

**FROM SURFING TO BUYING:
THE ROLE OF ONLINE CUSTOMER EXPERIENCE IN ACQUIRING AND
CONVERTING WEB TRAFFIC**

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ABSTRACT

This study provides evidence on the role played by online customer experience in acquiring traffic and converting traffic to sales in a sample of pure Internet firms. We find a positive association between traffic and a composite score of online customer experience quality. We then document that online customer experience moderates the relationship between web traffic and sales. We find that two specific dimensions, website navigability and relationship services, help attract traffic. In contrast, five dimensions of online customer experience (onsite resources, price leadership, and customer confidence besides website navigability and relationship services) moderate the relationship between web traffic and sales.

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INTRODUCTION

Unlike the companies that operate in the physical world, the ability of online firms to interact with customers is restricted to a computer-screen mediated two-dimensional interface. Despite such limitations, forecasts suggest that online business-to-consumer (B2C) segment will grow from \$20 billion in 1999 to \$184 billion by 2004 (*Forrester Research*, 2001). In part, such explosive growth can be attributed to the superior shopping experience that many Internet firms (e.g., Amazon.com, E*Trade and eBay) offer.

Research on customer satisfaction and customer service suggests that providing exemplary shopping experiences engenders customer loyalty and reduces customer complaints (cf. Anderson, Fornell & Lehmann, 1994). Better customer experience potentially reduces the cost of future customer transactions and new customer acquisition, decreases the price elasticity of demand, and minimizes customer defections due to quality concerns. It also has internal benefits for the firm such as reduced costs associated with servicing complaints (Fornell & Wernerfelt, 1988).

Online shopping differs significantly from physical shopping in that it is carried out via a two dimensional customer mediated interface without any human intervention or involvement. Novak, Hoffman and Yung (2000) note that the Internet is best thought of not as a simulation of the “real world” in which case parallels are easily drawn from existing marketing paradigms, but as alternative real, yet computer-mediated environment, in which the online customer experience becomes paramount. Moreover, the computer-mediated medium deprives people of intrinsic cues (e.g., taste, and texture) critical to making purchasing decisions (Richardson, Dick & Jain,

1994). Such differences suggest that research on online customer experience and its impact, or lack thereof, on customer acquisition and conversion into paying customers is sorely needed.

Several recent Internet studies have examined the association between web traffic and market value (Hand, 2000; Trueman, Wong, & Zhang 2000). In these studies, the web traffic measure captures the number of visitors that an online firm has been able to attract to its website, and is a proxy for customer acquisition. Although collectively these studies illustrate the impact of web traffic on market value, they tell us little about how online customer experience enables customer acquisition. Customers may be drawn to a site because of superior online experience that a firm offers vis-à-vis its competitors.

However, customer acquisition (i.e., attracting Internet traffic to a firm's website) is only part of the process of completing a sale. Converting web traffic into paying customers is a much more challenging task, as evidenced by the inability of many firms with substantial web traffic to convert this traffic into buyers. It is perhaps here that offering superior online customer experience can play a substantial role in influencing firm sales. Both acquiring and converting web traffic to paying customers are critical to the very survival of many online firms. This task has become more daunting since the April 2000 stock market crash, because many Internet firms have lost their ability to raise financial resources in the U.S. capital markets.

Using a sample of pure US Internet firms competing in the business-to-business (B2C) sector, this study empirically investigates the role played by online customer experience in both customer acquisition and conversion. Specifically, employing the resource-based view (RBV) of the firm as our theoretical lens, we first investigate the direct effects of online customer experience on web traffic and then assess the proposed moderating role of online customer experience in the relationship between web traffic and firm sales. We chose web traffic and firm

sales as our two “outcome” measures because many of our firms in sample are yet to turn profitable, and these are the measures that are followed by analysts (Demers & Lev, 2000).

RBV, our theoretical lens, emphasizes the idea that a firm’s technological and market position is a reflection of its *internal* capabilities, such as its ability to understand customer needs profoundly or develop new product or services rapidly or exploit new technologies cheaply (Cockburn, Henderson & Stern, 2000). Proponents of this view have long reiterated that strategic investments directed toward such internal activities are critical in generating supranormal returns (cf. Barney, 1991). It is our premise that an e-commerce firm’s ability to distinguish itself, through superior online customer experience, results from many internal activities and, more importantly, this ability plays an key role in acquiring customers and converting them into paying customers. As Jeff Bezos, the founder and CEO of Amazon.com, observes creating a compelling online experience for online shoppers is *the* key to competitive advantage on the World Wide Web (Weber, 1999).

THEORETICAL BACKGROUND AND HYPOTHESES

Theoretical Background. Scholarly work on online customer experience on the Internet is yet to emerge. This is perhaps one of the first studies that examine the impact of online customer experience on web traffic acquisition and conversion. Although the reasons for providing exemplary online customer experience are clear, the dimensions underlying online customer experience are less understood. Hence, at this nascent stage of inquiry, defining the concept of “online customer experience” is in itself a challenging task.

There is a growing body of practitioner-oriented work that attempts to describe and enumerate the multiple facets of this concept. Recognizing that the concept is still evolving, our review of the available literature suggests that the concept of “online customer experience” is a

complex, multi-dimensional construct that involves operational (e.g., website reliability, fulfillment capabilities), social (i.e., confidence in a website and trust), and economic (e.g., price) aspects. These activities result from investments directed at internal activities taken by a firm as it attempts to differentiate itself.

Since online shopping by definition necessitates the use of a web interface, it is not surprising that operational issues such as website usability (Hof, 2001; Neilson, 2000; *The Wall Street Journal*, 1999), website reliability, and data integration and navigation via good graphic design (Rayport & Jaworski, 2001), the availability, richness, and easy access to onsite resources (Evans & Wurster, 1999;), and a firm's fulfillment capabilities (Keen, 1997; Urban, Sultan & Qualls, 2000) appear to feature prominently in discussions of online customer experience.

On the social front, an online firm's ability to generate customer confidence and trust (Jarvenpaa, Trackinsky & Vitale, 2000; Keen, 1997; Urban et al., 2000) through privacy policies (Hoffman, Novak & Peralta, 1998) are highlighted as important facets contributing to superior online customer experience. Additionally, actions directed at creating relationships with online surfers such as implementing mechanisms that ensure a sense of belonging online via virtual communities (Hagel & Armstrong, 1997; McWilliam, 2000), and enable customers to personalize the firm's website (Evans & Wurster, 1999) are also described as being important.

In highlighting the economic aspects of online customer experience, researchers and practitioners alike point to the growing popularity of the Internet as a universal communications medium, which reduces information asymmetries between buyers and sellers. This new technology they observe lowers 'transaction costs' (Williamson, 1979) and improves overall market efficiency (Gates, 1995; Kotha, 1998, Shapiro & Varian, 1999). As markets become more efficient, it is expected that customers will be attracted to online shopping because of the

lower prices on online vis-à-vis traditional retailers (Brynjolfsson & Smith, 2000). Hence, the ability to quickly find lower prices online constitutes another aspect of the online shopping experience.

In sum, our review indicates that online customer experience consists of: (1) the reliability and ease with surfers can navigate websites, (2) onsite resources assembled that customers can browse, (3) the relationship building measures such as personalization and virtual communities that firms have adopted to ensure that customers experience a sense of belonging, (4) trust and customer confidence measures that firms have deployed to mitigate the uncertainties surrounding online shopping, and (5) the ability to find lower prices on the Internet.

Below we highlight how the different online customer experience dimensions impact customer acquisition, and also enhance a firm's ability to convert them into paying customers. We suggest a direct relationship between online customer experience and traffic, and propose a moderating role between online customer experience and firm sales.

Hypotheses

Website Usability. Neilsen (2000) defines usability as the ease with which a site can be used and navigated by users. According to him, website usability is affected primarily by the speed with which a website loads, the way data is structured seamlessly and integrated with the graphical design employed in its design, development and final construction. A related aspect of online experience pertaining to this dimension revolves around site reliability. Reliability is often measured in two ways: how often the website experiences periods of downtime, and the frequency with which the website correctly downloads information to the user (Rayport & Jaworski, 2001).

Low entry barriers and lack of location-based advantages on the Internet may make e-commerce firms more dependent on customers' willingness to first surf particular web sites and then undertake a commercial transaction. Also, online buying is based on the premise that buyers can access full information about products or services and make informed decisions. However, searching for information can be costly in the physical world (Stigler, 1961) and equally frustrating online. Forrester Research Inc., a research consultancy, notes that more than half the online buyers use the search functionality to find products--and the better the search tools, the more they buy (Hof, 2001). Moreover, a recent customer survey indicated that a significant number (i.e., 54 percent) of online customers respondents ranked navigational ease as the most important reason for patronizing an online business regularly (*The Wall Street Journal*, 1999).

Thus, improving website usability by providing a list of FAQs (frequently asked questions) or simplifying the transaction process with well designed layouts can help reduce information asymmetry between buyers and sellers, and thus make it easier to both acquire and convert traffic into paying customers.

Hypothesis 1a: *Website usability will be positively related to acquisition of web traffic.*

Hypothesis 1b: *Website usability will moderate the relationship between web traffic and sales. In other words, website usability will be positively related to the conversion of web traffic into paying customers.*

Customer Confidence and Trust. We define customer confidence or trust as a customer's expectations about the motives and behavior of a trustee, in this case the online merchant (Doney & Cannon, 1997). Trust is a critical factor in any relationship in which the customer (i.e., trustor) does not have direct control over the actions of the merchant or store (i.e., trustee) (Jarvenpaa et al., 2000). Keen (1997) posits that the most important barrier for realizing the

potential of Internet marketing to customers will be the lack of consumer trust, both in the merchant's honesty and in the merchants' competence to fill orders.

Several characteristics of the Internet intensify the importance of customer confidence or trust in Internet-based exchange relationships. In other words, as the *Economist* (1997, p.18) notes, "in the virtual world the issue of trust get magnified." The novelty of the Internet creates pervasive uncertainty among buyers and sellers. Many online firms are relatively new with short operating histories, and buyers do not always have full information about them. Consequently, buyers face moral hazard and adverse selection problems in choosing among alternative sellers of products (Holmstrom, 1985). These conditions increase the importance of trust in mediating commercial transactions among buyers and sellers (Weigelt & Camerer, 1988). Hence, on the Internet, customers' willingness to buy from sellers is contingent upon the sellers' ability to evoke consumers' trust (Jarvenpaa et al., 2000).

To illustrate, consumers rely on numerous cues in making purchasing decisions. Research in marketing has shown that although consumers use both intrinsic cues (e.g., ingredients, taste, and texture) and extrinsic cues (e.g., price, packaging, and labeling) as indicators of product or service quality (Richardson, Dick & Jain, 1994), they rely more on intrinsic cues in their purchase decisions. Since the Internet deprives consumers of intrinsic cues, it increases their transaction risk. Moreover, trust has been found to affect the behavior of customers even in situations where the buyer's switching costs are low (Chow & Holden, 1997). Providing greater information and offering service guarantees helps alleviate some concerns buyers may have about the quality of products (Nayyar, 1995). Hence, a firm's ability to signal trust, and thus engender customer confidence, becomes important as a guarantor of quality (Shapiro, 1983). As Urban and his associates (2000, p.40) note:

Many web sites act merely as self-service catalogs: If you know what you're looking for, you can find and order the product or service. Such sites are commonly characterized by their crowded format, flashing banner ads, and off-price promotions. Pursuing the hard sell, these sites do not give customers much information or help in making buying decisions. Nor surprisingly they convert few of their visitors into purchasers, suffer low customer retention and generate meager profits. Many companies have failed with such an approach to marketing on the Internet, primarily because they have failed to build trust.

However, cognitive schemas used by customers in the offline world may not translate smoothly to Internet-based transactions. Therefore, providing explicit statements of privacy policies (Hoffman, et al. 1998), operating highly reliable websites, and prominently displaying information on the availability of customer service via phone and return policies aimed to engender customer confidence or trust (Urban et al., 2000) may be more important in attracting customers to the website and inducing online purchase.

Hypothesis 2a: Customer confidence or trust measure will be positively related to acquisition of website traffic.

Hypothesis 2b: Customer confidence and trust will moderate the relationship between web traffic and sales. In other words, customer confidence and trust measure will be positively related to the conversion of web traffic into paying customers.

Onsite Resources. Following Evans and Wurster (1999), we define onsite resources as the richness of product and service information a firm has been able to assemble on its website. Many pure e-commerce firms exploiting the notion of "infinite shelf space" explicitly tout selection as their most important value proposition vis-à-vis their traditional offline counterparts. For example, the largest superstore of Barnes and Noble can accommodate only about 175,000 books, whereas Amazon.com claims that its virtual store carries over 3 million books (Kotha, 1998). Such claims by leading online retailers (e.g., Amazon.com and CDNow) have now conditioned customers to enter a site and expect to see firm's entire catalog online. Hence it is not surprising that authoritative selection is often cited as an important strategy for attracting customers to a firm's web site (Evans & Wurster, 1999). Customers are drawn to a site because

of its outstanding product information and then choose to purchase from that site because of high search costs to find the product at another site (Smith, Bailey & Brynjolfsson, 2000).

In addition to product/service selection, a few exemplar online retailers are then able to induce or entice such customer traffic into creating valuable onsite resources such as customer book-reviews or product reviews (Kotha, 1998) and this, in turn, draws customers to the firm's web site. For instance, Amazon offers space for readers to post their "own" reviews. It then steps out of the way and lets its customers sell to each other. Thus, customers themselves (along with the firm's editors) create much of the editorial content on the firm's site. As the content grows, it attracts others to add to the richness of the onsite mix of resources, thus creating a virtuous cycle (*Economist*, 1997). Unlike online retailers, firms such as drkoop.com use content (in this case health related content) to signal the breadth and depth of their onsite resources. Such content is generated internally or aggregated from multiple sources. Although expensive to generate, the breadth and depth of such onsite resources attract customers to the site (Evans & Wurster, 1999; McWilliam, 2000).

Despite assertions that the Internet enables a "frictionless" economy, a recent study found substantial price dispersion on the Internet (Brynjolfsson & Smith, 2000). The authors of this study concluded that online retailers who make it easier to find and evaluate products may be able to charge a price premium to time sensitive customers. The sources of convenience that they highlight include: better search tools, general suggestion tools, extensive product reviews, product samples, and faster checkout services. These arguments suggest that the greater the onsite resources a firm has been able to assemble, the greater the firm's potential to attract web traffic and convert this traffic into paying customers.

Hypothesis 3a: *Onsite resources will be positively related to the acquisition of web traffic.*

Hypothesis 3b: *Onsite resources will moderate the relationship between web traffic and sales. In other words, online resources will be positively related to the conversion of web traffic into paying customers.*

Relationship Services. These services capture a firm's ability to build electronic relationships with customers through personalization and through programs that build virtual communities. They include mechanisms that foster customer loyalty and engender a sense of belonging on a firm's website.

Two common approaches that firms use to build customer relationships online include site personalization and the creation of virtual communities. Virtual communities are online forums that include contributions from, and encourage discourse among, specific sets of like-minded netizens. It was Hagel and Armstrong (1997) who first focused on the unique capabilities of the electronic medium to form "virtual" communities. They argued that online firms should leverage the Internet's capabilities to offer superior online customer experience vis-à-vis traditional brick and mortar retailers. They point out that the notion of community has always been at the heart of the Internet, and that many customers join one or more on-line communities (AOL, MSN or eBay) because these communities serve the need for communication, information and entertainment (Kotha, 1998). In this respect, virtual communities such as eBay and Amazon.com have attempted to create websites that provide a sense of belonging to their customers using a variety of mechanisms (e.g., bulletin boards, customer reviews). Such virtual community building activities help attract a critical mass of customers and heighten their involvement with the firm. Thus, virtual communities can enhance customer online experiences

Personalization is another important strategy many firms undertake to generate repeat buying (e.g., Amazon.com, CDNow, and Yahoo). Buyers often have unique needs that mass produced products and services fail to satisfy, and firms that can more closely meet the needs of their buyers by offering greater personalization are likely to satisfy a larger number of customers (Nayyar, 1995; Suprenant & Solomon, 1987). Thus personalization actions help create a sense of belonging on a firm's website and increasing the switching costs of migrating to competitors. Finally, other mechanisms such as frequent buyer incentives, 1-click support for repeat buying and capability to make service calls online also enhance an online firms' ability to attract and induce customers to buy on their site.

Hypothesis 4a: *The relationship service mechanisms deployed by a firm will be positively related to the acquisition of web traffic.*

Hypothesis 4b: *Relationship services will moderate the relationship between web traffic and sales. In other words, relationship services mechanisms deployed by a firm will be positively related to the conversion of web traffic into paying customers.*

Price or Overall Cost. The price aspect of online customer experience focuses on the cost competitiveness of purchasing a typical basket of goods or services online vis-à-vis traditional physical retailers. It is argued that customers will primarily choose to shop online because of the lower price that online retailers are able to offer and this experience of finding products and services that are less expensive than in the physical world constitutes an important aspect of online shopping experience.

A price leadership strategy, in which the total cost of ownership for a typical basket of services is less than that for services available on a competitor's site, represents an attempt to generate a competitive advantage by becoming a price leader (Porter, 1980). For some firms (e.g., buy.com) that compete on low price, the allure of the Internet is simple: Online

technologies provide a low-cost, extremely efficient way to display merchandise, attract customers and handle orders (*Wall Street Journal*, 1999). For price-sensitive customers who seek to buy online, such firms offer the appropriate value proposition. Thus using price-competitiveness a firm can attract and convert traffic into purchasing customers.

Hypothesis 5a: *A strategy focused on competing price will be positively related to the acquisition of web traffic.*

Hypothesis 5b: *A price leadership strategy will moderate the relationship between web traffic and sales. In other words, a price leadership strategy will be positively related to the conversion of web traffic into paying customers.*

As a final hypothesis, we posit overall online customer experience, defined as composite measure of the five individual dimensions discussed above, will be associated with both customer acquisition and conversion.

Hypothesis 6a: *A composite measure of online customer experience will be positively related to the acquisition of web traffic.*

Hypothesis 6b *A composite measure of online customer experience will moderate the relationship between web traffic and sales. In other words, a composite measure of online customer experience will be positively related to the conversion of web traffic into paying customers.*

METHODS

Data

Given the nascent state of Internet research, it is not surprising that more studies on online customer experience have not been forthcoming. One of reasons for lack of more research on the topic of online customer experience is the absence of institutional knowledge about the availability of external databases (secondary data sources) on online customer experience. Also, collecting primary data on online customer experience at this stage of the Internet evolution is not a feasible strategy, given that most researchers (including ourselves) lack the technological

sophistication and the resources needed to track all the variables that may have an impact on a customer's online experience. Hence, we focused on identifying external sources of data collected by technologically sophisticated private research firms.

We identified three different firms for online customer experience information: Gomez Advisors, Bizrate.com, and Forrester Research. Although there appears to be a lot of overlap in terms of the measures these agencies employ to rate online customer experience of customers visiting the sites they monitor, there are some significant differences in how they operationalize, collect and distill their final measures.

For this study we chose measures collected by GomezAdvisors.com for the following reasons. First, Gomez Advisors provide *expert* ratings' of online customer experience of Internet firms, and, as such, they are more comprehensive in their approach to data collection than Bizrate and Forrester.¹ Second, relative to others, Gomez Advisors covers significantly more public firms, an important criterion employed for our study.² Finally, Gomez Advisors has a longer history of following and ranking online firms than Forrester or Bizrate and hence more time-series observations of online experience scores. Thus it has been able to command greater institutional attention and respect from followers of the Internet firms such as investment analysts. Also, many Internet firms themselves use these services to benchmark how their online customer experience capabilities evolve over time.

¹ In contrast, Bizrate provides *consumer's perceptions* of various sites they monitor. Moreover, Bizrate's coverage of firms does not include some prominent players in the industry. For example, at the time of data collection, important stores like Amazon.com had not yet agreed to allow their customers to evaluate their purchase experiences at Bizrate.

² Gomez Advisors collect data by directly examining the website, monitoring the performance of the firm's secure and non-secure web pages every five minutes, and conducting transactions and customer service interaction over the telephone and the Internet. The firms being ranked also fill out a supplemental questionnaire. They then feed this data into 150 to 250 criteria for every ranked firm and then condense it into a score for each of five dimensions of online customer experience. In comparison, Forrester fails to disclose its approach to data collection. From what we could confidently infer, we found that approach used by Gomez Advisor is more comprehensive.

One of the limitations of relying on external databases such as Gomez includes the possibility of sampling bias. The decision by Gomez to monitor select online firms is not random. For instance, Gomez Advisors track a firm's web site if the firm operates in the national market in an industry that meets certain (undisclosed) minimum standards of service in terms of the breadth and depth of products sold. Moreover, their rankings could potentially be also influenced by their (undisclosed) consulting relationships with the sites they monitor. If Gomez systematically ranks consulting clients higher than others, and if such rankings are not justified or supported by underlying economics, then we would not observe strong positive statistical associations between Gomez rankings and our dependent variables.

Gomez Score Cards on Online Customer Experience

Gomez Advisors uses five dimensions to capture online customer experience: (1) website usability, (2) customer confidence and trust in the web business, (3) onsite resources offered on the site, (4) the effectiveness of relationship services such as virtual community building and site personalization, and (5) the extent of price leadership practiced by the firm. Every quarter Gomez publishes a score on these five dimensions of online customer experience on a scale of 1 to 10. The methodology and the dimensions used are described in great detail at their website.³

Website Usability. To operationalize this measure Gomez collects data on the numerous measures including: the functionality of a firm's website, the availability of online help, whether the firm provides a glossary of terms and highlights the list of FAQs (frequently asked questions). They also examine the degree of simplicity of account opening and transactions, the consistency in website design and navigation of the website and adherence to 'proper use of interaction principles' and the whether there exists a tight integration of data to provide efficient

³ http://www.gomez.com/about/releases.asp?art_id=5068&subSect=methodology&topcat_id=0#Categories

access to information consumers commonly seek. Accordingly, they note that top ranked firms in this category have an intuitive layout with tightly integrated content, useful demonstrations, and extensive online help.

Customer Confidence and Trust. To operationalize this dimension of online customer experience, Gomez uses the posted availability of customer service via phone, e-mail, and branch locations; privacy policies; service guarantees; fees and explanations thereof. Test phone calls are made and e-mails are sent to customer service units covering technical and industry specific questions. These responses are measured in terms of the quality, speed, accuracy, and each web site is monitored for speed and reliability. Other factors such as technological abilities, technological independence, years in business, years online and membership in trade organizations also contribute to a higher rank on the customer confidence dimension.

Onsite Resources. To operationalize this measure, Gomez Advisors collect data on the range of products and services that the ranked firm carries. Firms are also ranked on whether the web site provides detailed information on the product through electronic forms, transactions, tools and information look-up capabilities (i.e., search capabilities). They check to see whether customers are provided information on how to seek service requests online.

Relationship Services. To operationalize this dimension, Gomez examines the availability of advice, tutorials, ability to customize a site, customer data re-used to facilitate future transactions, and support of repeat-buying, including frequent buyer incentives. To a large extent this dimension captures a firm's ability to build electronic relationships through personalization, enabling customers to make service requests and inquiries online, and through programs that build customer loyalty and a sense of community.

Price or Overall Cost. Here Gomez Advisors look at the total cost of ownership for typical basket of services customized for each customer profile. Costs are estimated for a basket of typical services and purchases, the added fees due to shipping and handling. In some cases, they also take into account the minimum balances and interest rates provided by the merchants.

Sample

We began with the universe of firms for which Gomez provides quarterly online customer experience scorecards. We hand collected the scorecards for Winter 1999, Spring 2000, Summer 2000, and Fall 2000 from Gomez's web site (www.gomez.com). Since Gomez releases scores for each industry on various dates throughout a quarter, we matched these scores with the firms' fiscal quarter in which the scores are released. For example, Spring 2000 scores for mortgage brokers were released on February 11, 2000. Hence, for a calendar year mortgage broker, Spring 2000 scores are considered as belonging to the first calendar quarter of 2000. Sales and traffic data are measured contemporaneously with the quarter in which Gomez scores are released. For example, Gomez scores corresponding to the Spring 2000 quarter are lined up with sales and average traffic for the quarter ended as of March 31, 2000.

Although Gomez monitors hundreds of online and offline firms, we found only 51 public firms that operated predominantly online.⁴ Following prior work (e.g., Trueman et al., 2000), we classify a publicly traded firm as a pure online firm if the firm is a part of the Internet stock list compiled by www.internet.com. We eliminated three firms that derived less than 50% of revenues from online operations and two firms for which financial information was not

⁴ The need to use accounting data such as sales restricts us to an examination of only publicly traded firms. We decided to focus on pure online firms because acquiring traffic and converting them to buyers is economically more important to online firms than firms that predominantly operate offline.

available.⁵ For six firms in our sample, Gomez provides scores in multiple product categories. For example, Gomez scores for Amazon are available for books, music, videos, toys, electronics and auctions. In such cases, we use the equally weighted average of these scores as the independent variable in our empirical specifications. Because segment disclosures of product-wise sales are patchy or non-existent we did not use weighted average scores for the segment-wise sales information.

Dependent Variables

Since our research question addresses the acquisition of web surfers and conversion of these surfers into paying customers, we use web traffic and sales as our two dependent variables. Given that many Internet firms are yet to turn profitable, Web traffic and sales are two measures that are closely followed by many Internet analysts (Trueman *et al.*, 2000). For instance, many equity analysts following the Internet sector often report and follow price-to-sales ratios for Internet firms (Demers & Lev, 2000).⁶ Finally, we also do not pursue return on investment (ROI) or return on assets (ROA) as alternative measures of performance because a majority of our firms report negative earnings.

Web traffic is the quarterly average percentage of unique monthly visitors to total web population. Web traffic data was obtained from PC Data Online – an independent firm that measures Internet audiences. PC Data Online defines its Internet audience as individuals who access the World Wide Web or proprietary online areas such as America Online during the past

⁵ The final list of 46 pure Internet firms used in the analysis is available on request from the authors.

⁶ Specifically, Website traffic as a non-financial metric has three appealing characteristics. First, web traffic provides information about the extent of consumer interest in the web business and is central to revenue generation and growth of B2C Internet firms. Second, traffic numbers are readily obtainable from third-party survey firms such as PC Data Online, Nielsens and Media Metrix. Third, traffic is cross-sectionally comparable across several B2C business models such as portals (e.g., Yahoo), e-tailers (e.g., Amazon.com), content and community sites (e.g., iVillage) and sites providing financial services (e.g., E*trade).

30 days using personal computers with Windows 95/98/NT as their operating system. PC data generates its data from a random panel of 100,000 participants who have installed the company's tracking software on their personal computers at home or at work. This software collects and stores a participant's web activities on his/her computer. Once the user has been online for 15 minutes, which may be split across one or more sessions, this data is encrypted and sent, in real time, via the Internet to PC Data Online.

PC Data Online defines unique visitors as the number of web-active individuals who visited a particular site(s) belonging to a web property (company) within a given time period. Each visitor is represented only once as a unique user. The data on unique monthly visitors for each month is usually posted within a week to fifteen days after the end of the month on PC Data Online's website. Recently, NPD Interlect (www.intelectmt.com) acquired this firm.

We hand collected firm sales information variables from SEC 10-K and 10-Q filings from the SEC's EDGAR database at the www.sec.gov website.

Models

Web Traffic Acquisition. We estimate the following regression model to assess whether online customer experience is associated with web traffic acquisition:

$$\text{Traffic}_{jt} = \gamma_0 + \gamma_1 \text{DIMENSION}_{jt} + \gamma_2 \text{QTR}_{jt} + \gamma_3 \text{IND}_{ijt} + \gamma_4 \text{ASSETS}_{jt} + \phi_{jt} \quad (1)$$

In the above equation, traffic is measured as the quarterly average of the percentage of number of unique monthly visitors to a firm's website scaled by the web population. DIMENSION is one of the dimensions of online customer experience discussed earlier. QTR represents quarter dummies to account for un-modeled variables that may co-vary with time. IND is an industry dummy that reflects a firm's membership in each of the eight markets (i.e., $i = 1, \dots, 8$, personal

finance, shopping, health, computers and office equipment, auto, travel, home and garden, and auctions) in which it operates. In equation (1) j and t represent firm and time subscripts respectively.

The industry dummies are added to control for unmodeled variables that might covary with industry membership of the firm. ASSETS representing total assets is a proxy for firm size. We controlled for size in the traffic regression because larger firms can attract more traffic on account of access to greater financial resources. If a particular DIMENSION of customer experience is associated with greater traffic we expect γ_1 to be positive.

Web Traffic Conversion. While Equation 1 is used to assess the direct effects of online customer experience on traffic, Equation 2 examines the moderating effect of online customer experience between traffic and firm sales.

$$\text{Sales}_{jt} = \gamma_0 + \gamma_1 \text{Traffic}_{jt} + \gamma_2 \text{DIMENSION}_{jt} + \gamma_3 \text{Traffic}_{jt} * \text{DIMENSION}_{jt} + \gamma_4 \text{QTR}_{jt} + \gamma_5 \text{IND}_{ijt} + \gamma_6 \text{ASSETS}_{jt} + \phi_{jt} \quad (2)$$

The coefficient γ_1 in equation (2) captures the conversion of traffic to sales. The coefficient γ_3 in equation (2) captures the effect of a particular dimension of online customer experience on the conversion of surfers to customers. Testing for moderation requires the inclusion of all interactions between traffic and online customer dimensions in the regression model. Moderation would be supported if this model represented a statistically significant improvement over the model including only the direct effects (Baron & Kenny, 1986). We include the size proxy, ASSETS, in the model to control for size and the other variables are same as equation 1.

Analysis

We estimated our regression equations using ordinary least squares (OLS). We checked to see if our approach violated any assumptions of OLS and found none were serious violated. We also examined whether the error terms in the reported regressions are subject to serial

correlation that may affect the standard errors in our estimation. We conducted the Durbin Watson test of first order serial correlation and found that the Durbin Watson statistics are well within the acceptance region of the null hypothesis of no serial correlation. Nonetheless, we included quarter dummies in our empirical specification to consider time effects but we did not observe significant differences in our inferences.

With respect to the cross-correlation among error terms, we believe that the industry dummies partially addresses the issue. To control for un-modeled firm-specific differences that may cause cross-correlation in the error terms, we included net income scaled by sales as an additional variable in the regression specification but we find that our results are qualitatively similar. Finally, since the residuals from Equation (2) are subject to heteroscedasticity concerns, we used White (1980) adjusted errors to test our hypotheses for Equation (2).

RESULTS

Descriptive Statistics. Table 1 provides descriptive statistics for the relevant dependent and independent variables used in the study. Note that we have only 50 firm-quarter observations for the COST dimension. Gomez does not rate the COST dimension for many industries (e.g., apparel, furniture, gifts, health advice, home buying, insurance, sporting goods). It is evident from Table 1 that the scores display modest variation. The standard deviation scaled by the mean score ranges from about 20% for the website usability dimension to 29% for the relationship services dimension. We also computed an (equally weighted) average score of the four dimensions excluding COST (Composite score). Gomez also provides a composite score of all the dimensions but it is unclear how the composite score is determined. It is noteworthy that the average score that we compute is very highly correlated ($\rho = .96$) with the overall score

provided by Gomez. This variable displays the least cross-sectional variation (standard deviation/mean is 18%).

Insert Table 1 about here

Limited variation among scores might dampen the power of the empirical tests in detecting significant relations between the scores and the performance measures. Such limited variation is probably due to restricting the sample to pure Internet firms. Moreover, Gomez probably chooses to cover well-followed web sites that meet certain minimum thresholds of customer confidence and reliability. Hence, self-selection in firm coverage possibly precludes more cross-sectional variation in reported scores.

The descriptive statistics related to financial measures of the sample firms reveal some interesting regularities. Table 1 presents the Spearman correlation matrix of the overall composite score and its component dimensions. Not surprisingly, CSCORE is highly correlated with four of the five component dimensions constituting online customer experience. Further, some of the individual dimensions display high correlation with one another (for example, correlation between onsite resources and website usability is 0.56, and the correlation between relationship and website usability is 0.49). Such correlation is not entirely unexpected. For example, firms that invest heavily in community building and site personalization are also likely to have navigable web sites.

Results

Web Traffic Acquisition. Table 2 presents the results of the association between traffic, sales and each of the five dimensions of online customer experience. We find that the overall score (CSCORE) that represents the average of all four of the five dimensions is significantly

associated ($\beta = 1.57$; $p < 0.01$) with traffic. This suggests that, on average, superior online customer experience contributes to greater web traffic as noted in hypothesis 6a.

Insert Tables 2 and 3 about here

Results from Table 2 show that only 3 of the seven regression models investigated are statistically significant. Hypothesis 1a posited that website usability will be positively related to the acquisition of web traffic. Results from Table 2 also indicate that website usability measure is both positive and significant ($\beta = 1.26$, $p < 0.01$). Hence Hypothesis 1a is supported. Hypothesis 2a posited that customer confidence ($\beta = 0.4$, ns) will be positively related to web traffic. Results shown in the table (column 4) do not support Hypothesis 2a. Hypothesis 3a posited that onsite resources will be positively related to web traffic. Although results show a weak positive and significant relationship between this measure and web traffic, the regression model fails to reach statistical significance. Hence, the results found here fail to support Hypothesis 3a. Hypothesis 4a and 5a argued that relationship services and cost leadership components of online customer service will be positively related to the acquisition of web traffic respectively. Results from Table 2 indicate that only the relationship services variable is positive and significant. Thus, results support Hypothesis 4a and but fail to support Hypothesis 5a.

In sum, we find strong support for only 3 out of 6 hypotheses concerning the relationship between traffic and online customer experience.

Web Traffic Conversion Table 3 presents the results of the association between conversion of traffic to sales and each of the five dimensions of online customer experience. As noted earlier, we examine the moderating effects of online customer experience on the relationship between traffic and firm sales.

In column 3, we find that the interaction of composite score, the average of all the dimensions, and traffic is significantly associated ($\beta = 4.94$; $p < 0.01$) with firm sales. In other words, online customer service moderates the relationship between traffic and sales as noted in hypothesis 6b. However, that the main effect of traffic on sales becomes negative and significant ($\beta = -22.82$, $p < 0.01$). Although this result appears anomalous at first blush, it is important to appreciate that the main effect is negative only if composite score is zero. We have no firm-year in the sample where composite score is zero.

Turning to individual dimensions, it is interesting to note that *all* components of online experience are useful at converting surfers to customers. Overall we find strong support for the moderating effect of online customer experience between web traffic and firm sales. In Table 3, Column 5, the interaction variable of interest, Traffic x Website Usability, is both positive and significant ($\beta = 5.41$, $p < 0.01$) supporting Hypothesis 1b. In Column 7 the interaction variable of interest, Traffic x Customer Confidence is both positive and significant ($\beta = 4.46$, $p < 0.01$) supporting Hypothesis 2b. In Column 9, Traffic x Onsite Resources variable is both positive and significant ($\beta = 5.09$, $p < 0.01$) supporting Hypothesis 3b. In Column 11, Traffic x Relationship Services variable is both positive and significant ($\beta = 3.53$, $p < 0.01$) supporting Hypothesis 4b. Finally, in Column 13, Traffic x Cost Leadership variable is both positive and significant ($\beta = 3.71$, $p < 0.01$) supporting Hypothesis 5b. Thus, we claim support for all the five hypotheses related to conversion of traffic to sales. In sum, we have support for 9 out 12 hypotheses examined in our study.

It is interesting to note that the relationship between sales and traffic in Column 2 is both positive and significant ($\beta = 3.22$, $p < 0.01$). Note that the regression model related to conversion explains a significant amount of variance (adjusted R^2 76%) in the sample.

DISCUSSION

This study addressed two questions that have particular relevance to pure Internet firms in the B2C sector. First, we tested the assumption that online customer experience quality impacts the acquisition of web traffic. Second, we tested the assumption that online customer experience quality impacts the conversion of web traffic into paying customers. In doing so, we investigated the proposed moderating role of online customer experience in the relationship between web traffic and firm sales. Drawing on RBV of the firm, we argued online customer experience is important in gaining a competitive advantage on the Internet. Overall, we found results to support our contention that online customer service quality impacts *both* the acquisition and conversion of web traffic into paying customers. Our approach and findings are consistent with research that documents the importance of customer experience in the physical world (Germain & Copper, 1990; Nayyar, 1995).

However, online customer experience has a bigger impact on the conversion of surfers to customers rather on attracting web surfers to the firm's website. This is evidenced by two findings. First, only two dimensions of online customer experience are statistically related to traffic whereas all the five examined dimensions are associated with conversion. Second, the explanatory power of the traffic specification in terms of adjusted R-squared value is far smaller than the adjusted R^2 value of the specification that examines conversion of traffic to sales.

Acquiring Traffic and Online Customer Experience

Of the five dimensions of online customer experience that might be associated with generating web traffic only two — website usability, and relationship services — are positive and statistically significant. This result further validates the survey results conducted by an independent consulting firm that found that a significant number of online customers rank navigational ease as one of the most important reasons for patronizing an online business regularly (*The Wall Street Journal*, 1999). Earlier, we noted that two important approaches that firms use to build customer relationships online include: site personalization and creation of virtual communities. Our findings appear to support the arguments by Hagel and Armstrong (1997) that building virtual communities can help to attract customers to a firm's website because virtual communities provide a sense of belonging in cyberspace (see McWilliam 2000). Additionally, greater personalization has often been touted as an important approach to satisfy customers in the physical world (Supernant & Solomon, 1987). Results found here suggest that personalization can be equally powerful in attracting customers in the online world.

It is interesting to note that the remaining three dimensions, customer confidence, onsite resources and cost leadership dimension, are not associated with web traffic. With respect to customer confidence, as noted earlier, the items used by Gomez Advisors to operationalize this dimension include: availability of customer service, email, privacy policies, service and guarantees. These items *per se* are not particularly salient until after a surfer, visiting a particular website, decides to buy a particular product or service or conduct a transaction. Customer confidence is likely to be a more important factor affecting after-sales concerns that a customer might have with regard to issues such as the responsiveness of the customer service department and convenient return policies. Perhaps this accounts for the lack of significant relationship between customer confidence measure and web traffic attracted to a firm's website.

Despite assertions made by many researchers (e.g., Evans & Wuster, 1999; Smith, Bailey & Brynjolfsson, 2000) that onsite resources (authoritative selection, and outstanding product information) may help draw customers to a website, our results fail to support such claims found in the literature. While these resources help convert traffic to paying customers, they seem to have little impact in acquiring customers. It was also interesting to find that being more price-competitive than average does not necessarily bring more visitors to the site. We conjecture that price and product comparison engines such as MySimon.com or CNET's Shopper.com program might be responsible for these results. If customers use comparison engines to assess whether a site carries the product they want at competitive prices, there is no need for them to visit the site. Moreover, if the comparison engine indicates that a particular site does not carry a product, customers are again unlikely to visit the site. While comparison engines are effective at assessing easily quantifiable dimensions of a site such as product availability and prices, they are not very effective at comparing the efficacy of soft dimensions such as website navigability and the quality of relationship services across sites. Hence, we possibly find strong statistical relationships between traffic and, in turn, website navigability and relationship services.

We also tried to assess the relative importance of these two dimensions -- website usability, and relationship services -- in generating traffic by computing the elasticity of each dimension on traffic i.e., the percentage increase in traffic of a 1% increase in mean dimension of customer experience. For example, we compute the elasticity of onsite resources as $(\delta \text{Traffic} / \text{mean traffic}) / (\delta \text{website usability} / \text{mean website usability})$. The expression can be rewritten as $(\delta \text{Traffic} / \delta \text{website usability}) * (\text{mean website usability} / \text{mean traffic})$ or $1.26 * 7.16 / 4.95 = 1.82$. Thus, a 1% increase in the mean website usability rating is associated with a 1.82% increase in mean traffic. Analogously, a 1% increase in the mean relationship services

measure is associated with a 1.35% increase in mean traffic ($1.21 * 5.53/4.95$). Thus, website usability has the highest elasticity among the significant dimensions of online experience that attract traffic.

Our traffic regressions have modest explanatory power in terms of adjusted R-squared values (ranging from insignificant to 12.8%) because a number of other factors other than website features such as alliances, affiliate programs and media visibility are perhaps also effective at generating traffic to the firms' websites (see Hoffman & Novak 2000). Moreover, by investigating the impact of the online customer experience scores on web traffic, we ignored other endogenous variables (e.g., advertising expenditures, media visibility, and affiliate programs) that can impact web traffic generation (Hoffman & Novak, 2000). Although a few studies have examined the impact of traffic on market value (e.g., Trueman, et al. 2000), they have not attempted to isolate and empirically determine firm-level drivers that generate traffic in the first place. Future researchers can extend our study and identify firm-level drivers, over and beyond on line customer scores, that drive web traffic to a firm's site.

Converting Traffic and Online Customer Experience

Although only two dimensions of online customer experience play a statistically significant role in generating web traffic, all five dimensions impact the conversion of surfers to paying customers. The coefficient on traffic in Table 3, Column 2, can be thought of the average conversion of unique visitors to sales. In other words, a percentage increase in traffic appears to translate to \$6.36 in quarterly sales. Columns 3-14 assess the extent to which online customer experience contribute to conversion of surfers to sales.

Turning to the effectiveness of various website dimensions required to convert customers, we compute the elasticity of each dimension with respect to conversion. In particular, we

compute elasticity of each website dimension as $(\delta \text{Sales} / \delta \text{traffic} * \text{dimension}) * (\text{mean traffic} * \text{dimension} / \text{mean sales})$. Website usability has the highest elasticity of conversion at 2.92 while the price leadership dimension has the lowest elasticity at 1.28. The interpretation of these elasticity measures is similar to that described before. A 1% increase in website usability scores is associated with conversion increases of 2.92%. The elasticity of other dimensions in decreasing order are onsite resources at 2.36, customer confidence dimension at 2.04, and relationship services at 1.53. Thus, website usability is the most effective website dimension at converting surfers to paying customers whereas price leadership is the least effective.

Implications and Limitations

Two premises underlie the arguments emanating from RBV of the firm: (1) a firm's position in the market place results from its *internal* organizational capabilities, and (2) there are good reasons for thinking that market for organizational capabilities may be imperfect in exactly the kinds of ways likely to lead to the existence of supranormal profits (Cockburn *et al.*, 2000). Regarding the first point, our findings suggest that competitive advantage resulting from internal capabilities that underlie a firm's ability to create superior online customer experience play an important role in distinguishing firms in our sample. However, our results show that the impact of online customer experience differs depending upon whether we focused on traffic acquisition or conversion. As noted earlier, factors or capabilities other than those investigated (e.g., advertising expenditures, media visibility, and affiliate programs) in our study, perhaps, play a more important role in acquiring web traffic.

Our results also show that the second RBV argument that supranormal profits ensue when organizational capabilities that a firm develops are difficult to imitate, trade or substitute is applicable to online customer experience. Studies in marketing have long argued that while

marketing-mix variables such as price and advertising are susceptible to imitation, customer service is less susceptible to such imitation (e.g., Germain & Cooper, 1990). This is because effective customer service strategy depends upon many functional elements tightly interlinked (e.g., intense organizational commitment, a well-defined and formulated customers service mission, and superior organizational competencies).

As noted, many of the elements of online customer experience we identified and analyzed are interlinked. Also, they are dependent on processes internal to the firm and as such they are not readily observable by competitors and hence are less susceptible to widespread imitation. For instance, the confidence and trust that accrues to a firm results from complex social processes that are difficult for competitors to track and replicate. In many ways, developing trust and customer confidence in a firm's website is intricately intertwined with efforts to build a firm's reputation. Reputation a number scholars note is an asset that contributes to the *sustainable* competitive advantage of firm (Amit & Shoemaker, 1993; Hall 1993). The social complexity and causal ambiguity of the reputation building process are a source of its scarcity and inimitability as an asset (Barney, 1991).

Relationships with customers, resulting from virtual communities and personalization strategies, are based on proprietary technologies dedicated to enhancing customer service, including answering emails or compiling and exploiting purchase histories of consumers that patronize a firm's website. The market for such internal organizational capabilities is imperfect, at best. Thus, it is not surprising that this measure is also associated with traffic conversion.

Although the other three dimensions – ease of use, onsite resource and price – are strongly associated with firm sales as hypothesized, a strict interpretation of the RBV suggests that it is unlikely that the advantages stemming from these dimensions can be sustained because

they are more susceptible to imitation. For instance, since every competitor is only a ‘click’ away, information regarding price and onsite resources found on a firm’s website are highly transparent. Further, the layout of a firm’s website and functionality (ease of use) can be readily studied and imitated. As online firms learn and gain a better understanding of customer surfing behavior, and as guidelines for developing superior website functionality (e.g., Neilsen, 2000) diffuse more widely, these dimensions of online customer experience are less likely to provide a firm a source of sustainable competitive advantage.

One reason why these three dimensions are statistically significant in our study is because our study fails to completely account for the costs involved in developing these benefits. In other words, it is quite plausible that the short-run costs of providing these experiences outweigh the short-run benefits in terms of traffic and firm sales. We have ignored costs because the costs are not empirically identifiable. We were unable to use accounting information on R&D, and selling and general administrative (SGA) expenses to control for these costs because we cannot meaningfully separate the costs associated with building imitable and unimitable resources from accounting information. It is likely that the statistical associations we found may not hold if convincing measures for the costs associated with imitable resources are accounted for in our empirical specifications.

Moreover, it is also possible that arguments from RBV are less applicable to high-velocity environments such as the Internet and hence our findings. For instance, Eisenhardt and Martin (2000) argue that high-velocity markets are a boundary condition for RBV arguments and that RBV’s overemphasis on long-term sustainable competitive advantage is often unrealistic in such environments. In such markets the norm is short-term unpredictable advantage. To compete in such markets, Eisenhardt and Martin advocate the concept of dynamic capabilities

(Teece, Pisano & Sheun, 1997) whereby managers continuously alter their resource base to generate new value creating strategies.

There are several limitations to our analyses. First, we have access to a limited time-series of Gomez scores. This data restriction may affect the power of our statistical analyses. As noted earlier, limited variation on the scores might dampen the power of the empirical tests in detecting significant relations between the online customer experience scores and the dependent variables of studied. Also, such limited variation is probably on account of restricting the sample to pure Internet firms. Moreover, Gomez probably chooses to cover well-followed web sites that meet certain minimum thresholds of customer confidence and reliability. Hence, self-selection in firm coverage possibly precludes more cross-sectional variation in reported scores. Future studies should consider expanding the dataset to include both pure online firms and 'brick and mortar' firms that have begun to offer Internet-based shopping.

Second, because we rely on experience scores provided by an external agency, these scores are likely to be influenced by measurement error and potential self-selection issues created by the methodologies they employ in gathering and reducing the data. As noted earlier, given the lack of technological sophistication, many researchers lack the ability to collect such data. However, as technological capabilities evolve, future research should attempt to replicate our studies using primary data sources.

Third, by investigating the impact of the online customer experience scores on web traffic, we ignored other endogenous variables (e.g., advertising expenditures, media visibility, affiliate programs) that can impact web traffic generation. Although a few studies have examined the impact of traffic on market value (e.g., Trueman, et al. 2000), they have not attempted to isolate and empirically determine firm-level drivers that generate traffic in the first

place. Future research can extend our study and identify firm-level drivers, over and beyond on line customer scores, that drive web traffic to a firm's site.

Fourth, as noted we have focused on the benefits of investing in online experience by generating web traffic and sales but not considered the costs of providing such experiences. Future research can attempt to extend our analyses by examining the role played by online customer experience on firm profitability. Whether investments in the quality of online experience provide long run benefits is also an interesting question that can be pursued. If differences in the quality of online experiences provide a long-term competitive advantage, then researchers should find a positive relation between online experience and shareholder value.

Conclusion

This study provides evidence on the role played by online customer experience in acquiring and converting traffic to sales in sample of pure Internet firms. Using customer experience scores provided by Gomez, we showed a positive association between traffic and a composite score of online customer experience quality. We then documented that online customer dimensions moderate the relationship between web traffic and firm sales. In particular, our evidence suggests that only two out of the five dimensions examined are important to attract traffic. In contrast, all five dimensions of customer experience moderate the relationship between web traffic and firm sales. This is the first study on how online customer experience scores impact the acquisition and conversion of web traffic into paying customers. We hope that it will motivate others to examine the role of online customer experience and other measures of importance such as profitability using data on online firms.

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Table 1
Descriptive Statistics: Means, Standard Deviations, and Spearman Correlations

	Variable	N	Mean	S.D.	1	2	3	4	5	6	7	8	9
1	Composite (overall) Score	111	6.39	1.16	1.00	0.77***	0.65***	0.84***	0.76***	0.23	0.37***	0.26**	0.35***
2	Ease of use	111	7.16	1.42		1.00	0.34***	0.56***	0.49***	0.03	0.34***	0.25**	0.18
3	Customer confidence	111	6.50	1.47			1.00	0.44***	0.29**	0.36*	0.16	0.08	0.18
4	On-site resources	111	6.36	1.56				1.00	0.50***	0.34*	0.28**	0.18	0.30***
5	Relationship Services	111	5.53	1.69					1.00	0.02	0.36***	0.29**	0.44***
6	Cost	50	7.29	1.80						1.00	0.14	0.12	0.38***
7	Web Traffic	111	4.95	11.99							1.00	0.57***	0.57***
8	Sales \$ mil.	111	66.93	132.5								1.00	0.76***
9	Total Assets \$ mil.	111	986.29	2736.0									1.00

*p<.05

**p<.01

***p<.001

Table 2
Regression Results:
Online Customer Experience and Acquisition of Web Traffic

Dependent Variable=Web Traffic							
Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Intercept	2.67+ (3.13)	-7.78* (3.13)	-6.58* (2.78)	-0.21 (2.70)	-0.86 (2.68)	-4.59* (2.16)	-2.17 (2.17)
Total Assets	0.24+ (0.18)	0.10 (0.18)	0.23+ (0.17)	0.22 (0.18)	0.16 (0.19)	0.07 (0.17)	0.15+ (0.10)
<i>Online Customer Experience Measures</i>							
Composite Score		1.57** (0.43)					
Website Usability			1.26** (0.33)				
Customer Confidence				0.43 (0.35)			
Onsite Resources					0.53+ (0.34)		
Relationship Services						1.21** (0.29)	
Cost Leadership							0.31+ (0.21)
N	108	108	108	108	108	108	48
Adj. R square	ns	.9.55%**	10.13%**	ns	ns	12.80%**	ns
F-value	0.59	3.26	3.41	0.79	0.96	4.14	1.56

+p<.10; *p<.05; **p<.01; ns=not significant

Notes:

(1) Coefficients on quarter and industry dummies been suppressed for convenience.

(2) Total Assets coefficient is multiplied by a factor of 1000 for expositional convenience

(3) Standard errors of the coefficient are shown in parentheses.

(4) Our 'n' values drop to 108 because we deleted outliers where R-Student test was greater than 3.

Table 3: Regression Results--Online Customer Experience and Conversion of Web Traffic (Dependent Variable=Firm Sales)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13
Intercept	17.97 (13.77)	14.02 (24.36)	46.46* (19.65)	1.68 (21.64)	57.27** (18.99)	4.23 (19.77)	59.95 (21.22)	24.89 (19.76)	95.32** (22.71)	13.66 (15.67)	21.43 (13.28)	30.94 (29.79)	61.50* (28.29)
Total Assets	0.23** (0.02)	0.22** (0.01)	0.22** (0.01)	0.22** (0.01)	0.23** (0.01)	0.22** (0.01)	0.22** (0.01)	0.22** (0.01)	0.22** (0.01)	0.22** (0.01)	0.22** (0.01)	0.20** (0.01)	0.21** (0.01)
Traffic	3.22** (0.51)	3.22** (0.51)	-22.82** (1.90)	3.20** (0.51)	-31.89** (2.94)	3.23** (0.51)	-19.06** (2.81)	3.23** (0.51)	-24.00** (2.86)	3.24** (0.46)	-11.86** (1.08)	17.99** (1.38)	-13.96+ (10.24)
<i>Customer Experience</i>													
Composite Score	0.12 (3.31)		-8.52** (2.72)										
<i>Traffic*Composite Score</i>			4.94** (0.35)										
Website Usability				1.83 (2.61)	-9.11** (2.37)								
<i>Traffic*Website Usability.</i>					5.41** (0.44)								
Customer Confidence						1.59 (2.49)	-8.84** (2.85)						
<i>Traffic * Cust. Confidence</i>							4.46** (0.52)						
Onsite Resources								-1.51 (2.50)	-13.51** (3.05)				
<i>Traffic*Online Resources</i>									5.09** (0.52)				
Relationship Services										0.16 (2.10)	-4.94** (1.82)		
<i>Traffic*Relationship Services</i>											3.53** (0.24)		
Cost Leadership												-4.91+ (2.97)	-9.30** (2.97)
<i>Traffic*Cost Leadership</i>													3.71** (1.16)
N	107	103	103	105	102	105	103	105	105	104	103	47	46
Adj. R square	62.6%	76.0%	91.4%	76.2%	89%	76.2%	83.5%	76.1%	82.3%	80.1%	91.9%	91.8%	94.3%
F-value	45.4**	56.0**	155.9**	56.47**	117.9**	56.4**	74.8**	56.3**	70.0**	70.2**	167.6**	87.4**	107.2**

+p<.10; *p<.05; **p<.01. Notes: (1) Coefficients on industry and quarter dummies been suppressed for convenience; (2) Total assets coefficient is multiplied by a factor of 10 for expositional convenience; (3) Standard errors of the coefficients are shown in parentheses, (4) Our 'n' values change because we deleted outliers where R-Student test was greater than

