Effect of Customer-Centric Structure on Firm Performance

Ju-Yeon Lee, Shrihari Sridhar, Conor M. Henderson, and Robert W. Palmatier
**Report Summary**

Over the past decade, 22% of *Fortune* 500 firms—acting on the assumption that structuring divisions around customers can improve customer centricity—have shifted toward a more customer-aligned organizational structure. But does a customer-centric structure ultimately improve financial performance? A dearth of empirical evidence on this issue has prompted the Marketing Science Institute to ask, “How do organizational structure and marketing capabilities influence business performance?” in its 2010–2012 Research Priorities.

Accordingly, this study’s objective is to understand how and when a customer-centric structure improves firm performance. Ju-Yeon Lee, Shrihari Sridhar, Conor Henderson, and Robert Palmatier investigate 13 years of secondary data (1998–2010) that links 174 firms’ structural alignment to performance, and find evidence supporting the prevailing wisdom that structural types increasingly aligned with customers improve performance by enhancing customer satisfaction. However, such structures simultaneously degrade performance by reducing internal efficiencies. Understanding this cost-benefit tradeoff inherent to a customer-centric structural alignment is critical to discovering when such an alignment will pay off.

Given this, the authors investigate contingent factors that would reveal when a customer-centric structure is worthwhile. They point to the presence of two alternative structural sources of customer alignment as the key determinants. Results suggest if a firm competes in many different end markets or is organized in large divisions, then a customer-centric structural alignment is a worthwhile remedy, and all else being equal, it does pay off financially. The proposed conceptual framework is supported by a model of mediated moderation, rigorous robustness checks, and post hoc analyses generalizable to all *Fortune* 500 firms.

Overall, this study provides theoretical and empirical insights to clarify the mixed picture that emerges from high profile stories of some firms enjoying the fruits of restructuring around customer groups (e.g., IBM, Fidelity Investments), while others see their business plummet after making similar changes (e.g., Cisco, Xerox). These findings offer boardroom executives some caveats to consider before changing their structural alignment. First, there is a cost-benefit tradeoff inherent in structural alignment, such that customer-centric structural alignment enhances customer satisfaction but sacrifices internal efficiencies. Second, the customer-centric benefits outweigh the associated costs when the firm already (1) has relatively large divisions or (2) serves many diverse end markets.

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A widespread belief among academics and managers indicates that customer-centric firms outperform their peers because they nurture closer customer relationships, enhance customer value, and improve customer satisfaction (Kumar, Venkatesan, and Reinartz 2008; Shah et al. 2006). A recent survey of U.S. firms indicates that the proportion of them with structures organized around customer groups will grow from 32% to 52% as firms race to build more customer-centric organizations (Day 2006). Our own analysis shows that 22% of Fortune 500 firms have shifted to a more customer-centric structure in the past decade. Yet extant research offers no actual evidence of a “significant correlation between organizing by customer groups and relative performance” (Day 2006, p. 42). Such managerial interest in, combined with the lack of empirical support for, the link between customer-centric structures and performance has led the Marketing Science Institute (2010, p. 5) to designate, “How do organizational structure and marketing capabilities influence business performance,” as a top research priority. In response, we investigate the effect of customer-centric structure on performance.

Extant marketing research studying other organizational design elements shows that customer-centric cultures and leadership (Rust, Moorman, and Bhalla 2010), metrics and incentives (Kirca, Jayachandran, and Bearden 2005), and systems and processes (Kumar, Venkatesan, and Reinartz 2008) improve relational and financial outcomes. But the limited empirical research linking customer-centric structures to firm performance fails to support widespread managerial belief that restructuring into customer groups improves firm outcomes (Day 2006; Homburg, Workman, and Jensen 2000). Researchers still argue that realigning structures, away from functional or product-based and into customer groups, makes a firm more “customer-centric” possibly assuming concurrent improvements in responsiveness, customer satisfaction, and business performance (Shah et al. 2006).

We instead consider the extent to which a firm’s organizational structure “type” actually aligns with customer groups, a concept we refer to as structural alignment. With this view, organizing by functions constitutes the lowest and by customer groups the highest degree of structural alignment. Such restructuring represents a deliberate managerial action that aims to foster shared commitment, by each unit of the firm, to fulfilling the needs of a unique customer segment, which seemingly should increase customer satisfaction and performance (Jayachandran et al. 2005; Yim, Anderson, and Swaminathan 2004). Yet changes to a firm’s structural alignment often “add coordination costs” (Day 2006, p. 42) and introduce “greater complexity”
into decision making (Homburg, Workman, and Jensen 2000, p. 471), increasing a firm’s costs. Thus, the impact of structural alignment on performance depends on whether the “customer-centric” benefits outweigh the additional costs associated with a customer-centric structure. Moreover, we argue that the trade-off between these positive and negative mediating pathways depends on the degree of other “organic” structural sources of customer alignment. Failing to account for the positive and negative mediating paths and the contingent effects of other sources of customer alignment might help explain the lack of empirical support for the performance effects of customer-centric structures (Day 2006).

As an empirical test of our conceptual model, we estimate a Bayesian model of mediated moderation (e.g., Zhang, Wedel, and Pieters 2009) accounting for the endogeneity of firms’ strategic choices. We analyze 13 years of longitudinal data, linking 174 firms’ structural alignment to their performance, as mediated by both customer satisfaction and coordinating costs. We further consider how the positive link through customer satisfaction is moderated by organizational granularity and business focus (Figure 1). Our approach thus addresses the “clear need for large-scale empirical research … [using] secondary data … [to] assess performance outcomes of various organizational structures” (Homburg, Workman, and Jensen 2000, p. 474).

Given that extant research on the performance effects of customer-centric structures has relied mainly on qualitative interviews (Homburg, Workman, and Jensen 2000), case studies (Galbraith, Downey, and Kates 2002), or surveys (Jayachandran et al. 2005), our approach contributes to the existing literature in three ways. First, to the best of our knowledge, this article is the first to conceptually and empirically disaggregate the positive and negative mediating mechanisms to understand how customer-centric organizational structures affect firm performance. The results show that greater structural alignment improves performance by increasing customer satisfaction but also degrades performance by adding to coordination costs. When managers restructure their organizations to improve customer alignment, they must weigh the external benefits (e.g., enhanced responsiveness, satisfaction) against the internal costs (e.g., additional or redundant employees, more complex communication) to determine the overall, mediated effect.

Second, we integrate two organic structural sources of customer alignment in our conceptual model and demonstrate that the net effect of the trade-off between structural alignment’s benefits and costs depends on these contingent factors. The net performance effect
of structuring around customer groups is positive if firms are not already “organically” aligned with customers through other features, such as high levels of organizational granularity (i.e., the extent to which a firm divided into small structural units) or business focus (i.e., the extent to which a firm competes in a limited set of end markets). In contrast, the effect of structuring around customer groups on performance is reduced if firms are already aligned with customers through these other sources.

Thus, contrary to popular belief and prior research (Becker, Greve, and Albers 2009; Jayachandran et al. 2005), we find that the costs of customer-centric organizational structures can often outweigh the benefits, resulting in poorer firm performance. A firm that already is aligned with customers because its small units naturally work with less diverse markets (e.g., Xerox, Pfizer, Microsoft) or because it competes in just a few, narrow end markets (e.g., TRW, Honeywell, Intel) will gain little incremental benefit from increasing its structural alignment, but it will incur higher infrastructure costs and communication complexity. Succinctly, the benefits of different structural sources of customer alignment are redundant, but the costs are additive. This claim is consistent with the significant negative interactions we find between structural alignment and both organizational granularity and business focus on customer satisfaction and performance outcomes.

Third, our elasticity analyses of the relative impact of structural alignment on performance for different levels of organizational granularity and business focus provide guidance about when realignment pays off. The elasticity of performance to changes in structural alignment varies from +.24 to −.06, depending on the level of the organic sources of customer alignment (±1 standard deviation). In this sense, the performance elasticities of structural alignment are similar in magnitude to those from advertising and personal selling (Albers, Mantrala, and Sridhar 2010; Sethuraman, Tellis, and Briesch 2011). This finding reinforces the importance of regarding “firm structural characteristics” as strategic marketing variables, a domain that we refer to as structural marketing. In general, firms that shift to a more customer-aligned structure can increase their performance either if firms have a low to moderate level of organizational granularity (< 65%) or if firms have a low level of business focus (< 35%) in the sample; otherwise, increases in structural alignment negatively affect performance.

Our study thus provides theoretical and empirical insights to clarify the mixed picture that has emerged from high-profile stories of firms that enjoy the fruits of restructuring around
customer groups (e.g., IBM, Fidelity Investments), even as others see their business sour after making similar changes (e.g., Cisco, Xerox). (Figure and tables follow References.)

**Customer-Centric Organizational Structures**

Researchers often investigate ways to make firms more “customer-centric,” “customer-focused,” or “customer-oriented,” based on the belief that doing so will enhance firm performance (Shah et al. 2006). The widely researched “market orientation” construct, which typically refers to specific firm behaviors (e.g., gather, disseminate, and react to customer and competitor information), often gets described as an outcome of customer-centric organizations (Homburg, Workman, and Jensen 2000; Kohli and Jaworski 1990). In line with organizational design theory (Galbraith, Downey, and Kates 2002), researchers note the effects of customer-centric leadership, culture, incentives, systems, and processes to understand how and to what extent these “organizational design dimensions” affect firm performance (Kirca, Jayachandran, and Bearden 2005; Kumar, Venkatesan, and Reinartz 2008).

However, only one empirical study models the effect of a customer-centric structure on performance and no study isolates mediating mechanism(s) to determine how customer-centric restructuring might affect performance (Day 2006). Despite the widespread belief that structure is an important design element for making a firm more customer-centric, “there has been relatively little discussion” of how and to what extent more customer-centric structures affect firm performance (Homburg, Workman, and Jensen 2000, p. 469).

**Structural alignment**

When scholars and managers discuss the impact of a customer-centric organizational structure on firm performance, they typically suggest that changing the firm’s structural “type,” from functions or products toward customer groups makes it more customer-centric and improves its performance (Day 2006; Lawler 1996). When Dell realigned its structure type, from geographies to customer groups, it claimed, “this alignment creates a clear customer-centric focus … with greater responsiveness” (Dell 2010, p. 2). We use the term *structural alignment* to refer to this organizational characteristic, defined as the extent to which a firm’s organizational structure type aligns with customer groups.

Different types of organizational structures offer varying degrees of customer
alignment; those structures organized around “external” versus “internal” groups typically are more customer-focused, respond and adapt more quickly to customer needs, and make more customer-centric decisions (Day 2006; Shah et al. 2006). Through 30 field interviews, Homburg, Workman, and Jensen (2000, p. 467) identify multiple types of “customer-focused organizational structures” and indicate that firms that align their organizations around external groups (customers or geographies) are the most customer-focused, whereas those that align around internal groups (functions or products) are the least. Consistent with extant literature, we expect these four types of structures to deliver varying levels of customer alignment, depending on the degree to which they align with outward- compared with inward-facing groups (Lawler 1996). All else being equal, a firm’s customer alignment should increase as it moves across the organizational “type” continuum, from functions (lowest) → products → geographies → customers (highest).

**Organic structural sources of customer alignment**

Although most researchers discuss how changes in a firm’s organizational type (structural alignment) affect ultimate performance, some also recognize other “structural remedies” (Day 1990, p. 361). We consider two structural characteristics that might improve alignment between a firm and its customers: the firm’s *organizational granularity*, or the extent to which it divides itself into small structural units, and its *business focus*, or the extent to which the firm competes in a limited set of end markets.

Extant research has largely ignored the inherent “customer alignment” benefits provided by organizational granularity and business focus when considering the effect of changes in structural alignment on performance. We consider both organizational granularity and business focus “organic” structural sources of customer alignment, because they tend to be beyond the control of managers and are intrinsic to the firm’s core strategy (Phan and Hill 1995). Managers often consider structural alignment a more accessible path for increasing customer focus, rather than increasing organizational granularity by dividing the firm into smaller units or increasing business focus by divesting of non-core customer groups.

*Organizational granularity.* A less recognized structural source of customer alignment is organizational granularity, which captures the inherent customer alignment that occurs when a firm divides itself into small structural units. Disaggregating a firm into smaller structural units increases customer alignment by allowing each unit to “better focus on particular businesses”
and “speed-up decision making” (Brickley and Van Drunen 1990, p. 260). For example, when Pfizer split up into smaller business units, each unit could remain “focused on certain types of patients and certain types of diseases,” such that the oncology unit had full accountability for performance only in the cancer patient segment (BusinessWeek 2009). Management research has studied the effects of organizational granularity (e.g., scale, organizational disaggregation, divisionalization) but without necessarily focusing on “customer alignment” benefits. It indicates many of the same advantages that a firm might obtain from making changes to its organization structural type. For example, reducing the size of business units decreases managers’ cognitive workload by decreasing the diversity of customer problems. However, greater organizational granularity often creates functional redundancies, raises the costs to coordinate activities across units, and increases resource competition among units (Lawler 1996).

Business focus. Firms that compete in a limited set of end markets are inherently more aligned with their customers, regardless of other structural design characteristics, because their customer portfolios are less heterogeneous. For example, Intel Corporation eliminated its Web hosting business unit to increase its focus on microprocessors, which reduced the diversity of customer problems and activities that it needed to address (Vance and Weiss 2002). Reducing diversity concentrates information into a few market segments and increases institutional knowledge, which leads to synergies for both resources and information (Hoskisson and Johnson 1992). A business focus (e.g., concentration, downscoping, deconglomeration) typically helps firms gather more detailed information about customers and respond to their needs (Varadarajan, Jayachandran, and White 2001). However, restricting business to a limited set of end markets means sacrificing the opportunity to grow by serving other markets and may fail to optimize resource uses. Increasing business focus thus may reduce the firm’s ability to build scale efficiencies in backend operations, which increases costs relative to other firms that serve broader sets of end markets (McDougall et al. 1994).

Conceptual Model and Hypotheses

With our conceptual model, we describe how structural alignment affects firm performance through both positive and negative mediating mechanisms. A review of extant literature, as summarized in Table 1, enabled us to identify customer satisfaction and coordinating costs as key mediating constructs linking structural alignment to performance. We
argue that customer satisfaction, which reflects overall evaluations of experiences with the firm’s products or services (Fornell et al. 1996), captures the beneficial effects a firm gains from greater structural alignment. Coordinating costs, which arise from the internal costs of employees, communication efforts, and complexity associated with linking customers to backend operations, captures the detrimental effects of increases in structural alignment (Gulati 2007; Homburg, Workman, and Jensen 2000).

However, focusing solely on the effect of structural alignment on customer satisfaction and coordinating costs, and thus ultimately on firm performance, without recognizing that these effects are contingent on other structural sources of customer alignment may produce misleading results. Therefore, we integrate organizational granularity and business focus as key moderating factors in our conceptual framework and offer a mediated moderation model to understand the effect of structural alignment on firm performance (Muller, Judd, and Yzerbyt 2005).

Positive mediator of the effect of structural alignment on performance

Changing a firm’s structural alignment should yield two major benefits. First, enhancing structural alignment creates a shared within-unit commitment to customers, which increases employees’ motivation and ability to communicate with and respond quickly to customers. For example, when a firm is aligned around customer groups, each salesperson is the single point of contact for the customer, creating greater “accountability for managing customer relationships” (Shah et al. 2006, p. 117; see also Becker, Greve, and Albers 2009). In contrast, when a firm is structured around products, multiple units might target the same customers, creating confusion for customers and undermining relationship-building efforts (Day 2006; Rust, Moorman, and Bhalla 2010).

Second, increasing a firm’s structural alignment enhances its ability to use customer-specific knowledge. Greater customer alignment concentrates similar customer/market-specific information within specific employees, who can then better identify trends, unique needs, and common problems (Jayachandran et al. 2005; Reinartz, Krafft, and Hoyer 2004). Firms that quickly identify an emerging trend or problem also can respond more rapidly, which should increase customer satisfaction. Alternatively, firms organized around internal groups (e.g., functions, products) cannot identify and act on customer- or market-specific changes as easily or
quickly, because each employee deals with diverse customers and markets and thus would have trouble detecting changes in any single customer or market group. Overall, a high level of structural alignment allows firms to better interpret and predict customer behaviors, which then enables them to satisfy customer needs better (Homburg, Droll, and Totzek 2008; Yim, Anderson, and Swaminathan 2004).

Thus increasing structural alignment should provide greater within-unit commitment to customers, single customer contact, improve relationship building, enhance ability to identify trends and needs, and faster responses to customer problems, all of which should lead to higher customer satisfaction. Thus we hypothesize:

**H1**: Structural alignment positively affects customer satisfaction.

**Moderating role of organizational granularity and business focus**

Marketing literature emphasizes the benefits of structural alignment, yet empirical results remain mixed, suggesting the effects actually may be contingent on other factors (Drazin and Ven 1985). We propose that increasing a firm’s structural alignment provides little incremental advantage if the firm already is well aligned with customers, because it has high levels of either organizational granularity or business focus.

All else being equal, firms that divide their business into many smaller units (higher granularity) are already more aligned with their customers, and the effect of subsequent customer-centric restructuring should have less impact. Consider the effect of shifting from a product- to customer-focused structure on customer satisfaction for two otherwise identical firms with different levels of organizational granularity: one with two $500 million units (low granularity) and one with ten $100 million units (high granularity). In the former, employees likely encounter a wide variety of customers’ problems, so they cannot commit to any one customer group, nor can they identify and adapt to customer trends quickly, so ultimately, lower customer satisfaction should result. If this firm reorganizes to make employees in each unit responsible for and committed to a specific customer group, with similar needs and problems, those employees can develop faster identification and adaptation skills, which should produce higher customer satisfaction. We thus expect the shift from product- to customer-centric structures in larger, relatively diverse units to have a large impact on customer satisfaction, because each unit initially was aligned poorly with customers.

In contrast, in the firm with many smaller, product-centric, $100 million units,
employees encounter less diverse customer problems. Employees in these smaller, more nimble units can better focus on end-customers and identify and adapt to customer trends rapidly. If this firm reorganizes its ten product-focused units into customer-focused units, the increases in commitment to end customers or speed in identification and adaption to trends must be less than those achieved by larger, more diverse units. Therefore, their customer-focused restructuring likely has less effect on customer satisfaction in this firm with its higher organizational granularity. In summary, we expect increased structural alignment (e.g., product → customer) in larger, relatively diverse (low granularity) units to have a greater effect on customer satisfaction that it would among smaller, less diverse units.

A similar rationale holds for business focus. Firms with narrowly targeted end markets (high focus) are inherently more aligned with their customers, all else being equal, than are firms with a wider business focus. Consider in this case the effect of shifting from a product- to customer-focused structure by two otherwise identical firms, each with five business units, that exhibit different levels of business focus: one that operates broadly in the medical market (low focus) and another that operates only in the cardiac-care market (high focus). In the broadly focused firm, employees in each of the five units must deal with a wide range of medical issues, and customers must interact with multiple units, resulting in poor relationship building, inferior end-market knowledge development, low employee expertise, and ultimately low customer satisfaction. If this firm reorganizes to adopt a customer-centric structure, each unit becomes responsible for fewer physicians in narrower medical domains, which improves relationship building, unique knowledge and expertise, and customer satisfaction. We expect such a shift to have a significant impact on customer satisfaction for firms serving a broad end market (low focus), because each unit initially was not well aligned with customers.

In the firm that operates in just the cardiac-care market though, the five product-centric units are well aligned to its narrow medical domain, which likely grants deep end-market knowledge and expertise to employees, who then can identify and adapt easily to customer trends. Because this firm already is well situated to sense and respond to customers’ needs, increasing its structural alignment by reorganizing its five product-focused units into customer-focused units provides less improvement in customer satisfaction compared with restructuring the broadly focused firm (Varadarajan, Jayachandran, and White 2001).

Our logic also parallels Day’s (2006, p. 44) advice that some firms should avoid more
“expensive” customer-focused structures, because a “product or functional … structure usually suffices for smaller and/or highly focused companies.” Increasing a firm’s structural alignment should provide little incremental advantage in customer satisfaction if the firm already is well aligned with customers, due to high levels of either organizational granularity or business focus. In addition, though both organic sources of customer alignment should have positive direct effects on customer satisfaction, based on our research focus and the contingent nature of the relationships these variables are only hypothesized as moderating variables:

**H2:** The positive effect of structural alignment on customer satisfaction diminishes when (a) organizational granularity and (b) business focus increases (i.e., negative interaction).

**Negative mediator of the effect of structural alignment on performance**

Despite its benefits, structural alignment also incurs costs (Galbraith, Downey, and Kates 2002; Shah et al. 2006). We note two particular downsides. First, increases in structural alignment increase internal inefficiency, because complex reporting relationships arise between front-end (customer-facing) and back-end (product-producing) operations. Managers must ensure that sales calls transcend product silos and decision-making processes cross functional boundaries, which often increases coordinating costs to resolve dissonance among different functions and units in more complex structures (Day 2006; Gulati 2007; Homburg, Workman, and Jensen 2000). For example, Hewlett-Packard abandoned its customer-centric organizational structure and reverted to a product-centric structure after finding that increasing structural alignment added an unacceptable degree of complexity and cost to its sales–product interface (BusinessWeek 2005). Second, structural alignment requires infrastructure duplication and sacrifices scale economies. Cisco Systems retreated from its customer-centric structure because “ten people would be doing the same thing across the company ten times over, at ten times the cost” (Gulati and Puranam 2009, p. 424). In this situation, each customer-dedicated unit delivers different versions of a similar product and often competes for scarce resources, so management costs increase with the effort to coordinate rivalries among structural units (Galbraith, Downey, and Kates 2002).

Our argument again mirrors Day’s (1999, p. 190) view that “each add-on [structure] serves a purpose but the cumulative effect is an increasingly unwieldy and complicated structure.” The detrimental effects of higher levels of structural alignment, greater communication costs, increases in complexity in internal reporting structures, and more duplication in staff and
infrastructure, lead to higher levels of coordinating costs, and we hypothesize:

\textbf{H}_3: \textnormal{Structural alignment positively affects coordinating costs.}

\textbf{Effects of customer satisfaction and coordinating costs on firm performance}

Marketing literature recognizes customer satisfaction as a key driver of firm performance. Firms with satisfied customers enjoy higher levels of positive word of mouth, customer loyalty, future revenues, and long-term growth (Fornell et al. 1996), as well as lower customer defection, expenses related to customer complaints, and price elasticities (Anderson, Fornell, and Mazvancheryl 2004), all of which enhance firm performance. Accordingly, we propose that customer satisfaction, which captures the beneficial effects of increases in structural alignment (positive mediating mechanism), enhances firm performance.

In contrast, coordinating costs lower firm performance directly, by reducing firm profits, and indirectly, by adding complexity and slowing decision making, which undermines future growth opportunities (Galbraith, Downey, and Kates 2002). Overall, higher coordinating costs, a key negative mediating mechanism, thus should undermine firm performance. We offer the following hypotheses:

\textbf{H}_4: \textnormal{Customer satisfaction positively affects firm performance.}

\textbf{H}_5: \textnormal{Coordinating costs negatively affect firm performance.}

\textbf{Mediating roles of customer satisfaction and coordinating costs}

Completing our logic, we propose two mediation hypotheses. Specifically, there is a positive effect of structural alignment on customer satisfaction (\textbf{H}_1); subsequently, customer satisfaction positively influences firm performance (\textbf{H}_5). Together, these hypotheses predict that customer satisfaction mediates the effect of structural alignment on firm performance. Similarly, structural alignment positively affects coordinating cost (\textbf{H}_3), and coordinating costs negatively affect firm performance (\textbf{H}_5), so coordinating costs should also mediate the effect of structural alignment on firm performance. We offer the following mediation hypotheses:

\textbf{H}_6: \textnormal{The effect of structural alignment on firm performance is mediated by (a) customer satisfaction and (b) coordinating costs.}

\textbf{Methodology}

\textbf{Data}

To test our hypotheses (Figure 1), we collected data from multiple archival sources,
including the American Customer Satisfaction Index (ACSI), COMPUSTAT Industrial Annual database, COMPUSTAT Business Segments database, and the annual financial reports (Form 10-K) that firms file with the Securities and Exchange Commission. We used Fortune 500 firms in the ACSI database as our sampling frame for two reasons. First, ACSI assesses overall customer satisfaction with a firm’s products and services, and these data are needed to operationalize one of our key mediating constructs. Second, ACSI covers a large portion of Fortune 500 firms and accounts for 42% of the U.S. gross domestic product (Fornell et al. 1996). However, a key issue with this database is how to link the name of each ACSI entity (e.g., brands, firms) to company identifiers in financial databases. To match the records systematically, we followed a “Cleaning the ACSI Data” approach outlined by Ittner, Larcker, and Taylor (2009, p. 834).

We gathered data for the 13-year period from 1998 to 2010 and thus attained an objective measure of structural alignment: Beginning in 1998, firms were required to disclose disaggregated information in their Forms 10-K about all business operating units within their internal structures (Financial Accounting Standards Board 1997). After we accounted for missing data, the final sample featured 1,651 observations, representing 174 firms across 13 years. To the best of our knowledge, this data set is the most comprehensive source of secondary data used in the context of “customer-centric” organizational structure research. In Table 2, we describe the constructs, definitions, measures, and data sources.

**Measures**

*Firm performance.* Consistent with recent marketing strategy research (Fang, Palmatier, and Steenkamp 2008; Morgan and Rego 2009), we used Tobin’s q to measure firm performance. It offers several advantages over other performance measures for studying the effect of structural alignment. First, this forward-looking, risk-adjusted measure enabled us to evaluate the effect of structural alignment on performance into the future. Tobin’s q captures both the beneficial effects of improvements in customer satisfaction (e.g., sales, pricing, risk of missing customer changes) and the detrimental effects of increases in coordinating cost. Second, it was not vulnerable to the distortion from tax laws or latitude in interpreting accounting regulations (Anderson, Fornell, and Mazvancheryl 2004). Using the COMPUSTAT Industrial Annual database, we operationalized Tobin’s q and followed Chung and Pruitt’s (1994)
commonly adopted method: Tobin's q = (MVE + PS + DEBT)/TA, where MVE = (closing prices of shares at the end of the financial year \times number of common shares outstanding), PS = liquidation value of outstanding preferred stock, DEBT = (current liabilities – current assets) + (book value of inventories) + (long-term debt), and TA = book value of total assets.

Customer satisfaction. We measured customer satisfaction, or the overall evaluation of a customer’s experience with the firm’s products or services (Fornell et al. 1996), using the ACSI database developed by the National Quality Research Center at the University of Michigan. It is a reliable indicator of a firm’s customer satisfaction, and the ACSI data appear in several academic studies in marketing, management, and accounting (Anderson, Fornell, and Mazvancheryl 2004; Ittner, Larcker, and Taylor 2009).

Coordinating cost. We operationalized coordinating costs as selling, general, and administrative (SG&A) expenses, which capture nonproduction overhead expenses from customer-supporting activities, business inefficiencies, or other administrative labor costs (Haleblian and Finkelstein 1993; Morgan and Rego 2009). Because SG&A expenses contain other expenses not associated with coordination costs (e.g., advertising, R&D expenses), we used the residuals that we obtained from regressing SG&A expenses on advertising and R&D expenses with firm-fixed effects to control for constant, unmeasured differences across firms. Thus, our measure captured SG&A costs beyond advertising and R&D expenses.

Structural alignment. Consistent with our definition of structural alignment as the extent to which a firm’s organizational structure type aligns with customer groups, we evaluated each firm’s structure on a continuum from least to most customer centric. We used the unit operating segment information from their 10-Ks, which offered two advantages. First, 10-Ks, under SFAS No. 131, must provide accurate information about firm’s structure: “the segments are evident from the structure of the enterprise’s internal organization” (Financial Accounting Standards Board 1997, p. 6). Segment information is “regularly reviewed by the enterprise’s chief operating decision maker” (Financial Accounting Standards Board 1997, p. 7), so it reflects the internal structure in place at that time. Second, reported structure is transparent and less subject to “management's latitude” (Ettredge et al. 2005, p. 776).

Two researchers independently reviewed each firm’s 10-K information and classified the structure as functional, product, geographic, or customer (see the Appendix for examples). Disagreements occurred less than 4% of the time and were resolved through discussion. Our
approach was consistent with the recognition that “most companies and business units are organized around a single criterion—be it function, product, geography, or market” (Vermeulen, Puranam, and Gulati 2010, p. 72) and that these four structure types represented varying extents of alignment with customers (Day 2006; Homburg, Workman, and Jensen 2000). At the low end, a functional structure emphasizes internal functional activities; a product-focused structure also is organized around internal product (or service) lines or brands. In contrast, a geographical structure centers on particular regions or countries; as Homburg, Workman, and Jensen (2000) and Lawler (1996) argue, it is more aligned with customers than a product structure because of its external focus. Finally, at the highest end of the continuum, a customer-centric structure is aligned with external customer segments or industry groups. We thus coded structural alignment on an ordered basis (function = 1, product = 2, geographical region = 3, and customer = 4).

There were multiple advantages to treating structural alignment as an ordered variable. First, it was consistent with extant marketing research (Day 2006; Homburg, Workman, and Jensen 2000) and offers a theoretically parsimonious (continuous) measure for capturing the firm’s structural alignment with customers while allowing for hybrid or mixed structures (e.g., four units organized by customer and one by geography). Second, our operationalization required fewer parameters to be estimated than would other approaches. That is, only one set of important covariate coefficients must be specified, instead of the multiple sets in a nominal analysis (Agresti 2010). Third, it offered parsimony in explaining main and moderating effects. Argyres and Silverman (2004) propose a structural centralization scale that increases with overall centralization (i.e., decentralized = 1; decentralized hybrid = 2; balanced hybrid = 3; centralized hybrid = 4; and centralized = 5), which they consider easier to interpret. Similarly, Santoro and McGill (2005) measure increasing alliance structure with higher degrees of complexity (alliances without any co-arrangements = 0, co-marketing alliances = 1, co-promotion alliances = 2, co-manufacturing alliances = 3, and co-development alliances = 4). To provide confidence in our operationalization, we also tested alternative approaches, using both survey and dummy coding (see the subsequent sensitivity analysis).

To account for situations in which a firm might use multiple structures (e.g., product and geographical, geographical and customer) across different operating units (which applied to 15% of the firms in our sample), we developed an average weighted score, based on the ratio of individual business operating segment sales revenue to total sales. For example, if a firm
received $300 million in sales revenues from operating segments organized around customers and $200 million from operating segments organized around geographic regions (e.g., international segment), the final measure of its structural alignment in that financial year would be \([300/500] \times 4\) + \([200/500] \times 3\) = 3.6. From 1998 to 2010, firms in our sample tended to shift toward more customer-centric structure types, as indicated by the 9.1% increase in our measure of structural alignment, according to data we obtained from the 10-K forms and COMPUSTAT Business Segment database.

**Organizational granularity.** Consistent with extant research (Homburg, Workman, and Krohmer 1999), we calculated average business segment size by dividing a firm’s total sales revenue (billions of dollars) by the number of business operating segments. We then computed the reciprocal of the average segment size, such that a larger average unit size corresponded to a lower granularity score. A log transformation helped mitigate skewness and kurtosis (Chatterjee and Hadi 2006). During this period, organizational granularity decreased by 1.9% for firms in our sample.

**Business focus.** Following finance and management literature (Desai and Jain 1999; Phan and Hill 1995), we used the COMPUSTAT Business Segment database to measure business focus. The Herfindahl index–type measure to operationalize business focus took the following form: \(\sum p_i^2\), where \(p_i\) is the ratio of total sales revenue in each four-digit standard industrial classification (SIC) industry group in which the firm operates \(i = 1, 2, \ldots, \) number of unique industry segments) to the total sales of the firm. If the entire firm’s sales come in a single four-digit SIC segment, the firm’s business focus takes the highest score possible, \(p_i = 1\). Over our study period, business focus in our sample increased by 5.9%.

**Control variables.** We controlled for several time-varying firm and industry characteristics. Firm size reflected the natural log of the number of employees in the firm. We also used firm age, measured as the number of years the firm had been listed on COMPUSTAT. For service ratio, we measured the percentage of a firm’s sales from service segments (Fang, Palmatier, and Steenkamp 2008). To capture any short-term negative effects of the reorganization, we used an indicator variable to identify any year in which a firm reorganized (Hoskisson and Johnson 1992). Finally, to calculate a firm’s industry growth, we regressed industry sales (four-digit SIC) over time (three-year window) to obtain the industry’s growth coefficient, and we normalized this coefficient by industry size (average sales) (Fang, Palmatier,
and Steenkamp 2008). In Table 3, we provide the descriptive statistics and correlation matrix of all variables.

**Model specification**

To test $H_1$–$H_6$, we employed a baseline specification that disentangles the positive and negative mediating mechanisms underlying the effect of structural alignment on firm performance. We estimated the following models for firm $i$ in time period $t$:

$$
CSAT_{it} = \alpha_{10i} + \alpha_{11} STR\_ALN_{it} + \alpha_{12} ORG\_GRN_{it} + \alpha_{13} BUS\_FOC_{it} + \\
\quad \alpha_{14} STR\_ALN_{it} \times ORG\_GRN_{it} + \alpha_{15} STR\_ALN_{it} \times BUS\_FOC_{it} + \alpha_{16} Z_{it} + \epsilon_{1it} \quad (1)
$$

$$
COST_{it} = \alpha_{20i} + \alpha_{21} STR\_ALN_{it} + \alpha_{22} ORG\_GRN_{it} + \alpha_{23} BUS\_FOC_{it} + \alpha_{24} Z_{it} + \epsilon_{2it} \quad (2)
$$

$$
PERF_{it} = \beta_{0i} + \beta_1 CSAT_{it} + \beta_2 COST_{it} + \gamma_1 STR\_ALN_{it} + \gamma_2 ORG\_GRN_{it} + \gamma_3 BUS\_FOC_{it} + \\
\quad \gamma_4 STR\_ALN_{it} \times ORG\_GRN_{it} + \gamma_5 STR\_ALN_{it} \times BUS\_FOC_{it} + \gamma_6 Z_{it} + \epsilon_{3it} \quad (3)
$$

where $CSAT$ is customer satisfaction; $COST$ denotes coordination costs; $PERF$ is firm performance; $STR\_ALN$ is structural alignment; $ORG\_GRN$ is organizational granularity; and $BUS\_FOC$ is business focus. In the positive mediating path (Equation 1), $\alpha_{10}$ denotes the intercept, and $\alpha_{11}$, $\alpha_{12}$, and $\alpha_{13}$ are the coefficients that capture the main effects of structural alignment, organizational granularity, and business focus, respectively, on customer satisfaction. Furthermore, $\alpha_{14}$ and $\alpha_{15}$ represent the moderating effects of organizational granularity and business focus, respectively, on the effect of structural alignment on customer satisfaction. Finally, $Z$ is a $5 \times 1$ vector (with $\alpha_{16}$ as the corresponding parameter vector) of the control variables: firm size, firm age, service ratio, the firm reorganization dummy variable, and industry growth. In the negative mediating path (Equation 2), $\alpha_{20}$ denotes the intercept, and $\alpha_{21}$, $\alpha_{22}$, and $\alpha_{23}$ capture the main effects of structural alignment, organizational granularity, and business focus, respectively, on coordination costs. Finally, $\alpha_{24}$ represents the parameter vector for the same set of control variables $Z$ as in Equation 1.

In the performance model (Equation 3), $\beta_0$ denotes the intercept, and the parameters are customer satisfaction ($\beta_1$) and coordination cost ($\beta_2$). To complete the specification, we also allowed for direct effects of structural alignment ($\gamma_1$), organizational granularity ($\gamma_2$), and business focus ($\gamma_3$), as well as interaction effects between structural alignment and
organizational granularity ($\gamma_4$) and between structural alignment and business focus ($\gamma_5$), on performance. Moreover, $\boldsymbol{\gamma}_6$ represented the parameter vector of the same set of control variables $\boldsymbol{Z}$ as in Equations 1 and 2. The error terms in Equations 1, 2, and 3 ($\varepsilon_{1it}, \varepsilon_{2it},$ and $\varepsilon_{3it}$) were assumed to be i.i.d. normal, $\varepsilon_{1it} \sim N(0, \sigma_1^2)$, $\varepsilon_{2it} \sim N(0, \sigma_2^2)$, and $\varepsilon_{3it} \sim N(0, \sigma_3^2)$.

To account for possible endogeneity in Equation 3, we used a latent instrumental variable (LIV) approach (Ebbes et al. 2005; Zhang, Wedel, and Pieters 2009), which circumvents issues of instrument availability, validity, and weakness. The intuition behind LIV is to use a binary, unobserved instrument that separates an observed endogenous predictor (e.g., structural alignment) into two components, correlated versus uncorrelated with the error term in the main estimation (Equation 3). Recent marketing research hosts a wide variety of LIV applications, in an attempt to address endogeneity in covariates (Rutz, Bucklin, and Sonnier 2012) and mediating variables (Zhang, Wedel, and Pieters 2009).

Because managers can alter structural characteristics (i.e., structural alignment, organizational granularity, business focus) due to anticipated or in reaction to actual performance or other unobserved factors, these three covariates may be correlated with the error term in Equation 3 (i.e., endogenous to performance). By applying LIV, we attain an augmented model specification for Equation 3:

$$
\text{PERF}_{it} = \beta_0 + \beta_1 \text{CSAT}_{it} + \beta_2 \text{COST}_{it} + \gamma_1 \text{STR}_{it} + \gamma_2 \text{ORG}_{it} + \gamma_3 \text{BUS}_{it} + \\
\gamma_4 \text{STR}_{it} \times \text{ORG}_{it} + \gamma_5 \text{STR}_{it} \times \text{BUS}_{it} + \gamma_6 \text{Z}_{it} + \varepsilon_{3it}^3
$$

(4)

where

$$
\text{STR}_{it} = \text{STR}_{it} + \varepsilon_{it}^{\text{STR}}, \quad \lambda_1 = \lambda_{1i} \text{w}_{1it} + \varepsilon_{it}^{\text{STR}}, \quad (5a)
$$

$$
\text{ORG}_{it} = \text{ORG}_{it} + \varepsilon_{it}^{\text{ORG}}, \quad \lambda_2 = \lambda_{2i} \text{w}_{2it} + \varepsilon_{it}^{\text{ORG}}, \quad (5b)
$$

$$
\text{BUS}_{it} = \text{BUS}_{it} + \varepsilon_{it}^{\text{BUS}}, \quad \lambda_3 = \lambda_{3i} \text{w}_{3it} + \varepsilon_{it}^{\text{BUS}}. \quad (5c)
$$

The slope coefficients in Equation 4 are as defined previously, but instead of the actual values of structural alignment, organizational granularity, and business focus, we used the instrumented values, $\text{STR}_{it}$, $\text{ORG}_{it}$, and $\text{BUS}_{it}$, respectively. The instrumented value $\text{STR}_{it}$ specified in Equation 5a is a function of an unobserved LIV, $\text{w}_{1it}$, which follows a Bernoulli distribution $\text{w}_{1it} \sim \text{B} (\pi^{\text{w}_1})$, where $\pi^{\text{w}_1} = \text{P} (\text{w}_{1it} = 1)$ is the instrument probability. The intuition behind this specification is that the variance in structural alignment is
divided into one part \( w_{1it} \) that is uncorrelated with the error \( \epsilon^3_{it} \) in the performance and one part \( \epsilon^{\text{STR ALN}}_{it} \) that is correlated with the error \( \epsilon^3_{it} \). The influence of the LIV on observed structural alignment can be captured by \( \lambda_{11} \), whereas \( \lambda_{10} \) is an intercept. By construction, \( w_{1it} \) is uncorrelated with the error term in Equation 4, so the estimate \( y_1 \) of the impact of structural alignment on performance is consistent. Applying the same logic and distributional assumptions, \( w_{2it} \) and \( w_{3it} \) serve as LIVs for organizational granularity and business focus, respectively.

To address unobserved heterogeneity in firm performance, as well as satisfaction and coordination costs, we allowed for firm-level random intercepts:

\[
\begin{align*}
\alpha_{10i} &= \alpha_{10} + \eta_{1i}, \\
\alpha_{20i} &= \alpha_{20} + \eta_{2i}, \text{ and} \\
\beta_{0i} &= \beta_0 + \eta_{3i}.
\end{align*}
\]

where \( \alpha_{10}, \alpha_{20}, \) and \( \beta_0 \) represent the grand intercepts of satisfaction, coordination costs, and performance, respectively; and \( \eta_{ki} \sim N(0, \sigma^2_{tk}), \forall k \in \{1,2,3\} \) captures a firm-level disturbance term in each quantity. We estimated all equations simultaneously using Markov chain Monte Carlo (MCMC) methods, recursively sampling from the full conditional distributions of the model (Equations 1, 2, and 4). We assumed non-informative priors, normal distributions for the slope coefficients, and inverse gamma distributions for the variance coefficients, and the burn-in contained 55,000 draws from the full conditional posterior distributions.

**Estimation results**

We present the results of the estimation in Panels A–C of Table 4. As we predicted in H1, structural alignment positively affected customer satisfaction (posterior mean \( \alpha_{11} = 3.106 \), zero not included in the 95% credible interval). The positive effect of structural alignment on customer satisfaction was moderated negatively by organizational granularity (\( \alpha_{14} = -1.324 \), zero not included in the 95% credible interval) and business focus (\( \alpha_{15} = -2.595 \), zero not included in the 95% credible interval), in support of H2a and H2b. Structural alignment increased coordination cost (\( \alpha_{21} = .182 \), zero not included in the 95% credible interval), as we hypothesized in H3. The results also supported H4, because increases in customer satisfaction enhanced performance (posterior mean \( \beta_1 = .105 \), zero not included in the 95% credible interval). Finally, coordination costs significantly decreased performance (\( \beta_2 = -.060 \), zero not included in the 95% credible interval), in support of H5.
Following Zhang, Wedel, and Pieters (2009), we conducted a Bayesian mediation analysis to determine if the effect of structural alignment on firm performance was mediated by customer satisfaction (H\(_{6a}\)) and coordinating costs (H\(_{6b}\)). The total effect of structural alignment on performance consists of three components: a direct effect on performance (DIRECT), an indirect effect through customer satisfaction (INDIRECT1), and an indirect effect through coordination costs (INDIRECT2). Mathematically, the total effect \(\frac{\partial \text{PERF}}{\partial \text{STR_ALN}}\) equals:

\[
\frac{\partial \text{PERF}}{\partial \text{STR_ALN}} = \text{DIRECT} + \text{INDIRECT1} + \text{INDIRECT2} \tag{7}
\]

where

\[
\text{DIRECT} = \gamma_1 + \gamma_4 \text{ORG_GRN}_{it} + \gamma_5 \text{BUS_FOC}_{it}, \tag{8a}
\]

\[
\text{INDIRECT1} = \beta_1 (\alpha_{11} + \alpha_{14} \text{ORG_GRN}_{it} + \alpha_{15} \text{BUS_FOC}_{it}), \tag{8b}
\]

\[
\text{INDIRECT2} = \beta_2 (\alpha_{21}). \tag{8c}
\]

We estimated these three expressions of DIRECT, INDIRECT 1, and INDIRECT2 and their standard deviations using a Bayesian framework with MCMC estimation algorithm. With this approach, we bypassed issues of asymptotic approximations of the standard errors, a notable weakness of Sobel (1982) tests. The mediation test results revealed a positive and significant indirect effect of structural alignment on performance through customer satisfaction (INDIRECT1; posterior mean = .074, zero not included in the 95% credible interval). The indirect effect of structural alignment on performance through coordination costs (INDIRECT2) was negative and significant (posterior mean = –.011, zero not included in the 95% credible interval). The direct effect was not statistically significant (posterior mean = –2.202, zero included in the 95% credible interval). Thus, customer satisfaction and coordination costs fully mediated the effect of structural alignment on performance.

**Decomposing elasticity: effect of structural alignment on performance**

To provide further support for our conceptual model and offer managerial insights, we conducted additional analyses to examine *when structural alignment pays off and by how much.* We decomposed the elasticity of firm performance to changes in structural alignment (i.e., percentage change in performance for a 1% change in structural alignment) across both mediating variables to understand how much of the performance effect can be attributed to the
positive customer satisfaction pathway ($\text{ELAS}_{\text{CSAT,PERF,STR,ALN}}$) versus the negative coordinating cost pathway ($\text{ELAS}_{\text{COST,PERF,STR,ALN}}$). From the model specification in Equations 1–3, we express the two elasticities as:

$$\text{ELAS}_{\text{CSAT,PERF,STR,ALN}} = \beta_1 (\alpha_{11} + \alpha_{14} \text{ORG}_{\text{GRN}} + \alpha_{15} \text{BUS}_{\text{FOC}}) \frac{\text{STR,ALN}}{\text{PERF}}, \quad \text{and} \quad (9a)$$

$$\text{ELAS}_{\text{COST,PERF,STR,ALN}} = \beta_2 (\alpha_{21}) \frac{\text{STR,ALN}}{\text{PERF}}. \quad (9b)$$

Using the parameter estimates in Table 4, we calculated elasticity at different sample percentiles of organizational granularity and business focus. As organizational granularity increases, the structural alignment–performance elasticity attributable to satisfaction becomes less positive whereas the structural alignment to performance elasticity attributable to coordinating costs remained stable, and eventually grows larger than the declining positive elasticity. Thus, net performance elasticity, or the difference between the elasticity through satisfaction and the elasticity through coordinating costs, reached 0 at about the 65th percentile of organizational granularity. In other words, increases in structural alignment would pay off (+ net elasticity) for the firms with a low to moderate levels of organizational granularity (< 65%), independent of the level of business focus.

Similarly, when a firm increases its level of business focus, the structural alignment–performance elasticity attributable through satisfaction increases became dramatically less positive while elasticity through coordinating costs remained constant. Thus, for firms with a low level of business focus (< 35%), increases in structural alignment enhance performance, independent of the level of organizational granularity.

Overall, comparing the relative magnitude of elasticity through satisfaction to elasticity through costs at the sample means of organizational granularity and business focus, we find that 87% of the net elasticity is due to the satisfaction pathway. The elasticity of performance to changes in structural alignment varied from +.20 to −.11, depending on the level of the organic sources of customer alignment (±1 standard deviation). That is, elasticities from changes in structural alignment were similar in size to advertising elasticities, for which “more than 40% … were between 0 and .05” (Sethuraman, Tellis, and Briesch 2011, p. 464).

**Sensitivity analyses**

*Alternative operationalizations of structural alignment.* To enhance confidence in our
findings and address some issues inherent to ordered categorical variables, we performed a sensitivity analysis with two alternative measures of structural alignment. First, we used managers’ evaluations of how well different organizational structure “types” aligned their firm with its customers, using an online survey of executive MBA students. All 36 respondents had at least two years’ managerial experience (average = 9.53 years). Each respondent rated “each organizational structure type based on how well each structure allows a firm to align its employees to its customers,” on to a seven-point Likert scale, anchored by “Not aligned to customers” (1) and “Very aligned to customers” (7). The managerial evaluations moved our measure beyond organizational design theory to incorporate practitioner insight. Consistent with extant literature and our operationalization, the survey yielded the same rank order for structural alignment (M_function = 3.83; M_product = 4.31; M_geography = 4.44; M_customer = 5.97), which increased confidence in the validity of our operationalization. We also substituted the survey-based average ratings for each structure type into our data set and reestimated the model (e.g., structural alignment for functional = 3.83, product = 4.31). As Model 1 in Table 5 reveals, the results were similar to those obtained from the ordered variable of structural alignment (i.e., no change in significance).

Second, we created a less fine-grained measure of structural alignment by categorizing the four structural types into two groups, internally versus externally focused (external = customer and geography; internal = function and product). Researchers have consistently argued that externally focused structures are more customer-aligned than internally focused ones (Lawler 1996). Thus, we coded this measure as 1 if the organization had a customer or geographic structure and 0 if it had a functional or product structure. Model 2 (Table 5) indicates that the results again were consistent with our hypotheses. Although this operationalization resulted in a loss of information, it also eliminated the need to order the data.

Taken together, these results provide strong support for our model and our measure of structural alignment, in that they remained consistent across both finer and coarser grained operationalizations of structural alignment. Whether we measure “extent to which a firm’s organization structure type aligns with customer groups” using two levels (internal vs. external), four levels with constant spacing levels (weighted by sales), or a seven-point scale based on managers’ evaluation of structural types, we obtained consistent findings.

*Alternative operationalizations of performance.* We conducted robustness tests to
evaluate alternative measures of firm performance. We used return on assets (ROA) and return on sales (ROS), which are more accessible to managers than Tobin’s q and should reflect changes in satisfaction and costs. We measured ROA as income before extraordinary items, divided by the total assets, and ROS equaled income before extraordinary items, divided by total sales, both extracted from the COMPUSTAT Industrial Annual database. The results in Models 3 and 4 (Table 5) confirmed that our substantive results remained unchanged (1 of 12 effects lost significance). Thus, our analysis appears to be robust to variations in the key measures.

Discussion

Firms with more customer-centric structures are assumed to outperform their competitors, even in the absence of empirical support (Day 2006). Acting on this belief, 22% of Fortune 500 firms have shifted toward a more customer-aligned structure in the past decade. Managers often base their decisions to undertake costly restructuring efforts on reports of the success of a few well-publicized cases. Yet many firms also have failed to achieve the expected improvements and reverted to less customer-centric structures. We therefore develop and test a model of the effects of structural alignment on firm performance to provide insight into two key questions: (1) How do customer-centric organizational structures affect performance and (2) when does aligning structure to customers pay off and by how much?

Theoretical and research implications

In contrast to the extant literature (Jayachandran et al. 2005; Shah et al. 2006), our study proposes and empirically demonstrates that both positive and negative mechanisms are important for understanding how and when structural alignment affects firm performance. Specifically, increases in structural alignment enhance performance by providing external benefits (faster responsiveness, greater customer satisfaction) while simultaneously undermining performance by incurring internal costs (duplicating infrastructure, complicating communication). Our findings, using a Bayesian mediated moderation analysis, show that customer satisfaction and coordinating costs fully mediate the effect of structural alignment on performance. Thus, the effect of a firm’s structural alignment on performance depends on whether the external benefits exceed the costs associated internal complexity. Neglecting these trade-offs creates misguided expectations about the net performance effect of changes in
Moreover, the trade-off between the positive and negative mediating pathways varies across firms with different levels of “organic” structural sources of customer alignment. Our results thus indicate that firms that break their business into smaller units (high organizational granularity) or limit their business to a narrower set of end markets (high business focus) are intrinsically more aligned with customers. These firms gain little incremental benefit from also shifting to a more customer-centric structure type, which instead increases their internal complexity and costs. The significant negative moderating effects of both organizational granularity and business focus on the effect of structural alignment on customer satisfaction support our core premise: The benefits of different structural sources of customer alignment are redundant, whereas costs are additive.

Additional analysis reveals that the elasticity of firm performance to changes in structural alignment decreases as the level of organizational granularity or business focus increases; it eventually become negative for firms with high levels of organizational granularity or business focus. Specifically, changes in structural alignment enhance customer satisfaction enough to outweigh the corresponding increase of internal costs either if its organizational granularity was low to moderate or if business focus was low. The magnitude of performance elasticity to changes in structural alignment is similar to that of other marketing mix variables (e.g., advertising, personal selling).

Considering structural alignment’s relatively strong effect on performance, as well as the interaction of multiple structural characteristics to determine customer satisfaction, we suggest that research continue to integrate “organizational structure” as a key variable in marketing models. In addition to the variables in our model, other structural design characteristics might be investigated (e.g., centralization, formalization). The firm’s use of its structural design elements to achieve marketing objectives (customer-centricity, customer satisfaction, product development success) constitutes structural marketing, and leaving boardroom executives to make structural design decisions without guidance from such a structural marketing perspective may lead to unintended consequences that undermine marketing capabilities and performance. For example, acquisition, divesture, and business unit design decisions often focus on financial portfolio, production, or management issues, rather than on the core marketing concern of satisfying customers. Even when structure is included as a primary
tool to satisfy customers, firms still must consider multiple types before embracing or dismissing any single source of customer alignment.

Managerial implications

To provide managerial insight into the relative impact on firm performance of customer-focused organizational structures in different conditions, we conducted several post hoc analyses of all Fortune 500 firms (1998–2010). For each of the moderating “organic” sources of customer alignment, we split the Fortune 500 into high (top quartile) and low (bottom quartile) groups, and then compared the average firm performance of firms with high structural alignment versus those with low structural alignment across these groups. This approach offers several advantages, including independence from model specification, generalizability to a larger sample that is not subject to ACSI data restrictions, and a direct comparison of firms’ performance across different conditions.

Firms with low organizational granularity (bottom 25%) that had the highest structural alignment (top 25%) performed 23% better than firms with the lowest structural alignment scores (bottom 25%). Structuring around customer groups thus pays off for Fortune 500 firms that do not achieve customer alignment through organizational granularity. In contrast, firms with high organizational granularity exhibited 32% lower performance, on average, when they also exhibited high, versus low, structural alignment.

Firms serving broad end markets (lowest 25% of business focus) and structured around customers (highest 25% of structural alignment) also performed 58% higher than firms not structured around customers (lowest 25% of structural alignment). In contrast, firms that served few end markets (high business focus) achieved 8% lower performance when they organized around customer groups (high structural alignment) instead of an internal basis (low structural alignment). Structuring around customers pays off very well for Fortune 500 firms that serve a broad set of end customers, but it has little effect on performance for focused firms.

Consider two firms in the sample as illustrations. Harris Corporation and Symantec Corporation both shifted from product- to customer-focused organizational structures, but whereas Harris’s organizational change yielded a significant performance improvement (+17% Tobin’s q), Symantec’s decreased its value (−50% Tobin’s q). The performance differences reflect their relative difference in business focus: Harris’s was low (<21%, three industries), whereas Symantec’s was high (>83%, one industry), but both firms had similar levels of
granularity. Thus, Harris’s restructuring provided incremental benefits that outweighed their costs. Because Symantec already was aligned with its narrow set of end customers, its restructuring offered little incremental benefit while also adding cost and complexity.

These findings provide managers with some caveats to consider before changing their structural alignment. First, increases in structural alignment enhance firm performance by increasing customer satisfaction but damage it by increasing coordinating costs. Second, restructuring around customer groups pays off most when the firm already (1) has relatively large business units or (2) serves many diverse end markets.

**Limitations and further research directions**

The nature of our sample—*Fortune* 500 firms for which customer satisfaction data were available—limits our results to large, publicly traded, U.S. firms. Our findings appear robust in our additional analyses, but should be generalized to smaller firms. Similarly, data availability limited our measures of organizational structure to the highest firm level; our framework should be tested at lower organizational levels (e.g., sales teams). Further research should employ other approaches (e.g., survey, event study) to verify some of our proxy measures. There is thus a clear need for more research on this topic in other contexts using other research methods.

Our study is a first step in describing the domain of structural marketing. We call for further research to examine the impact of organizational structure in various marketing contexts (e.g., innovation, marketing mix, channel relationships, brand acquisition, strategic alliance). We hope our work stimulates such research in this important domain.
APPENDIX
Examples of Firms’ Structural Alignment, Coded From 10-K Statements

The firm’s structure type appears in the Form 10-K Securities and Exchange Commission filings, available at <http://www.sec.gov/edgar/searchedgar/companysearch.html>. We searched for “segment information” in each firm’s 10-K statement for every year from 1998 to 2010. According to Financial Accounting Standards Board (FASB) Statement No. 131, companies are required to report segment information consistent with their internal organizational structure. A business operating segment is defined as “a component of an enterprise engages in business activities from which it may earn revenues and incur expenses” (FASB 1997, p. 7), so it reflects the firm’s structural units. We obtained sales revenues from each operating segment from the COMPUSTAT Business Segments database.

**Functional structure**
“Effective July 1, 2002, we changed our organization structure from a divisional to a primarily functional structure…. The Chief Operating Decision Maker is managing our company based primarily on broad functional categories of sales, services, manufacturing, product development and engineering and marketing and strategy” (Sun Microsystems Inc., 2003/06/30, p. 87).

**Product-centric structure**
“We operate, and are managed, as two strategic segments: Wireless and Long Distance. These segments are organized by products and services” (Sprint Nextel Corp., 2006/12/31, p. 55).

**Geographical structure**
“Kellogg Company … currently manages its operations in four geographic operating segments, comprised of North America and the three International operating segments of Europe, Latin America, and Asia Pacific” (Kellogg Co., 2006/12/30, p. 52).

**Customer-centric structure**
“Dell’s four global business segments are Large Enterprise, Public, Small and Medium Business (“SMB”), and Consumer. Large Enterprise includes sales of IT infrastructure and service solutions to large global and national corporate customers. Public includes sales to educational institutions, governments, health care organizations, and law enforcement agencies, among others. SMB includes sales of complete IT solutions to small and medium-sized businesses. Consumer includes sales to individual consumers and retailers around the world.” (Dell Inc., 2010/1/29, p. 93-94).

**Product–geographical hybrid structure**
“The Company has four operating segments, each of which is a reportable segment. These segments are organized principally by product category and geographic location: Innerwear Outerwear, Hosiery, and International” (Hanesbrands Inc., 2006/7/1, p. 41).

**Customer–geographical hybrid structure**
“We have three operating segments by type of customer and geographic region as follows: U.S. Retail, International, and Bakeries and Foodservice” (General Mills Inc., 2010/5/30, p. 93).
REFERENCES


—— (2005), "The Un-Carly Unveils His Game Plan," (accessed June 2, 2011), [available at http://www.businessweek.com/magazine/content/05_26/b3939061_mz011.htm].


TABLE 1

Literature Review: Mediating Mechanisms for the Effect of Structural Alignment on Performance

<table>
<thead>
<tr>
<th>Reference</th>
<th>Context</th>
<th>Structural Alignment</th>
<th>Measure of Structural Alignment</th>
<th>Key Findings/Propositions</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;Customer Satisfaction&quot;: Positive Mediating Mechanisms for the Effect of Structural Alignment on Performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Becker, Greve, and Albers (2009)</td>
<td>Survey of 90 CRM project managers</td>
<td>Included as part of a multidimensional construct: “organizational implementation”</td>
<td>• We have an organizational structure that is based on customer segments (e.g., customer segments as profit center). • Our distribution is organized according to customer groups (segment-based).</td>
<td>Organizational implementation improves the acquisition and regaining of lost customers when supported by management.</td>
</tr>
<tr>
<td>Homburg, Droll, and Totzek (2008)</td>
<td>Survey of 310 managers</td>
<td>Included as part of a multidimensional construct: &quot;selective organizational alignment&quot;</td>
<td>• The more likely specific organizational units are installed to serve them (customers), the easier it is for our employees in customer care to get the necessary input from other functional units (e.g., research and development, production, logistics, information technology).</td>
<td>Selective organizational alignment positively moderates the effect of prioritization strategy (intended strategy to treat customers differently) on customer prioritization.</td>
</tr>
<tr>
<td>Jayachandran et al. (2005)</td>
<td>Survey of 151 marketing managers</td>
<td>Included as part of a multidimensional construct: &quot;customer-centric management system&quot;</td>
<td>• We organize our company around customer-based groups rather than product or function-based groups. • In our organization, various functional areas coordinate their activities to enhance the quality of customer experience.</td>
<td>Customer-centric management system supports relational information processes (the specific routines that a firm uses to manage customer information), which in turn is positively related to customer satisfaction and retention.</td>
</tr>
<tr>
<td>Reinartz, Krafft, and Hofer (2004)</td>
<td>Survey of 211 senior managers of business units</td>
<td>Included as part of a multidimensional construct: &quot;CRM-compatible organizational alignment&quot;</td>
<td>• Our business unit is organized to optimally respond to customer groups with different profitability. • Organizing people (i.e., changing organizational structure) to deliver differentiated treatment and products to different customer segments presents a strength for our business unit.</td>
<td>CRM-compatible organizational alignment moderates the relationship between a formalized CRM process and performance (for the initiation and termination stages).</td>
</tr>
<tr>
<td>Shah et al. (2006)</td>
<td>Conceptual paper about a customer-centric organization</td>
<td>Discussed as part of an organization design element: &quot;customer-centric organization structure&quot;</td>
<td>• Aligning all functional activities around customer segments.</td>
<td>Transitioning to a customer-centric structure increases accountability for managing the customer relationship, which in turn leads to superior business performance.</td>
</tr>
<tr>
<td>Yim, Anderson, and Swaminathan (2004)</td>
<td>Survey of 215 senior managers</td>
<td>Included as part of a multidimensional construct: &quot;organizing around CRM&quot;</td>
<td>• Our organizational structure is meticulously designed around our customers.</td>
<td>Organizing around CRM relates positively to customer satisfaction, which in turn increases retention and sales growth.</td>
</tr>
<tr>
<td>&quot;Coordinating Costs&quot;: Negative Mediating Mechanisms for the Effect of Structural Alignment on Performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Day (2006)</td>
<td>Survey of 347 midsize to large U.S. companies</td>
<td>A binary concept of divisions organized around customers: &quot;organizational alignment&quot;</td>
<td>• How are you organized now? (e.g., product/service lines, customer groups, process teams, functions, geographies)</td>
<td>Organizing by customer-focused units increases accountability, employee freedom, and ease and ability to deal with customer problems, but not relative customer retention and profits due to bureaucracy and coordinating costs.</td>
</tr>
<tr>
<td>Gulati and Puranam (2009)</td>
<td>Qualitative data from a reorganization at Cisco Systems</td>
<td>Firm’s formal organization around customer segments: “customer-oriented grouping”</td>
<td>• Semi-autonomous lines of business focusing on a distinct customer type (vs. technology/product).</td>
<td>Under a customer-centric structure, Cisco suffered from redundancies and duplicated tasks across lines of business. After restructuring its formal organization from a customer focus to a technology focus, the company improved “cost efficiency... at the expense of customer responsiveness” (p. 428).</td>
</tr>
<tr>
<td>Homburg, Workman, and Jensen (2000)</td>
<td>Field interviews with 50 managers; quantitative study of 385 firms</td>
<td>Shift in structural configuration from an internal emphasis to an external emphasis: &quot;customer-focused organizational structure&quot;</td>
<td>• Conceptual organizational types ranging from a weaker to a stronger degree of customer focus (e.g., function, product, geography, and customer).</td>
<td>Given the greater reporting complexity associated with a customer-focused structure, many companies have not made the shift to a customer-focused structure, and some reverted to less customer-focused structures.</td>
</tr>
</tbody>
</table>
### TABLE 2
**Constructs, Definitions, Measurements, and Data Sources**

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Definitions</th>
<th>Measures (References)</th>
<th>Data Sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firm performance</td>
<td>Overall level of firm performance</td>
<td>Tobin’s q (Chung and Pruitt 1994).</td>
<td>COMPUSTAT Industrial Annual</td>
</tr>
<tr>
<td>Customer satisfaction</td>
<td>Overall evaluation of a customer’s experience with firms’ products or services</td>
<td>American Customer Satisfaction Index score (Anderson, Fornell, and Mazvancheryl 2004; Fornell et al. 1996).</td>
<td>National Quality Research Center at the University of Michigan</td>
</tr>
<tr>
<td>Coordinating costs</td>
<td>Internal cost of employees, communication efforts, and complexity associated with linking customers to backend operations</td>
<td>Residuals from regressing SG&amp;A expenses on advertising and R&amp;D expenses with firm-fixed effects to control for constant unmeasured differences across firms (Haleblian and Finkelstein 1993; Morgan and Rego 2009).</td>
<td>COMPUSTAT Industrial Annual</td>
</tr>
<tr>
<td>Structural alignment</td>
<td>The extent to which a firm’s organizational structure type aligns with customer groups (e.g., function, product, geography, customer).</td>
<td>Ordered basis: function = 1, product = 2, geographical region = 3, customer = 4. To account for situations in which a firm uses multiple structures across different operating units, we developed an average weighted score based on the ratio of individual operating segment sales revenue to total sales (Day 2006; Homburg, Workman, and Jensen 2000; Vermeulen, Puranam, and Gulati 2010).</td>
<td>Form 10-Ks under SFAS No. 131 and COMPUSTAT Business Segments</td>
</tr>
<tr>
<td>Organizational granularity</td>
<td>The extent to which a firm divides itself into small structural units.</td>
<td>The reciprocal of firm’s total sales revenue in billions of dollars per segment (i.e., the reciprocal of the average segment size), so larger average unit size corresponds to a lower granularity score. To mitigate skewness and kurtosis, we used a log-transformed measure (Homburg, Workman, and Krohmer 1999).</td>
<td>COMPUSTAT Business Segments</td>
</tr>
<tr>
<td>Business focus</td>
<td>The extent to which a firm competes within a limited set of end markets</td>
<td>Herfindahl-type index based on four-digit SIC code. It is the sum of squares of the ratio of total sales revenue in each four-digit SIC industry group in which the firm operates i (i = 1, 2, ..., number of unique industry segments) to the total sales of the firm (Desai and Jain 1999; Phan and Hill 1995).</td>
<td>COMPUSTAT Business Segments</td>
</tr>
<tr>
<td>Firm size</td>
<td>Size of the firm</td>
<td>Log transformation of number of employees.</td>
<td>COMPUSTAT Industrial Annual</td>
</tr>
<tr>
<td>Firm age</td>
<td>Age of the firm</td>
<td>The number of years that the company is listed on COMPUSTAT.</td>
<td>COMPUSTAT Industrial Annual</td>
</tr>
<tr>
<td>Service ratio</td>
<td>Firm’s share of sales revenue generated by services versus products</td>
<td>The percentage of sales revenues in all service business segments compared with the total sales revenue of each firm in a given year (Fang, Palmatier, and Steenkamp 2008).</td>
<td>COMPUSTAT Business Segments</td>
</tr>
<tr>
<td>Year of reorganization</td>
<td>Year when a firm’s reorganization occurs</td>
<td>The years in which firm reorganization activity occurring were coded as 1 while pre- and post-reorganization periods were coded 0 (Hoskisson and Johnson 1992).</td>
<td>Form 10-Ks under SFAS No. 131</td>
</tr>
<tr>
<td>Industry growth</td>
<td>Rate of sales growth within an industry</td>
<td>We regress industry sales (four-digit SIC) over time, using three year window. Then, we normalize the industry’s growth coefficient by the average industry sales for those years (Fang, Palmatier, and Steenkamp 2008).</td>
<td>COMPUSTAT Industrial Annual</td>
</tr>
</tbody>
</table>
TABLE 3
Descriptive Statistics and Correlations

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Mean</th>
<th>SD</th>
<th>Correlation</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>1. Firm performance</td>
<td>1.463</td>
<td>1.246</td>
<td>1</td>
</tr>
<tr>
<td>2. Customer satisfaction</td>
<td>75.759</td>
<td>6.543</td>
<td>.319</td>
</tr>
<tr>
<td>3. Coordinating costs</td>
<td>.000</td>
<td>1.731</td>
<td>.003</td>
</tr>
<tr>
<td>4. Structural alignment</td>
<td>2.120</td>
<td>.966</td>
<td>.024</td>
</tr>
<tr>
<td>5. Organizational granularity</td>
<td>.284</td>
<td>.303</td>
<td>-.028</td>
</tr>
<tr>
<td>6. Business focus</td>
<td>.780</td>
<td>.248</td>
<td>.122</td>
</tr>
<tr>
<td>7. Firm size</td>
<td>3.781</td>
<td>1.314</td>
<td>.083</td>
</tr>
<tr>
<td>8. Firm age</td>
<td>37.076</td>
<td>24.369</td>
<td>-.097</td>
</tr>
<tr>
<td>9. Service ratio</td>
<td>.605</td>
<td>.395</td>
<td>-.217</td>
</tr>
<tr>
<td>10. Year of reorganization</td>
<td>.037</td>
<td>.188</td>
<td>.001</td>
</tr>
<tr>
<td>11. Industry growth</td>
<td>.086</td>
<td>.122</td>
<td>.135</td>
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</tbody>
</table>
TABLE 4
Estimation Results: Effect of Structural Alignment on Firm Performance
Mediated By Customer Satisfaction and Coordinating Costs

<table>
<thead>
<tr>
<th>Estimate</th>
<th>Hyp</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
</table>

A. Effect of Structural Alignment on Customer Satisfaction

**DV: Customer Satisfaction**

<table>
<thead>
<tr>
<th>Hyp</th>
<th>Estimate</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>62.989 ** 1.884</td>
<td></td>
</tr>
<tr>
<td>Main Effect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural alignment</td>
<td>H1 (+)</td>
<td>3.106 ** .460</td>
</tr>
<tr>
<td>Moderating Effects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural alignment × Organizational granularity</td>
<td>H2(0) (-)</td>
<td>-1.324 ** .403</td>
</tr>
<tr>
<td>Structural alignment × Business focus</td>
<td>H2(0) (-)</td>
<td>-2.595 ** .531</td>
</tr>
<tr>
<td>Control Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Organizational granularity</td>
<td>4.071 ** .889</td>
<td></td>
</tr>
<tr>
<td>Business focus</td>
<td>8.857 ** 1.432</td>
<td></td>
</tr>
<tr>
<td>Firm size</td>
<td>.204 * .141</td>
<td></td>
</tr>
<tr>
<td>Firm age</td>
<td>.068 ** .011</td>
<td></td>
</tr>
<tr>
<td>Service ratio</td>
<td>-.052 .342</td>
<td></td>
</tr>
<tr>
<td>Year of reorganization</td>
<td>-.297 .352</td>
<td></td>
</tr>
<tr>
<td>Industry growth</td>
<td>-1.596 ** .561</td>
<td></td>
</tr>
</tbody>
</table>

B. Effect of Structural Alignment on Coordinating Costs

**DV: Coordinating Costs**

<table>
<thead>
<tr>
<th>Hyp</th>
<th>Estimate</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>-1.169 ** .535</td>
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</tr>
<tr>
<td>Main Effect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural alignment</td>
<td>H3 (+)</td>
<td>.182 ** .063</td>
</tr>
<tr>
<td>Control Variables</td>
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<td></td>
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<tr>
<td>Organizational granularity</td>
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<tr>
<td>Business focus</td>
<td>.903 ** .237</td>
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<tr>
<td>Firm size</td>
<td>.072 ** .035</td>
<td></td>
</tr>
<tr>
<td>Firm age</td>
<td>.005 ** .003</td>
<td></td>
</tr>
<tr>
<td>Service ratio</td>
<td>.086 .085</td>
<td></td>
</tr>
<tr>
<td>Year of reorganization</td>
<td>-.227 .207</td>
<td></td>
</tr>
<tr>
<td>Industry growth</td>
<td>-.208 .322</td>
<td></td>
</tr>
</tbody>
</table>

C. Effects of Satisfaction and Costs on Firm Performance

**DV: Firm Performance**

<table>
<thead>
<tr>
<th>Hyp</th>
<th>Estimate</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>4.578 11.177</td>
<td></td>
</tr>
<tr>
<td>Mediating Mechanisms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Customer satisfaction</td>
<td>H4 (+)</td>
<td>.105 ** .045</td>
</tr>
<tr>
<td>Coordinating costs</td>
<td>H5 (-)</td>
<td>-.060 ** .009</td>
</tr>
<tr>
<td>Control Variables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural alignment</td>
<td>14.080 ** 13.650</td>
<td></td>
</tr>
<tr>
<td>Structural alignment × Organizational granularity</td>
<td>-6.193 7.280</td>
<td></td>
</tr>
<tr>
<td>Structural alignment × Business focus</td>
<td>-18.710 ** 11.240</td>
<td></td>
</tr>
<tr>
<td>Organizational granularity</td>
<td>.314 2.286</td>
<td></td>
</tr>
<tr>
<td>Business focus</td>
<td>1.872 6.234</td>
<td></td>
</tr>
<tr>
<td>Firm size</td>
<td>-.058 .019</td>
<td></td>
</tr>
<tr>
<td>Firm age</td>
<td>-.008 ** .002</td>
<td></td>
</tr>
<tr>
<td>Service ratio</td>
<td>.002 .048</td>
<td></td>
</tr>
<tr>
<td>Year of reorganization</td>
<td>-.107 .080</td>
<td></td>
</tr>
<tr>
<td>Industry growth</td>
<td>.296 ** .109</td>
<td></td>
</tr>
</tbody>
</table>

* The 90% credible interval does not contain zero (two-sided).
** The 95% credible interval does not contain zero (two-sided).
Notes: We tabulated posterior means and standard deviations of the parameters. All coefficients in Panels A, B, and C were estimated simultaneously using a Bayesian statistical model of moderated mediation.
TABLE 5
Estimation Results for Sensitivity Analyses: Alternative Measures of Structural Alignment and Firm Performance

<table>
<thead>
<tr>
<th>Variables</th>
<th>Hyp</th>
<th>A. Effect of Structural Alignment on Customer Satisfaction</th>
<th>B. Effect of Structural Alignment on Coordinating Costs</th>
<th>C. Effects of Satisfaction and Costs on Firm Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td></td>
<td>Hyp</td>
<td>Model 1</td>
<td>Model 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Mean</td>
<td>SD</td>
<td>Mean</td>
</tr>
<tr>
<td>Intercept</td>
<td></td>
<td>49.468</td>
<td>** 1.689</td>
<td>69.570</td>
</tr>
<tr>
<td>Main Effect</td>
<td></td>
<td>Structural alignment</td>
<td>H₁ (+)</td>
<td>4.988</td>
</tr>
<tr>
<td>Moderating Effects</td>
<td>Structural alignment × Organizational granularity</td>
<td>H₂(+)</td>
<td>-1.997</td>
<td>** -0.490</td>
</tr>
<tr>
<td>Control Variables</td>
<td>Organizational granularity</td>
<td>9.534</td>
<td>** 2.082</td>
<td>2.014</td>
</tr>
<tr>
<td>Business focus</td>
<td>18.900</td>
<td>** 1.491</td>
<td>3.400</td>
<td>** 0.640</td>
</tr>
<tr>
<td>Firm size</td>
<td>-1.22</td>
<td>* 0.077</td>
<td>-1.634</td>
<td>** -0.105</td>
</tr>
<tr>
<td>Firm age</td>
<td>1.60</td>
<td>* 0.100</td>
<td>-0.73</td>
<td>** -0.100</td>
</tr>
<tr>
<td>Service ratio</td>
<td>-2.10</td>
<td>0.295</td>
<td>-1.17</td>
<td>0.328</td>
</tr>
<tr>
<td>Year of reorganization</td>
<td>-3.63</td>
<td>0.353</td>
<td>-2.31</td>
<td>0.343</td>
</tr>
<tr>
<td>Industry growth</td>
<td>-1.572</td>
<td>** 0.562</td>
<td>-1.458</td>
<td>** 0.555</td>
</tr>
</tbody>
</table>

B. Effect of Structural Alignment on Coordinating Costs

| Intercept |     | -2.202 | ** 0.637 | -7.93 | 526 | -1.078 | ** 0.522 | -1.065 | ** 0.533 |
| Main Effect |     | Structural alignment | H₁ (+) | 0.325 | ** 0.089 | 0.434 | ** 0.137 | 0.184 | ** 0.061 | 0.183 | ** 0.064 |
| Control Variables | Organizational granularity | -3.36 * 0.201 | -3.04 * 0.196 | -3.56 | * 0.197 | -3.35 | * 0.202 |
| Business focus | 0.829 | ** 0.224 | 0.636 | ** 0.252 | 0.776 | ** 0.224 | 0.764 | ** 0.224 |
| Firm size | 0.06 | ** 0.034 | 0.075 | ** 0.033 | 0.056 | ** 0.032 | 0.056 | ** 0.035 |
| Firm age | 0.005 | * 0.003 | 0.005 | ** 0.003 | 0.005 | * 0.003 | 0.005 | ** 0.003 |
| Service ratio | 0.076 | 0.084 | 0.083 | 0.084 | 0.082 | 0.089 | 0.082 | 0.083 |
| Year of reorganization | -2.32 | 0.203 | -2.44 | 2.07 | -2.29 | 0.206 | -2.27 | 0.207 |
| Industry growth | -2.12 | 0.326 | -2.19 | 3.24 | -2.28 | 0.334 | -2.22 | 0.325 |

C. Effects of Satisfaction and Costs on Firm Performance

| Intercept |     | 8.982 | 15.553 | 1.963 | 4.455 | 4.855 | 3.589 | 2.162 | 7.859 |
| Mediating Mechanisms | Customer satisfaction | H₄ (+) | 0.126 | ** 0.057 | 0.094 | ** 0.037 | 0.007 | ** 0.003 | 0.016 | ** 0.003 |
| Coordinating costs | H₅ (-) | -0.40 | ** 0.015 | -0.46 | ** 0.010 | -0.001 | ** 0.001 | -0.001 | ** 0.001 |
| Control Variables | Structural alignment | 3.511 | ** 6.290 | -5.015 | ** 1.833 | -11.950 | ** 8.444 | -12.640 | ** 8.960 |
| Structural alignment × Organizational granularity | -2.240 | ** 1.138 | -2.268 | 7.524 | 29.940 | 11.514 | 20.620 | 24.050 |
| Structural alignment × Business focus | -6.995 | ** 4.490 | -1.836 | 4.203 | 2.288 | 3.805 | 5.372 | 7.626 |
| Business focus | 5.902 | ** 5.262 | 6.428 | ** 4.628 | 5.531 | ** 7.144 | 5.056 | ** 1.372 |
| Firm size | -0.46 | ** 0.026 | -0.064 | ** 0.021 | -0.002 | ** 0.002 | -0.002 | ** 0.002 |
| Firm age | -0.05 | 0.04 | -0.06 | 0.03 | 0.006 | ** 0.000 | 0.000 | ** 0.000 |
| Service ratio | -0.05 | 0.30 | -0.11 | 0.33 | -0.001 | ** 0.004 | 0.001 | ** 0.004 |
| Year of reorganization | -0.86 | 0.085 | -0.96 | 0.53 | 0.015 | ** 0.005 | -0.12 | * 0.007 |
| Industry growth | 3.50 | ** 0.093 | 3.24 | ** 0.131 | 0.031 | ** 0.008 | 0.046 | ** 0.012 |

* The 90% credible interval does not contain zero (two-sided).
** The 95% credible interval does not contain zero (two-sided).

Notes: We tabulated posterior means and standard deviations of the parameters. For each model, all coefficients in Panels A, B, and C were estimated simultaneously using a Bayesian statistical model of moderated mediation.
FIGURE 1
Effect of Customer-Centric Structure on Firm Performance Mediated by Customer Satisfaction and Coordinating Costs

Organic Structural Sources of Customer Alignment

Organizational Granularity
(The extent to which a firm divides itself into small structural units)

Business Focus
(The extent to which a firm competes within a limited set of end markets)

Firm's Organizational Structure

Structural Alignment
(The extent to which a firm's organizational structure type aligns with customer groups)

Lowest
(Internal Focus)

Highest
(External Focus)

Function—Product—Geography—Customer

H_2(a) (-)
H_2(b) (-)
H_1 (+)

Mediating Mechanisms H_6

Customer Satisfaction

Coordinating Costs

H_3 (+)
H_4 (+)
H_5 (-)

Firm Outcome

Firm Performance

Control Variables