

Organizational Architecture in The New Economy: Evidence from Business-to-Consumer Internet Firms

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Preliminary – Comments Welcome

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1. Introduction

Building on classical theories of the firm (e.g., Coase (1937), Alchian and Demsetz (1972), and Jensen and Meckling (1976)), Brickley, Smith, and Zimmerman (2000) suggest that the organizational architecture of the firm consists of three *interdependent* components: performance measurement, rewards, and the allocation of decision rights. With the exception of Nagar (2002), however, prior empirical research has examined these three decisions as separately determined aspects of organizational design. We extend the work of Nagar (2002), which examines the joint determination of incentive compensation and delegation, by investigating the interdependent relations between all three elements of the firm's organizational architecture. We hypothesize and find that each of the three components has a direct and/or indirect influence on the determination of the other two elements of the organization's design.

Our study also provides a pioneering empirical examination of organizational architecture for a sample of "New Economy" enterprises. The so-called "New Economy" is characterized by its unprecedentedly high reliance on intangible assets for generating wealth creation (Brookings Institute (2000)).¹ For example, Rajan and Zingales (2000) characterize the "New Enterprise" by, *inter alia*, the increased importance of human capital relative to other more tangible assets.² Lev (2001) includes both human resources and organizational capital as two of the firm's key intangible assets.³ In light of this significant structural economic change towards the importance of intangibles, Zingales (2000) calls for a re-examination of the theory of the firm. We therefore undertake our study of New Economy firms' organizational architecture in the human capital and intangible asset-intensive setting of business-to-consumer ("B2C") Internet firms. The Internet industry is a significant sector within the New Economy in terms of its market

¹ The U.S. corporate sector's annual investment in intangible assets was estimated to be approximately \$1 trillion in 2000 (Nakamura (2001)). This amount almost matches the total corporate sector's investment in property, plant and equipment of about \$1.1 trillion.

² Indeed, Zingales (2000) asserts, "Human capital is emerging as the most crucial asset" (p. 1624).

³ Similar to Rajan and Zingales (2000), Lev (2001) maintains that physical and financial assets are increasingly becoming commodities. Lev (2001) asserts that, in the New Economy, abnormal profits and dominant competitive position are being earned from intangible assets such as successful R&D expenditures, information technology, employee training, branding, and organizational design.

capitalization and wealth creation (Demers and Lev (2001)), and in many ways it typifies the New Economy (Hand (2002)). Furthermore, there is considerable prior evidence to demonstrate that non-financial measures of performance play a significant role in the evaluation of B2C Internet firms (e.g., Rajgopal, Kotha, and Venkatachalam (2000); Hand (2001); and Trueman, Wong, and Zhang (2000)), even after the stock market correction in 2000 (Demers and Lev (2001); Keating, Lys, and Magee (2002)). Thus, the B2C sector provides an unusually rich environment in which to examine questions related to performance measurement system design. Finally, the relative homogeneity of the firms' production functions within a single sector also helps to improve the power of tests.

Our research methodology consists primarily of field-based and telephone survey interviews, with the obtained survey data being supplemented by both financial and non-financial archival data extracted from various sources. As expressed by Tufano (2001), one of the major advantages of more clinically oriented research is its "inherently closer examination of purposefully restricted samples" (p. 187). The survey approach in particular offers a balance between large sample analyses and single-firm studies, and enables the researcher to ask very specific and qualitative questions about the underlying constructs of interest (Graham and Harvey (2001)). We think our study benefits from both of these characteristics of field-based survey research and enables us to make a unique contribution to the empirical literatures related to organizational architecture and studies of the new economic enterprise.

We develop a structural equation model to test our primary hypothesis related to Brickley *et al.* (2000)'s theory of the interdependence between the performance measurement, rewards, and allocation of decision rights components of the firm's organizational architecture. Only Nagar (2002) has previously examined the joint determination of at least two aspects of the firm's architecture. We are not aware of any prior empirical studies that have considered the role of either of the other two components of architecture

even as independent determinants of the third “leg of the stool.”⁴ We find strong evidence to support the notion that B2C Internet companies’ allocation of decisions, performance measurement, and rewards systems are interdependent. We also provide evidence of the role of knowledge specificity, firm strategy, span of control, and various ownership and governance characteristics in the design of B2C companies’ organizational architecture.

The balance of this paper is organized as follows. Section 2 motivates our study in the B2C Internet sector, develops the hypothesis to be tested, and discusses exogenous determinants of the firm’s organizational architecture. In Section 3 we discuss our survey research methodology and sample selection process, and in Section 4 we explain our model specification and construct measurement. Section 5 presents our empirical results and Section 6 concludes with a summary of our findings and suggestions for future research.

2. Theory and Hypotheses Development

2.1 Background to the Internet Industry

The Internet industry is a large and economically significant sector of the U.S. economy. Notwithstanding the Internet stock market correction in early 2000 (see, e.g., Demers and Lev (2001)), the market value of U.S. Internet firms that went public from 1980-2001 was estimated to be over \$424 billion as of December 31st, 2001 (Morgan Stanley Dean Witter (2002)). As suggested by Hand (2002) and others, Internet firms’ large, rapid, and strategically oriented spending on branding, information technology, personnel, and R&D intangibles in many ways typify the New Economy. We undertake our study in the setting of the sales/marketing department of business-to-consumer (“B2C”) Internet firms because the customer list and brand building function of the sales/marketing department is critical to the success of these consumer-oriented companies. In addition, revenue

⁴ Brickley, Smith, and Zimmerman (1995) suggest that the firm’s organizational architecture is analogous to a three-legged stool, and emphasize the importance of all three legs being designed so that the stool as a whole is balanced and functional.

generation became overwhelmingly important in the Internet sector during the period of our study, and there is a relatively common production function underlying this aspect of B2C firms' business.⁵

2.2 Organizational Architecture and the New Economy

Brickley *et al.* (1995) suggest that the organizational architecture of the firm consists of three interdependent components: performance measurement, incentive compensation or rewards, and the allocation of decision rights. However, the Brickley *et al.* (1995) organizational architecture was developed out of a classical theory of the firm that has evolved from Coase (1937), Hayek (1945), Williamson (1964), Alchian and Demsetz (1972), and Jensen and Meckling (1976), among others, and this theory is rooted in the context of the “traditional firm.” The traditional firm emerged during the second industrial revolution to exploit economies of scale and scope, and was both very asset intensive and highly vertically integrated (Chandler (1990)). In contrast, the “new enterprise” tends to be non-vertically integrated, human-capital-intensive, consists of less unique physical assets (that are therefore unable to command large rents), and operates in a highly competitive environment (Zingales (2000)). Accordingly, some researchers suggest that these fundamental economic changes that are affecting organizations require that we revisit the theory of the firm (e.g., Rajan and Zingales (2000) and Zingales (2000)). We contribute to this fundamental and important line of enquiry by investigating empirically whether the three components of organizational architecture are interdependent for a sample of New Economy firms, as suggested by the Brickley *et al.* (1995) classical framework.

H1: *B2C Internet companies' allocation of decision rights, incentive compensation, and performance measurement systems are interdependent.*

⁵ The other primary functional area that emerged from our pilot interviews with industry executives was the operations department. Given the nature of the B2C service/merchandising sector, however, this department tended to be more technical in nature and served as the infrastructural backbone rather than being involved in strategic business decisions.

2.3 Other Determinants of Organizational Architecture

In addition to the interdependence of the allocation of decision rights (ADR), incentive compensation (INCENT), and performance measurement (PM), theory leads us to expect that other factors will determine each of the three components of organizational architecture. The factors hypothesized to affect each of the three components of organizational architecture are each discussed in turn, and a theoretical model depicting these relations is presented in the next section.

2.3.1 Determinants of Incentive Compensation

Principal-agent theory suggests that in riskier environments, less use should be made of incentive compensation (e.g., Kreps (1990), Milgrom and Roberts (1992), Brickley *et al.* (1995), and Prendergast (2000)). Accordingly, higher perceived environmental uncertainty (“PEU”), along with proximity to financial distress (“DSTRSS”), are expected to lead to a lower reliance on incentive-based pay, *ceteris paribus*. This follows Gilson and Vetsuypens (1993) who find that firms often reduce incentive pay when faced with financial distress. Finally, because a founder CEO (“FNDRCEO”) is expected to serve as a substitute motivation and monitoring mechanism (McConaughy, Walker, Henderson, and Mishra (1998); Engel, Gordon, and Hayes (2002)), we hypothesize that the presence of a CEO-founder will reduce the extent of incentive compensation used for subordinates.

2.3.2 Determinants of the Allocation of Decision Rights

Prior research suggests that founders who retain relatively higher levels of ownership in their firms tend to be reluctant to relinquish control over decision rights (Ranft and O'Neill (2001)), and therefore the founder’s retained ownership level (“FNDROWN”) is expected to have an impact on delegation. Intuitively, the size or span of control (“SPAN”) of an organization or department is also expected to affect the allocation of decision rights since managers will need to delegate more tasks as their managerial burden increases.

In a value maximizing firm decision rights are collocated with knowledge, subject to the constraint that the benefits of this collocation exceed the combined costs of knowledge transfer and control (Hayek (1945), Jensen and Meckling (1992), Christie, Joye, and Watts (2002)). We therefore also consider the role of knowledge specificity (“KNOW”) as a determinant of delegation.⁶ We expect that if firm specific knowledge resides at lower levels there will be an increase in delegation of decision rights, subject to the control costs of delegation being less than the costs of knowledge transfer.

2.3.3 Determinants of Performance Measurement

As suggested by Ittner and Larcker (2001) and supported by an extensive prior literature,⁷ strategy (“GOALS”) is considered an important determinant of performance measurement system design. The primary functions of the sales/marketing departments of the B2C Internet firms in our study are the attraction, retention, and servicing of customers. Prior literature suggests that as firms emphasize strategies focused on quality and customers, greater weight is placed on non-financial measures of performance and less weight is placed on short-term financial measures (Balkcom, Ittner, and Larcker (1997); Ittner, Larcker, and Rajan (1997); and Perera, Harrison, and Poole (1997)). Consistent with this literature, during the nascent stage of the B2C Internet sector customer-related goals were purported to be primarily focused on non-financial measures (e.g., customer traffic and number of new customers) that were considered to be leading indicators of future financial performance (see e.g., Harmon (2000)). In the context of the maturing B2C Internet sector, however, customer goals were reported to be more focused on financial performance (e.g., revenues and profitability) as the capital markets increasingly demanded that Internet companies demonstrate tangible evidence of financial viability. It is unclear which of these competing alternatives (i.e., heavy reliance on financial versus non-financial measures) will dominate during the period of our study. Accordingly, we consider the relation between customer strategy (GOALS)

⁶ We treat “allocation of decision rights” and “delegation” as equivalent constructs in discussing our empirical measures and the prior literature.

⁷ See, e.g., Langfield-Smith (1997) for a review of this literature.

and performance measurement system design (PM) to be an empirical question in our setting.

Brickley *et al.* (1995) propose that higher firm specificity of employee knowledge (“KNOW”) reduces job mobility, with the result that financial performance measures can be used effectively for motivation and evaluation. On the other hand, Spekle (2001) predicts that in settings where employees have a high level of firm-specific knowledge there is an increased potential for employees to act opportunistically and therefore lower reliance should be placed on financial incentives and controls. Based upon both of these competing theories, we expect that knowledge specificity will be an important determinant of performance measurement system design. However, we refrain from hypothesizing about the direction of knowledge specificity’s influence on PM, and consider it to be an empirical question to be determined by the data.

2.4 Theoretical Model

A theoretical model of the firm’s organizational architecture that represents the relations discussed above can be depicted as follows:⁸

$$\begin{aligned} INCENT &= f(PM, ADR, FNRCEO, PEU, DSTRSS) \\ ADR &= f(INCENT, PM, FNRDOWN, SPAN, KNOW) \\ PM &= f(ADR, INCENT, GOALS, KNOW, RSIZE) \end{aligned}$$

where

INCENT = incentive compensation;
ADR = allocation of decision rights (or delegation);
PM = performance measurement system;
FNRCEO = the role of the founder as CEO;
PEU = perceived environmental uncertainty;
DSTRSS = proximity to financial distress;
FNRDOWN = percentage of the firm owned by the founder;
SPAN = the span of control of the VP sales/marketing;
GOALS = firm strategies or goals;
KNOW = specificity of knowledge; and
RSIZE = relative size of the firm within its industry.

⁸ Detailed definitions of the empirical proxies used to capture the constructs included in this model are provided in Section 4.

The preceding model forms the basis of this study's investigation of the interdependence between the three principal elements of B2C Internet companies' organizational architecture.

3. Survey Methodology and Sample Selection

3.1 Survey Design and Implementation

Our survey employs a structured questionnaire that is designed to elicit information related to a number of characteristics of the firms' sales/marketing departments, including: the design of performance measurement systems, evaluation and rewards for the average employee within the department, firm strategy and environmental factors, the assignment of decision rights, as well as various firm ownership, size, and historical performance measures.⁹

Based upon a review of the existing academic literature and extensive research into the Internet industry, we developed an open-ended interview questionnaire to be used as a basis for discussion with Internet industry experts and executives. We first met with a leading venture capitalist in Silicon Valley who has been actively involved in corporate investment and governance of Internet firms since the inception of the industry in the mid-1990s. We then also used the questionnaire to interview senior executives at five Internet firms in Silicon Valley that operated in different sectors of the B2C Internet industry. Each of the meetings lasted approximately 60 to 90 minutes, involved discussions with the Internet companies' CEOs and several other high-ranking executives, and provided us with insights into general industry characteristics, as well as variables related to key constructs underlying our study, including: the responsibilities associated with different functional areas within the firm, aspects of corporate performance measurement systems for these intangible-laden firms, the delegation of decision rights both across functional areas and down the hierarchy within functional areas, and competitive and market conditions affecting the firm's environment. Relying

⁹ The survey was designed to obtain data for use in a series of related studies.

on the detailed responses that we received in these field visits, we constructed a draft of the structured questionnaire that would ultimately form the basis of our survey instrument.

We pretested the survey instrument with 5 academic colleagues, each of whom had expertise in either the Internet industry, marketing and corporate strategy, and/or research survey design. We also pre-tested the survey separately on each of the co-authors. In every pre-test, the time required to complete the survey was noted and any ambiguities in the survey questions were identified. Based upon the feedback obtained through several such iterations, we shortened the survey and reworded various questions.¹⁰

In order to enlist the vice presidents of the sales/marketing department from the Internet firms to participate in our study, we contacted firm representatives by telephone and/or by email. We identified the VP Sales/Marketing executive to be targeted at each firm by reviewing the company's corporate website and/or via requests for the relevant corporate officer from the firm's receptionist. Upon request, we provided the targeted interviewee with information related to the nature of our survey, our respective university affiliations, the estimated time required to complete the survey, a guarantee of confidentiality over the information disclosed and full anonymity in the reported results, a commitment to provide participants with a copy of our completed report, and details of the CIMA sponsorship of our study. We did not in any case disclose particulars of the questionnaire prior to its ultimate implementation to consenting firms' sales/marketing executives.

The survey was implemented using two different mechanisms. On-site interviews were conducted for the 35 (66%) sample firms that were concentrated within particular geographic areas (e.g., New York City, Silicon Valley, Southern California, and Chicago) or that were otherwise accessible by one of the authors. Telephone interviews were conducted for the remaining 18 (34%) firms that were individually isolated in other parts of the U.S. and/or that could not otherwise be scheduled for in-person visits.¹¹ Whether

¹⁰ A copy of the survey instrument is available upon request.

¹¹ Further details of our sample selection process are provided in Section 3.3 below.

in person or by telephone, at the outset of the interview the participant was provided with a handout that depicted the scales used for many of the questions in the survey. We provided this handout in order to maximize the consistency with which interviewees understood the scale to be applied to each question, and to thereby minimize noise in the survey's responses.¹² Consistent with the time allotment that we requested from participating executives when we scheduled our appointments, the surveys took approximately one hour, on average, to implement. The surveys were conducted from the end of June 2001 through January 2002, with the majority of the interviews taking place during the summer of 2001.

Each interview consisted of the implementation of the structured questionnaire. The questionnaire was not provided directly to participants, but rather was read aloud to the interviewees by one of the co-authors of this study. We attempted to anticipate those questions that were most likely to require clarification and/or supplementary definitions, and included standardized clarifications for verbal delivery to interviewees on the survey instrument. In order to ensure consistency, all three authors adhered strictly to the structured questionnaire for delivery of questions and clarifying comments. Ad hoc, or otherwise unstructured follow-up questions to the interviewees' responses, were not admitted into the process under any circumstances. All non-clarifying questions were relegated until after the conclusion of the formal administration of the questionnaire.

Our survey design and implementation were structured to mitigate several of the most common criticisms of survey-based research, including: concerns over the identity of the respondent, the possibility that respondents had experienced unresolved interpretation difficulties while completing the survey, lack of investigation of non-response bias, use of outdated survey instruments, and lack of necessary institutional knowledge.¹³ First, because we spoke directly to the respondents, we know that the relevant executive within each firm completed the survey. Second, because the authors read the survey to the respondents and had standardized a set of clarifying comments for any potentially

¹² A copy of the handout is available upon request.

¹³ See Young (1996) for a discussion of survey research.

ambiguous questions, we were able to address any confusion arising from the interpretation of our survey questions. Third, since we attempted to contact all firms by telephone, we have a precise list of firms that chose not to participate in the study, thus facilitating an assessment of non-response bias. Fourth, since we developed our own instrument for this study, we were able to tailor the survey to firms competing in the New Economy. Finally, we were able to gain institutional knowledge prior to the development of the final survey instrument through our preliminary field visits.

3.2 Archival Data

We supplement the subjective data obtained using the survey instrument with archival financial and non-financial data obtained from several standard sources. Financial statement data and share ownership information for our sample firms are hand-collected from, respectively, corporate annual reports and proxy statements filed with the SEC. The financial statement data for non-respondents is obtained from Compustat, where available, or by hand-collection from annual reports as necessary. Non-financial web traffic metrics are obtained from the Nielsen//Netratings Audience Measurement database, and stock market data are derived from the CRSP database.

3.3 Sample

Consistent with prior studies in this sector (e.g., Hand (2001) and Demers and Lev (2001)) we define Internet companies as firms that earn the majority of their revenues as a result of the existence of the Internet.¹⁴ We identify a sampling frame of publicly-traded Internet companies from the InternetStockList™ in April 2001 (provided by internet.com at <http://www.internetnews.com/stocks/list/>), a frequently cited and authoritative list of currently trading Internet companies. We define the companies as B2C Internet firms if they fall into any of the following Internet sectors: e-tail,

¹⁴ This definition was originally established by internet.com, an authoritative Internet industry portal site, in order to distinguish between “pure play” Internet companies and entities that would exist without the Internet generating a majority of their revenues.

content/communities, financial news/services, portal, services, and advertising.¹⁵ We then extend our sampling frame to include a number of large, non-publicly-traded B2C Internet firms identified from the highest traffic sites in the Nielsen//Netratings database for April 2001. This resulted in a sampling frame of 99 candidate B2C firms for potential inclusion in the study.

Our final surveyed sample consists of 53 B2C Internet companies out of a potential pool of 87 firms that were determined to have ongoing operations at the time of our field visits. The remaining 34 companies either declined to participate or did not respond to our numerous phone call and email attempts to arrange an interview. A detailed summary of how the final sample was arrived at is presented in Table 1. Our response rate of 54% (53/99) compares favorably to other recent surveys involving senior executives of large firms, such as Graham and Harvey (2001)'s response rate of 9% of the CFOs surveyed and Keating (1997)'s response rate of 45% of division managers surveyed.¹⁶

Notwithstanding our favorable response rate, we investigate for possible self-selection bias by comparing the characteristics of firms included in our sample to those of targeted firms that did not participate in the survey. On average, our sample firms are somewhat smaller than the group of non-participants, with median sales of approximately \$40 million and total assets of \$114 million versus \$135 million ($p=.005$) and \$459 million ($p=.003$), respectively, for non-participating B2C firms. However, the two groups do not differ on the basis of profitability, stock price performance, or web traffic. The median ROA for sample firms is -41% versus -34% for non-sample firms ($p=.55$), the median stock return for calendar 2000 is -89% for sample firms versus -88% for non-participants ($p=.89$), and the median pages views for the sample is 49 million versus 63 million for non-participants ($p=.90$). Thus, although our sample firms are somewhat smaller, they

¹⁵ The Internet companies' industry segments were identified from the classification scheme provided by Wall Street Research Net © WSRN.com (http://www1.wsrn.com/icom_index/index.xpl), where available, or from a review of the business description provided on the company's own website.

¹⁶ For further comparison, earlier studies' response rates are as follows: Shields and Young (1993) (20%), Shields and Young (1994) (56%), and Foster and Gupta (1994) (23%).

do not differ with respect to financial or web traffic performance, two potentially important firm characteristics to our study.

3.4 Descriptive Statistics

Descriptive statistics for our sample firms are presented in Table 2. As shown, participating firms cover all segments of the B2C sector, with the primary two segments represented in our sample being content/community and e-services. Although our sample consists of many of the major players in the Internet industry, the firms are relatively small, with mean (median) sales of approximately \$161 (\$40) million, mean (median) total assets of \$386 (\$114) million. The sample firms employ a modest 688 full-time equivalent persons, on average, with the median firm employing only 180 people. Consistent with general performance results in the Internet sector, our sample firms report negative mean and median net income figures of (\$222) million and (\$40) million, respectively. The sample firms generate considerable web traffic, with a mean (median) of 530 (49) million page views and 6.4 (3.3) million unique visitors to their websites. The Internet product markets in which the sample firms compete are fairly concentrated, as indicated by the median respondent's identification of only 7 competitors for the products or services that they offer. Sample firms report that they generate approximately 51% of sales, on average, from repeat customers and the average (median) number of direct reports in the sales/marketing department is 46 (10).

4. Empirical Specification and Construct Measurement

4.1 Empirical Specification - Structural Equation Model

We use a structural equation model to assess the interrelations between the three principal elements of B2C companies' organizational architecture: incentive compensation, the allocation of decision rights, and performance measurement. Structural equation modeling ("SEM") provides an efficient technique for examining interdependent relationships such as those theorized by Brickley *et al.* (2000) to exist between the three components of the firm's organizational architecture (Hair, Anderson, Tatham, and Black (1998)). SEM is used to address both the question of whether the present data fit the

relationships proposed by theory, as well as to examine the signs and significance of particular coefficient estimates of interest. We use the AMOS software program (with default maximum likelihood estimation technique) to estimate the structural equation model depicted in Figure 1. In addition to specifying the depicted relations, we allow the following sets of exogenous variables to correlate: SPAN with DSTRSS, SPAN with KNOW, and FNDRCEO with FNDROWN. We choose these sets of variables to correlate within the structural equation model on the basis that they are the only exogenous variables that are significantly pairwise correlated ($p=.05$) according to the Pearson correlation coefficients reported in Table 5.¹⁷ In the following sections we provide detailed descriptions of the empirical measures adopted as proxies for the constructs represented in the structural equation model depicted in Figure 1.

4.2 The Three Endogenous Components of Organizational Architecture

4.2.1 Incentive Compensation

We measure incentive compensation (“INCENT”) as the ratio of cash bonus plus stock option compensation to total pay for the average sales/marketing department employee. This variable is derived from a direct question on the survey that asked respondents to provide the percentage of total compensation derived from each of salary, bonus pay, stock options, and other perquisites, respectively. Our measure is similar to the metric adopted by Bushman, Smith, and Indjejikian (1996), who used the ratio of individual performance incentive pay to salary as a metric that captured the incentive power of the bonus. Our measure is also similar to Nagar (2002)’s incentive measure except that our survey question permitted continuous rather than categorical responses, which should provide for somewhat less noisy measurement and greater cross-sectional variation on this variable.¹⁸ Higher values for our INCENT variable suggest that the average employee in the sales/marketing department has a higher proportion of their pay at risk (i.e., that they are remunerated relatively more for performance). Respondents in our

¹⁷ The significance of the estimated paths is robust to the alternative specification of no correlation between the independent variables.

¹⁸ Nagar (2002)’s INCENTIVE measure is a categorical measure of whether the typical magnitude of the bonus lies within certain ranges, e.g., “1-6 percent of total pay,” or “7-10 percent,” and so forth, with the final category being “25 percent and above.”

sample indicate that the average (median) percentage of pay derived from combined bonus and stock option compensation is 30.32 (30)%, as shown in Table 3.

4.2.2 Allocation of Decision Rights

Prior empirical studies related to the allocation of decision rights have adopted relatively crude measures of the extent to which decisions are delegated within the firm. For example, Baiman, Larcker, and Rajan (1995) use a binary variable to represent whether a division has control over its core functions, while Christie *et al.* (2002) use a survey-based measure that takes one of three values depending upon the firm's relative use of profit and cost centers one level below the CEO.¹⁹ In his study of delegation and incentive compensation in the banking sector, Nagar (2002) improves on the measures in the prior literature by using the factor score extracted from an analysis of four survey questions related to hiring, promotion, branch hours, and sales process changes as his metric for the delegation construct. Following Nagar (2002), we also derive an empirical measure for our B2C Internet firms' allocation of decision rights construct using the factor score extracted from four survey questions that are analogous to the four questions underlying Nagar (2002)'s "delegation" measure. The four questions underlying our empirical measure ask about the level of delegation with respect to setting a new sales strategy, hiring personnel, modifying personnel policy, and promoting employees within the sales department, as shown in Appendix A. Together these four questions span the major aspects of the marketing/sales department function within our B2C sample firms. Each question is measured on a 7-point Likert scale and the descriptive statistics for each question are presented in Table 3. The respondents' scores range between 3 and 7 on setting sales strategy and between 1 and 7 on the other 3 questions. The mean (median) scores range from 4.6 (5) on the hiring decision to 5.4 (5) on setting personnel policy.

Table 4 summarizes the results from a factor analysis on the four allocation of decision rights questions. As shown in the table, only one factor emerges with an eigenvalue that is greater than one, this one factor explains 52% of the variance in the underlying

¹⁹ The Christie *et al.* (2002) decentralization variable is equal to 1 if the firm uses all profit centers, 0 if the firm uses all cost centers, and $\frac{1}{2}$ if the firm uses a mixture of profit and cost centers.

variables, and it has a Cronbach alpha score of .68.²⁰ We label this factor “ADR” and adopt the fitted scores as our measure of delegation, or allocation of decision rights, an endogenous component of organizational architecture.²¹ Higher values for ADR suggest that decision-making authority is retained at higher levels of the firm (i.e., that the VP of sales/marketing delegates less).²²

4.2.3 Performance Measurement

We quantify the performance measurement dimension of organizational architecture using a weighted ratio that captures the VP of sales/marketing’s relative use of financial versus non-financial measures in determining the annual cash bonus and stock option compensation of his/her direct reports. As shown in Appendix A, survey respondents were asked to identify the top five measures used in determining the annual cash bonus and stock option compensation, respectively, and to indicate on a 7-point scale the extent to which they relied on each of the five respective measures in evaluating the direct reports’ performance. Using the responses to this question, our empirical PM measure for firm k is derived as follows:

$$PM_k = \frac{\sum_{i=1}^5 w_i * I_i}{\sum_{i=1}^5 w_i} + \frac{\sum_{j=1}^5 w_j * I_j}{\sum_{j=1}^5 w_j}$$

where w_i (w_j) is the weight assigned to the performance measure by the VP sales/marketing in determining the subordinate’s cash bonus (stock option) compensation, and I_i (I_j) is an indicator variable set equal to one if performance measure i (j) is considered to be a financial measure.²³ Our performance measurement proxy is similar to that adopted by Ittner *et al.* (1997) in their study investigating CEO bonus compensation. They use a measure of the relative weight placed on non-financial measures, varying between 0 and 100%, which is derived from a review of their sample

²⁰ A Cronbach alpha > .50 is considered acceptable for early stages of research (Nunnally (1978)).

²¹ As a validity check, we also constructed factor variables using means instead of factor scores. The results were robust except that the path from FNDROWN to ADR becomes marginally insignificant at $p=.109$.

²² Note that, by design, the factors have a zero mean and unit variance. Accordingly, descriptive statistics for the various factors used in our empirical tests are not provided in the tables.

²³ Consistent with Larcker (1981), we define a metric to be a *financial* measure if it is denominated in dollars.

firms' compensation committee reports as disclosed in the corporate annual proxy statements. Our measure similarly varies between 0 and 100%, but measures the relative use of financial measures in cash bonus and stock option compensation. Higher values for our PM measure indicate that relatively more weight is placed on financial versus non-financial measures of performance in the VP's evaluation of direct reports. Table 3 provides descriptive statistics related to this third endogenous component of B2C firms' organizational architecture. The mean (median) percentage of the use of financial measures in determining cash bonus and option compensation is 38.2% (38.8%), and the range is 0 to 85%.

4.3 Exogenous Determinants of Organizational Architecture

In order to identify the equations in the structural model and to control for other hypothesized determinants of the endogenous components of B2C firms' organizational architecture, we include several exogenous variables in each of the three equations in the system.

4.3.1 Exogenous Determinants of Incentive Compensation

We include FNDRCEO, an indicator variable that is set equal to one if the founder of the firm is currently acting as CEO, as an explanatory variable for incentive compensation. This variable is obtained from SEC 10-K filings for public firms, and from survey responses for all subsidiary/private firms in our sample. As a substitute motivation and monitoring mechanism, we predict that FNDRCEO will be negatively associated with the extent of incentive compensation. As shown in Table 3, approximately 28% of the firms in our sample still have the founder serving as CEO.

We derive a measure for the perceived environmental uncertainty, PEU, using the factor score on two 7-point Likert scale survey questions related to the predictability of the firm's input prices and quality, as reproduced in Appendix A. Descriptive statistics for the responses to these two questions are provided in Table 3. As shown in Table 4, the single factor extracted from these two questions explains 73% of the variance in the underlying variables and the Cronbach alpha is .62. As a validity check on this

construct, we calculated the correlation between PEU and cash plus short-term securities. A positive relation is expected as firms facing greater uncertainty are expected to hold higher levels of liquid assets in order to maintain sufficient flexibility to deal with unexpected events. Consistent with expectations, the fitted PEU factor is positively and significantly associated with cash plus short-term securities ($p=.033$).

We measure the proximity of the firm to financial distress, DSTRSS, using the factor scores on two financial distress related survey questions, as reproduced in Appendix A. Descriptive statistics for the responses to these two questions are provided in Table 3.²⁴ As shown in Table 4, the single factor extracted from these two questions explains 76% of the variation in the underlying variables and the Cronbach alpha is .67. As a validity check on this construct, we examined the correlation between the fitted DSTRSS factor and cash flows from operations as well as various net income measures (e.g., ROA, net income from operations, net income after tax, income before extraordinary and unusual items, etc.). A high score on DSTRSS represents greater proximity to financial distress, suggesting that negative correlations between DSTRSS and the cash flow and net income variables would be indicative of construct validity. Consistent with this, we find significant negative correlations between DSTRSS and cash flows from operations ($p<.001$) and various net income measures (all $p\leq.001$). A more risky environment reduces the firm's use of incentive compensation because employees are subject to the increased risk of meeting performance targets that are not within their control (Brickley *et al.* (2000)). Within the Internet sector during the period of our study, uncertain cash flows and financial distress were well-known sources of risk. Thus we predict that proximity to financial distress (DSTRSS) will be negatively associated with the relative use of incentive compensation.

²⁴ In order not to lose any observations, we replace from one to three missing values with their sample means when we calculate factor scores and estimate the regression model for six variables. . Kline (1998) suggests that replacing 5%-10% of randomly missing data on a particular variable is not too large. We replace one missing value for a distress question and recognize that the missing distress survey question may not be random. Therefore, we alternatively replace this missing variable with the value indicating the highest proximity to financial distress. The reported regression results discussed in Section 5 are robust to this alternative variable replacement choice.

4.3.2 Exogenous Determinants of Allocation of Decision Rights

We include the natural log of the self-reported number of employees in the sales/marketing department as a proxy for the VP's span of control ("SPAN") in the ADR equation. As reported in Table 3, the mean (median) value of SPAN is 3.4 (3.22) and exhibits considerable variation. We predict that, the larger the sales/marketing department, the more decision rights get allocated downward through the organization. Because higher values for ADR indicate that decisions are retained at higher levels in the organization (i.e., low values for ADR indicate more delegation of decisions), we predict a negative relation between SPAN and ADR.

The percentage of the Internet company's stock retained by the founder ("FNDROWN") is obtained from SEC 10-K filings for public firms, and from survey responses for all subsidiary/private firms in our sample. Table 3 shows that the mean (median) percentage of the firm owned by the company's founder is 11.6% (6.5%). We predict a positive association between ADR and FNDROWN, reflecting that the higher the percentage of the firm owned by the founder, the more decision-making authority is retained at higher levels of the organization.

4.3.3 Exogenous Determinants of Performance Measurement

Because the primary functions of the sales/marketing departments of the B2C Internet firms in our study are the attraction, retention, and servicing of customers, we include a strategy variable that captures the firm's focus on customer-related goals. Specifically, we adopt a self-reported survey response measure of the percentage of overall firm effort allocated towards customer-oriented goals ("GOALS") as the strategy variable in our PM equation. As shown in Table 3, an average (median) of 27% (25%) of sample firms' efforts are allocated towards customer goals.

We derive a measure of the specificity of employee knowledge ("KNOW") using a factor analysis on the two survey questions reproduced in Appendix A. Descriptive statistics for the responses to each of the questions are provided in Table 3, and Table 4 reports the

results of the factor extractions. As shown in Table 4, a single factor is extracted from the two questions which explains 90% of the variation in the underlying variables and which has a Cronbach alpha of .88.

Finally, we include a self-reported measure of the firm's revenues relative to industry segment competitors ("RSIZE"), which is measured on a 7-point Likert scale in response to the survey question reproduced in Appendix A.²⁵ As reflected in Table 3, the mean (median) value for RSIZE is 5.06 (5), suggesting that the firms in our sample perceive themselves to be relatively large players within their respective industry segments. We include this measure as a control for firm size because size has been shown in many past studies to be associated with performance measurement design.

4.4 Common Method Variance

When the same method is used to measure both independent and dependent variables, a "common method" variance may bias the reported results due to an inflation of the correlations between measures (Bagozzi and Yi (1991)). Although it is necessary for us to measure the dependent variables from the same survey instrument that we use for many of the independent variables, the varying characteristics of our measures help to mitigate the potential for common-method variance because we make use of multiple methods. The three endogenous variables defined in the previous sections are measured using factor scores from several multi-item Likert-type scales (ADR), a numerical percentage (INCENT), and a numerical quantity that uses a multi-item open-ended response weighted by a Likert-type scale (PM). The exogenous variables include multi-item Likert-type scales, numerical percentages, and archival data obtained from corporate proxy statements.

²⁵ We also use SIZE, measured as the self-reported total revenues of the firm, as an alternative size-related control variable in our empirical tests and find that the results related to our endogenous variables of interest are unchanged in all equations. As a further validity check, we find that RSIZE and total sales are significantly positively correlated ($p=.02$).

5. Results

5.1 Overview

We report the results from our structural equation model in Table 6. Overall, the goodness-of-fit indices provide evidence of good model fit and the numerous significant paths between our hypothesized endogenous variables support our primary hypothesis that the three principal components of B2C Internet companies' organizational architecture are simultaneously determined.

On the basis of Mahalanobis D^2 scores, none of the surveyed firms exerts undue influence on the determination of model parameters.²⁶ Based upon this test, we do not drop any observations when we conduct our empirical analyses. Our data exhibit normality; skewness ranges from -.4 to 1.88 and kurtosis ranges from -.442 to 3.221, both of which are well within suggested ranges (Kline (1998)).

5.2 Assessment of Model Fit

The insignificant chi-square statistic of 39.057 ($p=.422$) reported in Table 6 provides preliminary evidence of good model fit. We also report a number of additional standard measures of model fit in the lower portion of Table 6. Small samples can cause concerns related to low power and instability of model results (Kline (1998)), however our stability index of .886 suggests that our reported model is stable.²⁷ Our IFI and TLI measures of .985 and .972, respectively, are both supportive of good model fit (where close to one is considered very good fit for both statistics (Arbuckle and Wothke (1999))). Our NFI of .641 is not consistent with good fit, however the reported X^2/DF of 1.978 and GFI of .89 (where rules of thumb for good fit are less than 3 and greater than .90, respectively) are supportive of a good fitting model. In summary, the overwhelming majority of the

²⁶ Kline (1998) indicates that squared Mahalanobis distances are chi-square statistics with degrees of freedom equal to the number of variables. By comparing the D^2 of a particular case against the appropriate critical value of X^2 one can determine whether the case differs significantly from all the rest. Kline (1998) recommends conservatism when testing for significance.

²⁷ Stability indices between -1 and +1 indicate that the structural equation model is stable (Arbuckle and Wothke (1999)). Sensitivity tests suggest that our results are stable across many alternative model specifications.

standard measures of model fit support the hypothesis that the relationships suggested by the structural equation model depicted in Figure 1 fit our dataset well.

5.3 Determinants of Incentive Compensation

As the Internet industry evolved, an increasing amount of pressure was placed on firms to realize financial results over the formerly emphasized non-financial (e.g., web traffic) indicators of performance. If financial measures are viewed as less noisy indicators of performance than the non-financial metrics, Banker and Datar (1989) suggest that greater weight will be placed on financial measures of performance in determining incentive compensation; with more informative measures of performance, there is less measurement error risk borne by the employees and therefore they are willing to accept a relatively higher level of performance-based pay. Consistent with this prediction, the results reported in the first column of Table 6 show that the relative use of financial performance measures (PM) is positively and significantly associated with the percentage of cash bonus and stock option-based compensation (INCENT) earned by Internet B2C sales/marketing employees ($p=.014$).²⁸ In other words, as greater weight is placed on financial performance measures relative to non-financial measures, sales/marketing department employees earn, on average, a relatively higher amount of incentive-based compensation. Our study is the first to document any such empirical relation between performance measurement and incentive systems.

Table 6 also shows that there is a negative and significant coefficient on our proxy for the allocation of decision rights (ADR) in the INCENT equation ($p=.027$). In a value maximizing firm decision rights are collocated with knowledge, subject to the constraint that the benefits of this collocation exceed the combined costs of knowledge transfer and control (Hayek (1945), Jensen and Meckling (1992), Christie *et al.* (2002)). When knowledge transfer costs are high (e.g., in rapidly evolving firms), more decision rights should be allocated to lower levels in the organization. Although this delegation may reduce the cost of information gathering and transfer, it will increase the need for control,

²⁸ Given the small sample size used to test the structural equation model reported in Table 6, we adopt a threshold of $p<10\%$ for our significance tests. All reported p-values are for two-tailed tests.

e.g., in the form of performance-based compensation for the subordinates to whom decision rights have been transferred. Thus, theory suggests that higher levels of delegation will be associated with higher levels of incentive compensation. Consistent with this theory and with the empirical results of Nagar (2002), the findings reported in Table 6 suggest that relatively more delegation (i.e., low values for ADR) lead to more incentive-based pay as employees are rewarded for the results of the decisions under their authority. The significance of both PM and ADR in the incentive compensation decision equation provides strong preliminary evidence in favor of our Hypothesis 1 that the principal components of organizational architecture are interdependent as predicted by Brickley *et al.* (2000).

We also find that FNRCEO, an indicator variable for whether the founder of the company remains as the firm's CEO, is negatively and significantly associated with INCENT ($p=.04$). This finding suggests that if the founder remains the top executive of the firm, he/she serves as a monitoring and/or control mechanism such that less incentive-based remuneration must be paid to employees to accomplish the organization's objectives. Neither the perceived environmental uncertainty variable (PEU) nor the proxy for proximity to financial distress (DSTRSS), both of which are risk-related constructs, is a significant determinant of the relative use of incentive compensation. The weak results on these variables are contrary to our expectations, and are likely due to the fact that we have noisy proxies for the nebulous underlying constructs, which together with our relatively small sample size results in a somewhat low powered test to detect the underlying relations.²⁹ The reported results for the other variables in the model are robust to the exclusion of PEU and DSTRSS from the INCENT equation.

5.4 Determinants of the Allocation of Decision Rights

As shown in the second pair of columns in Table 6, INCENT has a significant and positive coefficient in the ADR equation ($p=.044$). Following Nagar (2002), we expect that, because incentive compensation is a control cost of delegation, higher levels of

²⁹ As a specification test, we also used the Likert-scale responses to each of the distress questions as separate alternative measures for DSTRSS and the results are unchanged.

incentive pay will reduce the extent to which decision rights are allocated. Thus, recalling that higher values for ADR represent lower levels of delegation (i.e., greater retention of decision rights), our finding of a positive coefficient on ADR is consistent with the expectation that as the average employee's percentage of remuneration earned from cash bonus and stock option compensation increases, fewer decision rights are allocated to lower levels in the hierarchy.

Also as shown in Table 6, performance measurement (PM) is negatively and significantly associated with ADR ($p=.07$). This result suggests that relatively higher use of financial performance measures is associated with greater allocation of decisions down the hierarchy. Intuitively, as greater weight is placed on the more objective, summary level financial data for performance measurement, the more informative financial measures also provide greater control benefits and more authority can be granted to lower level employees to affect the outcomes upon which they are evaluated. Ours is the first study to empirically document such a relation between performance measurement system design and the allocation of decision rights. The finding that PM and INCENT are significant determinants of ADR adds further support for our primary hypothesis that the three components of organizational architecture are interdependent.

KNOW, a variable that captures the length of time that it takes employees to acquire knowledge of the firm's customers and products, is not significant in the ADR equation ($p=.555$) and therefore is excluded from the reported regression for the sake of parsimony. We note, however, that KNOW indirectly determines ADR through its significant impact on PM as reported in Section 5.5 below.³⁰ We find that SPAN, a proxy for the span of control of the VP of sales/marketing, is negative and significant ($p<.0001$) in the ADR equation. As expected, the larger is the sales/marketing department, the greater is the level of decision delegation. Finally, our measure of the ownership level of the firm's founder, FNDROWN, is positive and significant ($p=.09$) in

³⁰ The coefficient on KNOW is likely attenuated due to a correlated omitted variable related to the employees' tenure with the firm, data for which is not available. When KNOW is included in the model, PM loses significance while all of the other results are substantially similar to those reported in Table 6.

the ADR equation, consistent with our prediction that greater CEO ownership is associated with less delegation of decision rights.

5.5 Determinants of Performance Measurement

The results for the performance measurement (PM) equation are reported in the third pair of columns in Table 6. As shown, INCENT is a negative and significant determinant of PM ($p=.011$), suggesting that as the percentage of compensation earned from bonus pay increases, relatively less use is made of financial performance measures. This result is consistent with the notion of the informativeness principle. As a higher percentage of the employee's pay is performance based, efficient risk sharing dictates that the employer evaluate the employee on the best information obtainable, subject to the constraint that the costs of acquiring the information not exceed the benefits of the reduced risk to the employee (see, e.g., Brickley *et al.* (2000)). Subject to this cost-benefit analysis then, the informativeness principle suggests that a measure should be added to the performance evaluation system if it possesses *incremental* information over the other measures already included in the system (Milgrom and Roberts (1992)). Thus, although the financial measures may be relatively more informative, because of the ready availability of non-financial measures of performance in the B2C Internet sector, we expect that firms with higher performance-based pay will add non-financial performance measures to their system due to the non-financials' potential incremental information content, thus reducing the relative weighting on financial measures. This is the result that we find as reported in Table 6, and ours is the first study to empirically document any such relation between the incentive compensation and performance measurement systems.

ADR is not significant in the PM equation, suggesting that the allocation of decision rights component does not have a direct impact on the relative use of financial versus non-financial measures for performance evaluation. We note, however, that ADR has an indirect impact on the determination of PM via the INCENT equation; ADR determines INCENT, which in turn is a significant determinant of PM. Although we only document this indirect effect, our study provides the first empirical evidence of the influence of the allocation of decision rights on performance measurement system design. Given our

small sample size, we also acknowledge that we cannot rule out the possibility that the underlying direct relation between ADR and PM exists but that we have insufficient power to detect it.

GOALS, a measure of the importance of customer related goals in the firm's strategy, is positive and significantly associated with PM ($p=.008$). This result suggests that the greater the firm's focus on customer-related goals in overall firm strategy, the more heavily weighted are financial measures in performance evaluation. Our findings are in contrast to the prior literature (e.g., Balkcom *et al.* (1997); Ittner *et al.* (1997); and Perera *et al.* (1997)), but entirely consistent with the trend in the B2C Internet sector during the time period of our study, which was to focus on "monetizing" the customers attracted to the companies' websites. Of the top five measures that respondents reported that they use for performance evaluation, for example, over 40% are related to revenue, customer profitability, and/or overall profitability, supporting the notion that customer goals are increasingly evaluated with financial metrics for our sample of B2C Internet firms.

We also find that higher levels of specificity of employee knowledge (KNOW) lead to greater weight being placed on financial measures of performance ($p=.004$). This result is in contrast with the theory proposed by Spekle (2001), but consistent with the suggestions implied by Brickley *et al.* (2000). Finally, the self-reported relative size of the firm within its industry segment (RSIZE) is a significant positive determinant of the relative use of financial versus non-financial measures of performance.

5.6 Summary of Results

Overall, the empirical results presented above provide considerable evidence to support our primary hypothesis derived from Brickley *et al.* (2000) that the three principal dimensions of B2C Internet firms' organizational architecture are interdependent. Specifically, we document that the allocation of decision rights is a direct determinant of incentive compensation and indirectly determines performance measurement. We also show that performance measurement directly impacts incentive compensation and the

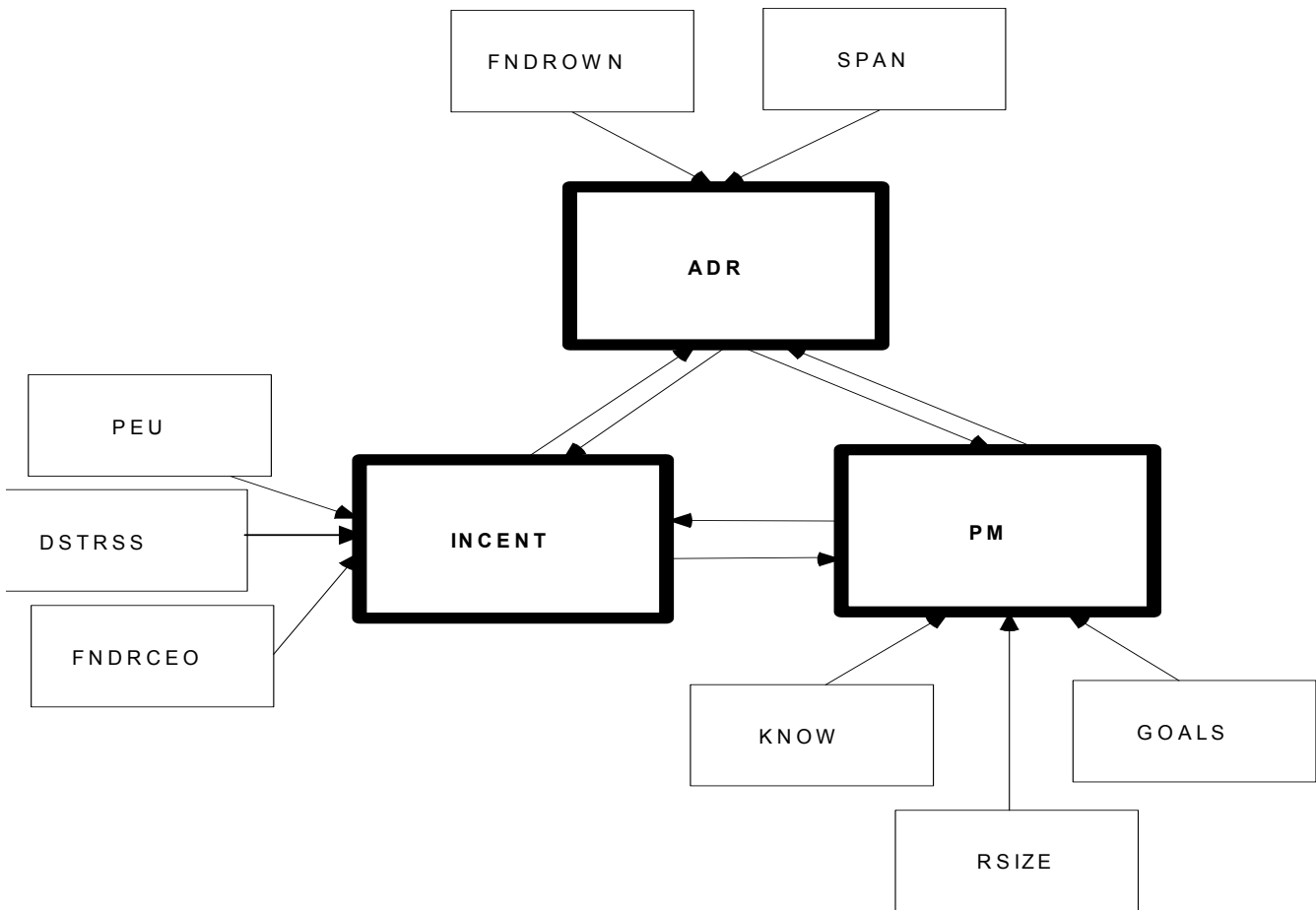
allocation of decision rights. Finally, we find that performance measurement has a direct effect on incentive compensation and the allocation of decision rights. We also find that knowledge specificity, the founder being the acting CEO, and the extent to which the firm's strategy is focused on customer-related goals are all significant determinants of B2C companies' organizational architecture.

6. Summary and Conclusion

Three fundamental aspects of organizational design are performance measurement, rewards, and the allocation of decision rights. Although theory suggests that these design choices are interrelated, Nagar (2002) is the only empirical study to consider the joint determination of at least two of the components of organizational architecture, delegation and incentive compensation. No other prior empirical studies have considered the role of either of the other two components of architecture even as independent determinants of the third "leg of the stool." Following the theory proposed by Brickley *et al.* (2000), we thus extend Nagar (2002) and the earlier literature by examining the interdependent relations between all three components of the firm's organizational architecture. In response to Zingales (2000) and others who question whether classical theories of the firm still apply to new enterprises, we undertake our study in a prominent New Economy industry, the B2C Internet sector. We hypothesize and find that all three aspects of B2C Internet firms' organizational design directly and/or indirectly influence one another. We also document the role of knowledge specificity, firm strategy, span of control, and various entrepreneurial ownership and governance characteristics on the determination of organizational architecture for our sample of new enterprises.

Figure 1
AMOS Structural Equation Model

All questions used to elicit survey responses are reproduced in Appendix A. INCENT is the percentage of annual pay from cash bonus and stock option compensation. The factor score for ADR is composed of four questions regarding the delegation of decision making over the areas of strategy, hiring, personnel policy, and promotion. A score of “1” represents complete delegation and “7” denotes full retention of decisions. PM is the ratio of weight placed on financial measures over the weight on all measures in assessing annual performance pay for employees in the sales/marketing department. FNDRCEO takes a value of 1 if the firm’s founder is currently the CEO, and 0 otherwise. The factor score for PEU is composed of two questions relating to the predictability of inputs, where a score of “1” is very predictable and “7” is not predictable. The factor score for DSTRSS is composed of two questions relating to the firm’s likelihood of distress. Higher scores on the 7-point Likert scale represent greater proximity to financial distress. SPAN is the natural log of the number of employees in the sales/marketing department. FNDROWN is the percentage of the firm’s shares owned by the founder. GOAL is the percentage of firm effort dedicated to customer-related goals. The factor score for KNOW is composed of two questions relating to the length of time (in days) that it takes new employees to attain critical knowledge of the firm’s products and customers. RSIZE is the self reported revenue for the prior quarter relative to other firms in the industry.



Appendix A

Survey Questions Underlying Structural Equation Variables

INCENT	<p>What percentage of your direct reports' annual compensation, on average, is derived from bonus?³¹</p>								
ADR	<p>How is the decision regarding setting a new sales strategy made?</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>My direct reports take action on their own without consulting me</p> <p style="text-align: center;">1 2 3 4 5 6</p> </td> <td style="width: 50%; vertical-align: top;"> <p>I decide on the action to take or decision to be made; my direct reports have no influence</p> <p style="text-align: center;">7</p> </td> </tr> </table> <p>How is the decision regarding hiring someone to join the Sales Department made?</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>My direct reports take action on their own without consulting me</p> <p style="text-align: center;">1 2 3 4 5 6</p> </td> <td style="width: 50%; vertical-align: top;"> <p>I decide on the action to take or decision to be made; my direct reports have no influence</p> <p style="text-align: center;">7</p> </td> </tr> </table> <p>How is the decision regarding modifying or revising personnel policy for the Sales Department made?</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>My direct reports take action on their own without consulting me</p> <p style="text-align: center;">1 2 3 4 5 6</p> </td> <td style="width: 50%; vertical-align: top;"> <p>I decide on the action to take or decision to be made; my direct reports have no influence</p> <p style="text-align: center;">7</p> </td> </tr> </table> <p>How is the decision regarding promoting an employee within the Sales Department made?</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <p>My direct reports take action on their own without consulting me</p> <p style="text-align: center;">1 2 3 4 5 6</p> </td> <td style="width: 50%; vertical-align: top;"> <p>I decide on the action to take or decision to be made; my direct reports have no influence</p> <p style="text-align: center;">7</p> </td> </tr> </table>	<p>My direct reports take action on their own without consulting me</p> <p style="text-align: center;">1 2 3 4 5 6</p>	<p>I decide on the action to take or decision to be made; my direct reports have no influence</p> <p style="text-align: center;">7</p>	<p>My direct reports take action on their own without consulting me</p> <p style="text-align: center;">1 2 3 4 5 6</p>	<p>I decide on the action to take or decision to be made; my direct reports have no influence</p> <p style="text-align: center;">7</p>	<p>My direct reports take action on their own without consulting me</p> <p style="text-align: center;">1 2 3 4 5 6</p>	<p>I decide on the action to take or decision to be made; my direct reports have no influence</p> <p style="text-align: center;">7</p>	<p>My direct reports take action on their own without consulting me</p> <p style="text-align: center;">1 2 3 4 5 6</p>	<p>I decide on the action to take or decision to be made; my direct reports have no influence</p> <p style="text-align: center;">7</p>
<p>My direct reports take action on their own without consulting me</p> <p style="text-align: center;">1 2 3 4 5 6</p>	<p>I decide on the action to take or decision to be made; my direct reports have no influence</p> <p style="text-align: center;">7</p>								
<p>My direct reports take action on their own without consulting me</p> <p style="text-align: center;">1 2 3 4 5 6</p>	<p>I decide on the action to take or decision to be made; my direct reports have no influence</p> <p style="text-align: center;">7</p>								
<p>My direct reports take action on their own without consulting me</p> <p style="text-align: center;">1 2 3 4 5 6</p>	<p>I decide on the action to take or decision to be made; my direct reports have no influence</p> <p style="text-align: center;">7</p>								
<p>My direct reports take action on their own without consulting me</p> <p style="text-align: center;">1 2 3 4 5 6</p>	<p>I decide on the action to take or decision to be made; my direct reports have no influence</p> <p style="text-align: center;">7</p>								

³¹ We repeat this question and substitute "stock options" for "bonus".

Appendix A (cont'd)

PEU	<p>How predictable are the prices of inputs that you need in this business?</p> <p style="text-align: center;">Very predictable Not predictable at all</p> <p style="text-align: center;">1 2 3 4 5 6 7</p> <p>How predictable is the quality of inputs that you need in this business?</p> <p style="text-align: center;">Very predictable Not predictable at all</p> <p style="text-align: center;">1 2 3 4 5 6 7</p>
DSTRSS	<p>To what extent are your current cash resources sufficient for the remainder of the fiscal year?</p> <p style="text-align: center;">More than sufficient Inadequate</p> <p style="text-align: center;">1 2 3 4 5 6 7</p> <p>To what extent is your firm currently in danger of financial distress?</p> <p style="text-align: center;">No danger Serious threat</p> <p style="text-align: center;">1 2 3 4 5 6 7</p>
SPAN	<p>How many people currently work in the Sales Department? _____</p>
FNDROWN	<p>Approximately what percentage of the firm's outstanding shares does the founder own? _____</p>
GOAL	<p>What percentage of overall firm effort would you allocate to customer related goals? _____</p>
KNOW	<p>How long does it take a new employee in the sales department to develop critical knowledge related to the firm's products? _____ (e.g. a day, a month, a year)</p> <p>How long does it take a new employee in the sales department to develop critical knowledge related to the firm's customers? _____ (e.g. a day, a month, a year)</p>
RSIZE	<p>In terms of revenue for the past quarter, how large is your firm relative to others in your industry?</p> <p style="text-align: center;">Lowest revenue Highest revenue</p> <p style="text-align: center;">1 2 3 4 5 6 7</p>

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Table 1
Sample Selection

The sampling frame consists of B2C Internet companies with a high volume of web traffic according to Nielsen//Netratings. Between the gathering of the web traffic data and our solicitation, firms discontinued operations, were purchased, or purchased other firms. Those firms did not make our sample. For some firms, we were unable to contact the appropriate person in the organization, and some firms refused to participate.

	Number	Percentage
Sampling frame of B2C Internet companies	99	100.00
Companies that discontinued operations prior to study	7	7.07
Companies in reorganization at time of study	5	5.05
Companies for which contact was not made	24	24.24
Companies refusing to participate	10	10.10
Sample of participating firms	53	53.54

Table 2
Descriptive Statistics for Participating Firms

The sample consists of 53 B2C Internet companies. The firms' main market segments are as self-reported in the survey. Firm revenue is gathered from proxy statements. Full-time equivalent employees, direct reports, and firm age are as reported by the participant. Sales growth, ROE, profit, number of customers, and stock price are all responses to 7-point Likert scale questions comparing the self-reported performance of participating firm to their industry segment peers, where "1" indicates superior performance, and "7" indicates inferior performance.

Panel A: Market Segment of Participating Firms

Market Segment	# Firms	Percent
E-tailing	5	9.43
E-services	15	28.30
Portals	7	13.21
Content/community	16	30.19
Financial news/services	7	13.21
E-tailing and content/community	2	3.77
Content/community and financial news/services	1	1.89
		100.00

Panel B: Descriptive Statistics of Participating Firms

	Mean	Std. Deviation	Percentiles		
			25	Median	75
Sales (000,000)	160.78	313.84	20.78	39.87	104.58
Total Assets (000,000)	386.20	706.82	46.13	113.78	186.57
Number of Full Time Equivalent Em	688	1,664	123	180	350
Net Income after Taxes and Extraord	(221.61)	1,115.63	(78.60)	(40.33)	(19.92)
Unique Audience (000)	6,373	10,811	1,002	3,261	7,928
Page Views (000)	530,475	1,959,424	14,701	48,648	187,743
% Sales to Repeat Customers	51	24	30	55	70
Number of Competitors	93	236	5	7	38
Number of Direct Reports	46	234	6	10	16

Table 3
Descriptive Statistics for Survey Questions

The questions used to elicit the survey responses summarized in this table are provided in Appendix A. INCENT is the percentage of annual pay from cash bonus and stock option compensation. The factor score for ADR is composed of four questions regarding the delegation of decision making over the areas of strategy, hiring, personnel policy, and promotion, where a score of “1” represents complete delegation and “7” denotes full retention of decisions. PM is the ratio of weight placed on financial measures over the weight on all measures in assessing annual performance pay for employees in the sales/marketing department. FNRCEO takes a value of 1 if the firm’s founder is currently the CEO, and 0 otherwise. The factor score for PEU is composed of two questions relating to the predictability of inputs, where a score of “1” is very predictable and “7” is not predictable. The factor score for DSTRSS is composed of two questions relating to the firm’s likelihood of distress. A score of “1” represents financially sound and a score of “7” is unsound. SPAN is the natural log of the number of employees in the sales/marketing department. FNDROWN is the percentage of the firm’s shares owned by the founder. GOAL is the percentage of firm effort dedicated to customer-related goals. The factor score for KNOW is composed of two questions relating to the length of time (in days) that it takes new employees to attain critical knowledge of the firm’s products and customers. RSIZE is the self reported revenue for the prior quarter relative to other firms in the industry, where score of “1” represents small within the industry and “7” is large.

	Mean	Median	Std. Deviation	Minimum	Maximum
INCENT	30.317	30	16.660	0	60
ADR					
sales strategy	5.311	5	1.233	3	7
hiring	4.625	5	1.704	1	7
personnel policy	5.365	5	1.387	1	7
promotion	5.137	5	1.593	1	7
PM	0.382	0.388	0.230	0	0.854
FNRCEO	0.283	0	0.455	0	1
PEU					
predictability of input prices	2.736	2	1.371	1	7
predictability of input quality	2.981	3	1.217	1	6
DSTRSS					
sufficient cash for fiscal year	1.698	1	1.576	1	7
danger financial distress	2.317	1	1.749	1	7
SPAN	3.403	3.219	1.146	0.693	6.908
FNDROWN	0.116	0.065	0.157	0	0.700
GOAL	26.792	25	14.704	0	70
KNOW					
time to critical knowledge re: products	92.821	90	64.517	7	270
time to critical knowledge re: customers	90.377	60	70.888	7	270
RSIZE	5.057	5	1.396	1	7

Table 4
Factor Extractions

All of the questions used to elicit the survey responses are reproduced in Appendix A. The factor score for ADR is composed of four questions regarding the delegation of decision making over the areas of strategy, hiring, personnel policy, and promotion. A score of “1” represents complete delegation and “7” denotes full retention of decisions. The factor score for PEU is composed of two questions relating to the predictability of inputs, where a score of “1” is very predictable and “7” is not predictable. The factor score for DSTRSS is composed of two questions relating to the firm’s likelihood of distress. A score of “1” represents financially sound and a score of “7” is unsound. The factor score for KNOW is composed of two questions relating to the length of time (in days) that it takes new employees to attain critical knowledge of the firm’s products and customers.

	Factor Loading	% Variance Explained	Cronbach's Alpha
ADR		52%	0.68
sales strategy	0.400		
hiring	0.896		
personnel policy	0.639		
promotion	0.831		
PEU		73%	0.62
predictability of input prices	0.852		
predictability of input quality	0.852		
DSTRSS		76%	0.67
sufficient cash for fiscal year	0.869		
danger financial distress	0.869		
KNOW		90%	0.88
time to critical knowledge re: products	0.947		
time to critical knowledge re: customers	0.947		

Table 5
Correlations Between Structural Equation Variables

Pearson Correlations are reported below. Values in **bold** are significant at $p < .05$, and values in *italics* are significant at $p < .01$. All of the questions used to elicit survey responses are reproduced in Appendix A. INCENT is the percentage of annual pay from cash bonus and stock option compensation. The factor score for ADR is composed of four questions regarding the delegation of decision making over the areas of strategy, hiring, personnel policy, and promotion. A score of “1” represents complete delegation and “7” denotes full retention of decisions. PM is the ratio of weight placed on financial measures over the weight on all measures in assessing annual performance pay for employees in the sales/marketing department. FNDRCEO takes a value of 1 if the firm’s founder is currently the CEO, and 0 otherwise. The factor score for PEU is composed of two questions relating to the predictability of inputs. A score of “1” is very predictable and “7” is not predictable. The factor score for DSTRSS is composed of two questions relating to the firm’s likelihood of distress. A score of “1” represents financially sound and a score of “7” is unsound. SPAN is the natural log of the number of employees in the sales/marketing department. FNDROWN is the percentage of the firm’s shares owned by the founder. GOAL is the percentage of firm effort dedicated to customer-related goals. The factor score for KNOW is composed of two questions relating to the length of time (in days) that it takes new employees to attain critical knowledge of the firm’s products and customers. RSIZE is the self reported revenue for the prior quarter relative to other firms in the industry, where a score of “1” represents small within the industry and “7” is large.

	INCENT	ADR	PM	FNDRCEO	PEU	DSTRSS	SPAN	FNDROWN	GOAL	KNOW	RSIZE
INCENT											
ADR	(0.150)										
PM	0.147	(0.077)									
FNDRCEO	(0.029)	(0.041)	0.318								
PEU	(0.025)	0.152	0.037	0.193							
DSTRSS	(0.237)	0.147	0.029	(0.156)	0.056						
SPAN	0.336	(0.472)	(0.049)	0.076	0.077	(0.293)					
FNDROWN	(0.028)	0.039	0.134	0.335	0.073	(0.091)	0.193				
GOAL	0.198	0.047	0.309	(0.130)	(0.077)	0.122	0.057	(0.161)			
KNOW	0.285	(0.228)	0.283	0.084	0.208	0.106	0.321	0.145	(0.005)		
RSIZE	0.159	0.017	0.296	0.005	0.090	(0.268)	0.184	(0.128)	0.089	(0.083)	

Table 6
Structural Equation Results

Reported p-values are based on two-tailed calculations. Coefficients significant at $p < .10$ are in **bold**. All of the questions used to elicit survey responses are reproduced in Appendix A. INCENT is the percentage of annual pay from cash bonus and stock option compensation. The factor score for ADR is composed of four questions regarding the delegation of decision making over the areas of strategy, hiring, personnel policy, and promotion. A score of “1” represents complete delegation and “7” denotes full retention of decisions. PM is the ratio of weight placed on financial measures over the weight on all measures in assessing annual performance pay for employees in the sales/marketing department. FNDRCEO takes a value of 1 if the firm’s founder is currently the CEO, and 0 otherwise. The factor score for PEU is composed of two questions relating to the predictability of inputs, where a score of “1” is very predictable and “7” is not predictable. The factor score for DSTRSS is composed of two questions relating to the firm’s likelihood of distress. A score of “1” represents financially sound and a score of “7” is unsound. SPAN is the natural log of the number of employees in the sales/marketing department. FNDROWN is the percentage of the firm’s shares owned by the founder. GOAL is the percentage of firm effort dedicated to customer-related goals. The factor score for KNOW is composed of two questions relating to the length of time (in days) it takes new employees to attain critical knowledge of the firm’s products and customers. RSIZE is the self reported revenue for the prior quarter relative to other firms in the industry, where a score of “1” represents small within the industry and “7” is large.

	Model Statistics	INCENT Unstd Coef.	INCENT p-value	ADR Unstd Coef.	ADR p-value	PM Unstd Coef.	PM p-value
PM		56.860	0.014				
ADR		(10.776)	0.027				
FNDRCEO		(13.408)	0.042				
PEU		2.137	0.458				
DSTRSS		(3.818)	0.198				
PM				(1.651)	0.070		
INCENT				0.028	0.044		
FNDROWN				1.514	0.091		
SPAN				(0.605)	0.000		
ADR						(0.021)	0.665
INCENT						(0.010)	0.011
GOAL						0.007	0.008
KNOW						0.116	0.004
RSIZE						0.068	0.008
Chi-square (p-value)	39.057 (.422)						
CFI	0.98						
RMSEA	0.023						
X2/df	1.978						
GFI	0.891						
NFI	0.641						
IFI	0.985						
TLI	0.972						