10$), suggesting partial mediation results. Thus, H6 is supported; customer satisfaction partially accounts for the impact of actions to build customer- and employee-firm relations on changes in firm value. In addition, all results hold when we introduce a lag structure, thus supporting the robustness of our hypotheses testing.

The direction of causality is a critical issue. A firm that is performing poorly may conceivably adopt a short-term orientation in an attempt to preserve the firm. This choice may result in laying off employees (resulting in poorer employee relationships and poorer customer satisfaction) and tilting CEO compensation toward the short term because, if the firm is in danger of going out of business, long-term compensation may be less motivating. Thus, we conducted the formal Granger causality tests (Granger 1969):

$$\begin{cases} Y_t = \sum_{i=1}^{n} \alpha_i Y_{t-i} + \sum_{j=1}^{m} \beta_j X_{t-j} + \gamma_t \\ X_t = \sum_{j=1}^{m} \phi_j Y_{t-j} + \sum_{i=1}^{n} \omega_i X_{t-i} + \tau_t \end{cases}$$

where X can be CEO compensation with m lags (up to 12 time-period lags). Y refers to actions to build customer and employee relations, customer satisfaction, and market capitalization with n lags. In the above equations, if all the coefficients are significant, then Y and X mutually Granger cause each other. If only the coefficients of β_j are significant, then X Granger causes Y. If only the coefficients of ϕ_j are significant, then Y Granger causes X. The Wald F test determines the significance of the equations. This test statistics is specified as $F_{wald} = [(SSR1 - SSR2)/q]/[SSR2/(n-s)]$, where SSR1 is defined as the sum of

Table 3 Hypotheses testing results

	ΔFirm value	Dependent variables		
		ΔCustomer satisfaction	ΔActions to build customer relations	ΔActions to build employee relations
Customer value				
ΔCustomer satisfaction	1.266***			
Corporate actions				
ΔActions to build customer relations	0.358**	0.286***		
ΔActions to build employee relations	0.205*	0.205**		
CEO compensation structure				
ΔProportion of long-term equity pay (LTP)	0.082*	0.096**	0.211**	0.167*
Moderating effects				
ΔLTP x Market instability	0.035*	0.022	0.057**	0.049
Controls				
CEO stock ownership	0.835*	1.028**	0.615	0.822*
CEO tenure	2.653**	4.729**	2.027**	4.038***
CEO chair	−0.351	−0.862	−0.235	−0.228
CEO founder	0.616*	0.556*	0.408	0.367
CEO total compensation	0.207	0.127*	0.208*	0.234*
CEO internal	−0.051	−0.107	−0.336	−0.412
Firm size	0.128*	0.139**	0.151*	0.102
Firm leverage	0.056*	0.027	0.011	0.008
Firm advertising	5.038**	1.037**	0.862*	0.817*
Firm sales growth	6.152***	2.082**	3.275**	4.908***
CMO presence	0.806*	1.285**	2.066**	1.109
Manufacturing industries	0.255	0.972***	0.826**	0.207
Number of segments	−0.038*	−0.005	0.011	0.009
Market concentration	−8.229**	0.071*	0.016	0.008
Market instability	−0.109**	−0.082**	−0.063*	−0.085**
Incremental changes in R^2				
Controls only	15.2%	33.5%	35.6%	36.3%
+CEO compensation structure	3.8%	6.1%	7.8%	7.1%
+Corporate actions	5.2%	12.9%		
+Customer satisfaction	6.8%			

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

squared residuals in the restricted equation (in which β_j and ϕ_j are restricted to be zero) and SSR2 is the sum of squared residuals in the unrestricted equation. In addition, q = the number of restrictions, n = the number of observations, and s = the number of independent variables in the unrestricted equation. The results suggest that the Granger causality tests confirm the impact direction from CEO long-term pay to actions to build customer relations (F_{wald} =22.083, $p<.01$), actions to build employee relations (F_{wald} =13.186, $p<.05$), customer satisfaction (F_{wald} =41.755, $p<.01$), and market capitalization (F_{wald} =11.809, $p<.01$). In addition, the reversed impact direction from customer satisfaction, market capitalization, and actions to build customer and employee relations to CEO long-term pay is not statistically significant (all $p>.05$). Thus, these additional results add further evidence for the expected direction of causality, rather than the reversed direction.

Discussion

What incentives should firms employ to motivate CEOs toward customer and firm value creation? And what are the related mechanisms? This study developed and supported a framework predicting that (1) increases in the proportion of CEOs' equity-based compensation positively influence building customer and employee relations, (2) such influences should be stronger in unstable markets, and (3)

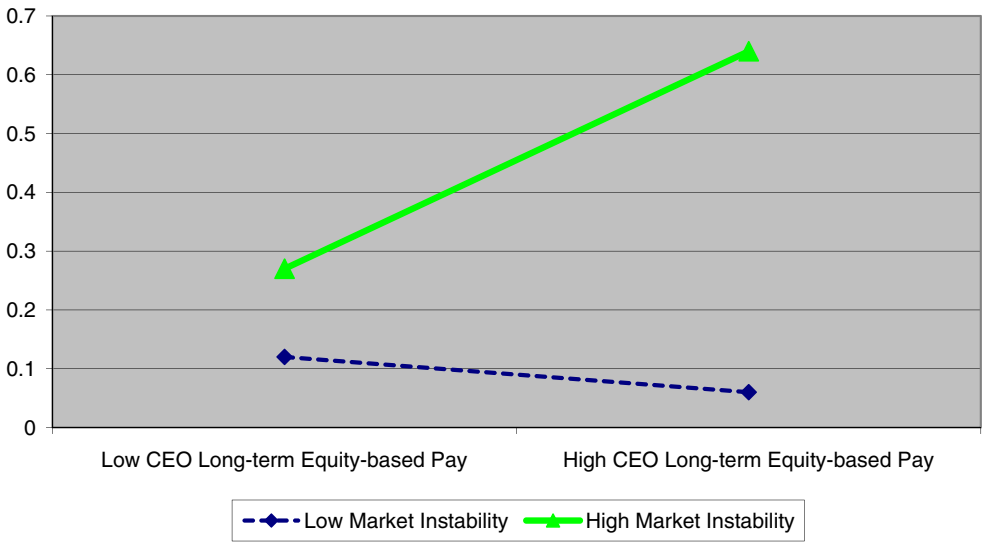

Fig. 2 Moderated effects of CEO long-term equity-based compensation on corporate actions to build customer relations

actions of building customer and employee relations affect firm value both directly and indirectly via the mediator of customer satisfaction. Our most important conclusion is that if firms can properly design top executive packages to focus on long-term organizational goals and rally the entire organization to assure product safety, create consumer welfare, and deliver customer value, then they can create customer value and achieve higher shareholder value. The design of our study and the findings advance academic knowledge in several ways.

Research implications

This research extends customer equity literature by revealing ignored organization-level antecedents of customer satisfaction (Mithas et al. 2005). If customer satisfaction has financial value for the firm (Anderson et al. 2004), then exploring the *formation* process of customer satisfaction within the organization is important. Indeed, compared to research on outcomes of customer satisfaction, "efforts have rarely been undertaken to examine [firm-level antecedent] factors that increase or decrease customer satisfaction" (Luo and Bhattacharya 2006, p. 15). In this study we conceptualize and support the role of firm executive compensation structure in affecting customer relations and satisfaction in the first place, which then determine firm performance. As far as we know, previous literature does not demonstrate these chained effects, which can reveal the development processes of customer satisfaction.

Moreover, our study provides some guidelines regarding the influence of marketing within the firm and the

Table 4 Bayesian mediation results

	Dependent variable with mediating effects ΔFirm value		Dependent variable without mediating effects ΔFirm value
Customer value			
ΔCustomer satisfaction	1.271***		
Corporate actions		Corporate actions	
ΔActions to build customer relations	0.351**	ΔActions to build customer relations	0.439***
ΔActions to build employee relations	0.216*	ΔActions to build employee relations	0.372***
CEO compensation structure		CEO compensation structure	
ΔProportion of long-term equity pay (LTP)	0.079*	ΔProportion of long-term equity pay (LTP)	0.133**
Moderating effects		Moderating effects	
ΔLTP x Market instability	0.048*	ΔLTP x Market instability	0.025

* $p<.10$, ** $p<.05$, *** $p<.01$. Results are the average coefficients estimated on the basis of the Markov chain Monte Carlo (MCMC) methods with a Gibbs sampling algorithm and 5,000 draws for burn-in

connections between top management and marketing metrics. Prior research has consistently noted that "despite calls to raise the profile of marketing in the upper echelons of the firm, the links between top management and marketing activities are still relatively unexplored" (Yadav et al. 2007, p. 89). We address this deficiency by relating top management incentives to marketing metrics of customer-firm relations and customer satisfaction. In addition, our efforts add more empirical evidence to prior theory on the role of marketing within the firm. We agree that "top management is an essential component in realizing the potential of marketing functions" (Moorman and Rust 1999, p. 182) and add that without explicitly linking marketing metrics to what concerns CEOs (e.g., their compensation structure), the role of marketing would be less likely to trend upwards in the entire organization. Indeed, without proper incentives for the critical leaders in the firm, organizational actions of assuring product safety and the corresponding consumer welfare would not be in place, and customer and firm value would be in danger.

The findings on the external and internal relational routes of influence contribute to both customer relationship literature and the upper echelons theory. While prior marketing studies link various CRM practices directly to firm performance (Krasnikov et al. 2009; Reinartz et al. 2004), we extend this literature by introducing a mediator of customer satisfaction (Mithas et al. 2005; Luo and Bhattacharya 2006) to account for the underlying reasons for the value of managing customer-firm relations. Our findings also provide evidence connecting CRM and customer relations to top management factors, an issue that investigators have largely ignored but one that extends CRM and relationship marketing research by introducing a new perspective on top management reward structure.

In addition, most prior management research suggests a direct link from CEO pay to firm performance and disregards the underlying reasons why CEO compensation has an impact on firm performance (Hambrick 2007). In this sense, our findings add new substance to upper echelons theory by proposing both customer-based and employee-based relational mechanisms that can help translate the potential power of top management metrics into firm value. We also checked nonlinear effects and found that too high a proportion of CEO long-term equity-based compensation negatively affects customer-firm relations ($b_{liner}=.307$, $p<.05$, $b_{nonlinear}=-.002$, $p<.05$). In other words, too much equity-based CEO pay is harmful. Thus, we surmise that the neglected mediating routes and nonlinear effects may account for the low power of CEO pay in directly explaining firm performance as reported in the strategic management literature (Tosi et al. 2000).

Managerial implications

CEOs are seen as the most powerful organizational decision makers (e.g., Steve Jobs at Apple and Larry Page at Google). To the extent that a long-term equity-based pay structure for the CEO influences customer relationship development and firm value, our study helps practitioners gain a broader understanding of the role of proper incentives for CEOs. Firms should motivate CEOs with greater proportions of long-term equity-based compensation rather than short-term fixed pay so that CEOs develop lasting customer and employee relationship management systems for positive changes in firms' customer satisfaction and financial value. Also, when markets are unstable, long-term equity-based CEO compensation leads to more corporate actions to build customer relationships. The effects of CEO compensation structure on corporate actions to build customer and employee relationships may be stronger in unstable market conditions, when steering a course through "challenging waters" requires increased focus on customer and employee relations.

Managers are undoubtedly concerned with the return on customer equity and the financial impact of investing in customer relationships. Although satisfying employees and customers is costly, industry practices provide ample evidence of the need to satisfy more profitable customers and—like Sprint, Verizon, Comcast, and AT&T—fire the money-losing customers (Krasnikov et al. 2009). Many firms such as Cisco tie employee pay to customer satisfaction so that workers are rewarded for excellence in behavioral marketing performance metrics (Anderson et al. 2004; Banker et al. 1996; Hauser et al. 1994; Mijuk 2010). Our study suggests that customer satisfaction is also an important metric for tracking the financial payoffs to building employee-firm relationships and the fruits of crafting equity-based executive incentive packages.

Conclusion

This interdisciplinary study investigates the effects of long-term equity-based CEO compensation on both internal and external precursors of customer satisfaction. We draw attention to the implications and processes of exploiting the CEO incentive structure for customer and firm value creation. Insofar as firms can properly set up the executive compensation structure with a greater proportion of long-term equity, they will move toward effectively establishing strong customer- and employee-firm relations. These two relational mechanisms, in turn, can ultimately raise customer satisfaction and the market value of the firm.

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