

Assets and Actions: Firm-Specific Factors in the Internationalization of U.S. Internet Firms

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By providing a nearly instant connection among parties at opposite corners of the world and enabling a variety of commercial exchanges, the Internet emerged as the technology expected to create a truly global market space. Internet firms faced the challenge of capitalizing on this development. In this paper we examine what firm-specific factors are associated with the propensity of

pure U.S.-based Internet firms to enhance their international presence on the Internet by developing country-specific websites. Despite the assertion that all Internet firms are born global, our findings show that the pursuit of internationalization by Internet firms is related to the levels of their intangible assets and strategic activity. Two types of intangible assets—reputation and

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website traffic—are positively related to the degree of internationalization; so are the levels of competitive and cooperative activity, and the interaction effects between reputation and competitive and coop-

erative activity. These findings suggest that ideas from both resource-based theory and research on competitive dynamics can contribute to understanding the internationalization of Internet firms.

The emergence of the Internet has created the possibility of a truly global marketplace. International Data Corporation, a research firm, has projected that by 2003 the share of U.S. firms in this global marketplace will decrease from over 80 percent to 53 percent, whereas the share of Western European firms will increase from 16 percent to 33 percent. Asian firms will account for the remaining 14 percent. These forecasts have not escaped the attention of U.S. Internet firms. As competition in U.S. e-commerce has intensified, many U.S. firms (e.g., AOL, Amazon.com, Lycos, and Yahoo!) rushed to establish country-specific websites in Europe, Asia, and Latin America before local competitors could create dominant franchises of their own. This rapidly unfolding internationalization of Internet firms has remained empirically unexplored.

In this paper, we address the following question: What firm-level factors affect the propensity of U.S.-based pure Internet firms to internationalize their web presence? Using a sample of U.S.-based Internet firms, we examine the degree to which these firms seek to establish a country-specific presence on the Internet. In principle, an Internet firm gains immediate access to international customers by virtue of launching a website. By establishing a country-specific website, however, a firm makes an additional investment in internationalization that, in the context of e-commerce, can be viewed as equivalent to a foreign direct investment. This, in turn, signals the

firm's commitment to internationalization as a strategic course of action. Such commitment of resources to international markets can be viewed as an important stage in the internationalization process of firms (Andersen, 1993).

Both external and internal factors affect a firm's decision to internationalize (Dunning, 1980). On the one hand, the incentives to internationalize depend on the context—the degree to which local conditions such as regulations, telecom infrastructure, technology adoption patterns, taxation, and exchange rates support the firm's business model (Kuemmerle, 1999). On the other hand, firms must have some firm-specific advantage that they can effectively transfer internationally (Hymer, 1976; Dunning, 1980; Chang, 1995; Zaheer, 1995). In this paper, we explore how the second set of factors—firm-specific characteristics and behaviors—affect the degree to which Internet firms internationalize.

A significant body of international business research has focused on identifying conditions under which corporations are likely to expand into overseas markets (Kindleberger, 1969; Hymer, 1976; Dunning, 1977 and 1980; Kogut, 1983; McClain, 1983; Andersen, 1993; Caves, 1996). This research has long recognized firm-specific advantages as the *raison d'être* of internationalization (Birkinshaw, Hood, and Jonsson, 1998). Hymer (1976) first demonstrated the need for firms to possess proprietary advantages that compensate for the natural disadvantages of operating in a foreign

environment. Subsequent research has focused on identifying those sources of advantage that compensate for the "liability of foreignness" (Buckley and Casson, 1976 and 1998; Dunning, 1977; Hennart, 1982; Zaheer, 1995; Caves, 1996; Dunbar and Kotha, 2000). This research has suggested that technology and marketing skills (e.g., branding or reputation) developed in the firm's home market are key elements in successful foreign entry.

To what degree do Internet firms also need a firm-specific advantage to embark on an international strategy? Internet firms are often described as being born global. This is because an Internet firm 'enters' numerous foreign markets by virtue of launching a website, and therefore has little incentive to incur the additional costs of country-specific investments. In reality, however, a number of Internet firms have chosen to develop country-specific websites and to incur costs related to incorporating local content, culture, and demand preferences in their website features and offerings (Plumley, 2000).

Relative to traditional firms, however, Internet firms may experience "liability of foreignness" to a lesser degree. The reason for this is that many (although not all) products and services provided by Internet firms are information goods and, as such, do not impose the logistical, transportation, cultural and regulatory demands associated with international commerce and foreign investment in physical goods and services. As Kobrin (1999) has pointed out, the Internet is a marketplace unlike any other because in many instances no physical product crosses geographic boundaries, no paper currency changes hands between a buyer and seller, and there is often no tangible record of the transaction itself. There-

fore, internationalization by Internet firms may be less dependent on a compensating advantage than is the case for their traditional brick-and-mortar counterparts.

THEORY AND HYPOTHESES

Most research on firm-specific sources of advantage in the internationalization of traditional firms has focused on the firm's possession of intangible assets, such as knowledge, proprietary technology, and reputation (cf., Kogut and Singh, 1988; Caves, 1996). This approach to understanding internationalization parallels resource-based theory of the firm in strategy research, which emphasizes the possession of valuable and scarce resources as a source of competitive advantage. Recent strategy research, however, has suggested that competitive advantage is gained and sustained through strategic actions (Chen, 1996; Young, Smith and Grimm, 1996; Grimm and Smith, 1997; Shay and Rothaermel, 1999). The relationship between domestic strategic actions and firm internationalization has yet to receive scholarly attention. In this paper we combine this dynamic strategic perspective with resource-based approaches to internationalization to examine firm-specific drivers of internationalization in the dynamic context of the Internet.

Intangible Assets and Competitive Advantage

The parallels between internationalization theory and resource-based view (RBV) in strategy (Wernerfelt, 1984) derive from their focus on the resources—assets and capabilities—that a firm controls. According to RBV, resources that are unique, proprietary, and difficult to imitate or substitute provide firms with sustainable competitive advantage (Bar-

ney, 1991; Amit and Schoemaker, 1993). Further, RBV emphasizes intangible assets as central determinants of a firm's sustainable competitive advantage (Hall, 1992) because they are developed through socially complex processes, and as such are difficult to trade, imitate, or substitute (Barney, 1991). Further, intangible assets are also more likely to be deployed in international growth strategies because they are more flexible and do not depreciate with use.

Reputation is often highlighted as an intangible asset that is most difficult to create, imitate, or substitute (Dierickx and Cool, 1989; Barney, 1991) and, therefore, an important source of sustainable competitive advantage. The value of reputation as an asset derives from the reduced uncertainty for other market participants about the reliability, trustworthiness, and quality of a particular firm (Fombrun, 1996). The Internet market space is ridden with uncertainty about the reliability and trustworthiness of competing firms because many of them are new entrants with short histories (Cheskin Research, 2000). Additionally, with no physical drivers of consumer demand (e.g., proximity), demand on the Internet is largely driven by awareness and attention (Rajgopal, Kotha and Venkatachalam, 2000; Rindova and Kotha 2000; Rindova, Kotha and Rajgopal, 2001). Research has shown that attention tends to be allocated to the most prominent and better-regarded firms (Fombrun and Shanley, 1990). Therefore, Internet firms with an established reputation in their home environment are more likely to attract the attention of international users than Internet firms without such reputations.

Web traffic is another intangible asset likely to be particularly important to the internationalization of Internet firms.

Given that Internet firms have no location-based advantages relative to consumer demand, traffic indicates the degree to which users are aware of and interested in a website.¹ The value of web traffic increases exponentially with its size. As the number of visitors grows, more and more users find that website attractive because they can interact with other users as well as share and contribute to member-generated content (e.g., book reviews posted by readers at Amazon.com (Rajgopal et al., 2000)). International users are more likely to be attracted to websites with high levels of traffic, just as domestic users are.

Finally, research on traditional firms has emphasized investment in technology-related assets as a driver of internationalization. Numerous studies on determinants of foreign direct investments confirm that R&D intensity tends to be significant and positively correlated with their propensity to engage in foreign production (cf., Pugel, 1985; Kogut and Chang, 1991; Kogut and Zander, 1993; Chang, 1995). Thus, we also expect technology-related assets to be associated with the degree to which Internet firms seek to internationalize.

Overall, RBV has highlighted the value of intangible resources in general, but has not sought to classify and distinguish intangible assets based on their relative value to gaining or sustaining competitive advantage. Hall (1992) found that managers considered firm and product reputation as the most valuable intangible assets of their firms. In contrast research on internationalization has found "unique" technologies, and "brands" as factors leading firms to engage in foreign direct investment (Caves, 1996). Therefore, we propose a positive relationship between possession of intangible assets by Internet firms and their

propensity to internationalize. We explore the relationship using three operationalizations of the construct of intangibles, which we expect to be particularly relevant for predicting the internationalization of Internet firms: firm reputation, website traffic, and investments in technology-related assets. Therefore, we suggest that:

Hypothesis 1: The more intangible assets an Internet firm has, the greater will be its propensity to internationalize.

Competitive Activity and Competitive Advantage

Researchers studying competitive dynamics emphasize actions and interactions of competing firms as drivers of competitive advantage because actions disrupt the linkages between strategy and performance in a given market (Young, Smith and Grimm, 1996; Grimm and Smith, 1997). Action-based research derives its premises from Schumpeter's (1942) notion of creative destruction, which suggests that innovative actions, such as developing new products, technologies or distribution channels, undermine the competitive advantage of established competitors. The success of these innovating firms, however, provokes competitive responses from existing firms and new entrants. Thus, competitive actions constitute the primary mechanism through which firms establish and protect their own advantage, as well as erode the advantage of competitors. Research on hyper-competitive environments has demonstrated that firms taking more competitive actions have superior performance (Young et al., 1996).

Certain attributes of strategic actions, as well as a firm's action propensity

among specific competitors have a differential effect on their relative market position and performance (e.g., challenging a market leader (Ferrier, Smith, and Grimm, 1999)). The action propensity of a firm (Miller and Chen, 1996; Young et al., 1996) captures how proactively it engages in competitive action to sustain its own competitive advantage. Research on hyper-competition suggests that in highly competitive environments, such as the Internet, continuous innovation may be more important to competitive advantage than protection of assets (D'Aveni, 1994; Garud, Jain and Phelps, 1998; Kotha, 1998; Rindova and Kotha, forthcoming). Therefore, we expect that Internet firms with higher action propensity—manifested in their level of competitive activity—will have superior competitive advantage and will be more likely to internationalize. Based on these ideas we suggest that:

Hypothesis 2: The greater the level of competitive activity of an Internet firm, the greater will be its propensity to internationalize.

Partnering and Competitive Advantage

Competitive and cooperative actions can be viewed as two sides of the same coin. Firms with a high level of cooperative activity also tend to have a high level of competitive activity, and both are positively related to performance (Young et al., 1996). In addition, research on inter-firm cooperation suggests that cooperative activity, such as partnering in strategic alliances, is motivated by the complementarity of assets possessed by potential partners (Teece, 1992; Rothaermel, 2000 and 2001) as well as by potential learning gains for the

partners, together or individually (Powell, Koput and Smith-Doerr, 1996; Khanna, Gulati and Nohria, 1998). In both cases, cooperation enables firms to create unique resource combinations which neither alliance partner could obtain in isolation (Hamel, Doz and Prahalad, 1989; Dyer and Singh, 1998) and to learn from competitors who possess a variety of skills and capabilities which would otherwise be protected by firm boundaries (Khanna et al., 1998). Overall cooperative activity provides opportunities for leveraging resources and learning, and for drawing on a broader base of resources embedded in a network of partners (Chang, 1995). This superior access to learning and resources is likely to create firm-specific advantages, which a firm can then leverage to compete in foreign markets. Based on these ideas we suggest that:

Hypothesis 3: The greater the level of cooperative activity of an Internet firm, the greater will be its propensity to internationalize.

Combining Assets and Actions for Competitive Advantage

Although a firm's resources are a source of its competitive advantage, this advantage exists only to the degree that the firm deploys resources in value-creating strategic activities (Barney, 1991). Resource-based view theorists, therefore, argue that resources are a source of competitive advantage because they enable firms to develop value-creating strategies and take strategic action, such as introducing new products and services (Wernerfelt, 1984). More importantly, the availability of underutilized resources and capabilities inside the firm determines the range of growth opportunities and the strategies a firm's manag-

ers will envision and pursue (Penrose, 1959).

Similarly, competitive actions enhance the competitive advantage of firms because they shift established resource positions. They also help firms combine resources to exploit otherwise inaccessible opportunities (Young et al., 1996). Therefore, the intangible assets of the firm and its action propensity may interact to determine the range of opportunities (including internationalization) that a firm is willing and able to pursue.

Indeed, Internet firms are reported to use partnerships both to reduce technological and market uncertainty, and to accelerate the creation of valuable intangibles such as reputation and traffic. For example, an alliance with AOL is one of the significant predictors of the level of traffic Internet firms achieve (Rajgopal et al., 2000). Conversely, the availability of traffic represents a valuable resource that a firm can use to attract potential partners. The combination of the two is likely to generate superior competitive advantage than either of these attributes alone. Thus, we argue that high levels of competitive and cooperative activity improve the use of a firm's assets by combining them and deploying them in more varied forms and uses. Therefore, we hypothesize that:

Hypothesis 4: The greater number of competitive actions a firm takes in the presence of high levels of intangible assets, the greater will be its propensity to internationalize.

Hypothesis 5: The greater number of cooperative actions a firm takes in the presence of high levels of intangible assets, the greater will be its propensity to internationalize.

METHODS

Data and Sample

We compiled a list of 101 publicly traded pure Internet firms based on the following sources: (1) the list of top-50 Internet firms in 1998 and 1999 published by *Internet World*; and (2) the list of public Internet firms published in the September 1999 issue of *Business 2.0*. From this initial list we excluded one non-U.S. firm, nine firms for which we lacked data on some of the independent variables, and five firms that were not public as of June 30, 1999. Thus, our sample was based on 86 publicly-traded U.S. Internet companies. All of our firms operate predominantly in the business-to-consumer segment (B2C).

We obtained the U.S. financial and international data from the firms' SEC 10-K and 10-Q reports. We collected all other data by coding publicly available information on the Internet and databases like *Nexis/Lexis*. Given the novelty of the Internet and the lack of performance histories of Internet firms, our choice of better-established firms enabled us to collect more reliable financial and other data.

Dependent Variable

Our measure of the dependent variable is the number of foreign domain websites a firm has registered as of March 2000. We collected this information from the 10-K and 10-Q reports and by visiting the primary website for each firm in the sample. We also visited each country-specific website to ensure that the firm in question had indeed developed a foreign domain website and was using it for commercial transactions. In other words, we checked to see if all our firms had "operational" country-specific websites

and that consumers could carry out commercial transactions via these sites.

Independent Variables

Our hypotheses addressed two major sets of firm-specific factors that influence a firm's propensity to internationalize – intangible assets and strategic actions, in this case a firm's competitive and cooperative activity.

Intangible Assets. We employed three variables to operationalize intangible assets: reputation, website traffic, and technology and knowledge-related assets. We captured a firm's reputation through its media visibility (VISIBILITY) on the basis that the media reflects a broad range of stakeholder views and opinions (Chen and Meindl, 1991). We use VISIBILITY as an indicator of the salience of a firm in the public mind, and we operationalize it as the total number of articles written about the firm in 1999 in the print publications included in the "Major Newspapers" database of *Lexis/Nexis*.

Website traffic captures the number of individuals who visit a firm's website. We obtained this information for our sample firms from PC Data Online, a web-rating agency, which tracks web usage information. 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 30 days using personal computers with Windows 95/98/NT as their operating system. PC Data Online 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. Of the various metrics reported by PC Data online, we focus on REACH in our study. REACH measures the percentage of unique monthly visi-

tors relative to the total web population 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 REACH for each month are usually posted on PC Data Online's website within a week or 15 days after the end of the month. Using these data, we computed the average REACH of each firm in the sample for 1999 on the basis of the 11-month data available from PC Data (February through December 1999).

Following the extant research, we operationalized technology and knowledge-related assets as 1999 R&D EXPENDITURES for each firm. A second measure, SCALED R&D, controls for firm size by relating R&D expenditures to total assets.

Competitive Activity and Cooperative Activity. To measure a firm's competitive activity, we counted the new products and features announcements (NPA) made in press releases issued by each firm in the sample during 1999. This procedure is similar to the one used by Pardue, Higgins and Biggart (2000), who have shown a positive relationship between a firm's new product announcements and market valuation. Further, we constructed a variable PARTNERING, as a measure of cooperative activity. This variable recorded the number of partnering agreements announced in press releases issued in 1999. To ensure the comprehensiveness and validity of these measures, we collected information about these actions from multiple wire services: *PRNewswire*, *Business Wire*, *the Associated Press Service*, *M2Presswire*, *Newsbyte News Service*, *Canadian Newswire*, and *Gannett news service*. When multiple sources reported the same action, the action in question was recorded only once.

Control Variables

Since research has documented that firm age is associated with degree of internationalization (Zaheer, 1995), we introduced a control variable for age. Based on our analysis of the descriptive statistics for our sample (see below), we used PUBLIC AGE, i.e., the number of years between the initial public offering (IPO) of each firm and the end of our data collection period, as an operationalization of the age variable. The reason for this is that firms in our sample that have country-specific websites and those that do not differ in both natural age (since founding) and PUBLIC AGE (since IPO). As the discussion of descriptive statistics shows, PUBLIC AGE appears to be the more appropriate control variable for internationalization activities. We also controlled for resource availability, which has been associated with the ability of a firm to pursue internationalization strategies (Melewar and Saunders, 1999). This construct was measured by the short-term cash reserves and cash equivalents held by a firm (CASH), scaled by total assets. Additionally, we controlled for the relative value of firm's tangible assets reflected in its investment in property, plant, and equipment (PPE). We scaled the PPE measure by total assets to control for firm size.

ANALYSIS AND RESULTS

Table 1 lists the firms in the sample with country-specific websites. Figure 1 presents the target countries in which the firms in our sample have country specific websites. Overall, 23 firms established a total of 175 foreign websites in 39 different countries, with Germany, UK, France, and Japan being the primary target countries.

Table 2 compares the companies in the sample that have foreign websites to

TABLE 1
PURE U.S. INTERNET FIRMS WITH FOREIGN WEBSITES

Name	Web Address	Ticker Symbol	Founding Date	IPD Date	1999 Revenues (\$ millions)	Foreign Websites as of March 2000
@HOME	home.com	ATHM	1995	1997	337.0	4
AMAZON	amazon.com	AMZN	1994	1997	1,639.8	2
AOL	aol.com	AOL	1991	1992	4,777.0	11
AUTOBYTEL COM	autobytel.com	ABTL	1995	1998	40.3	1
AUTOWEB	autoweb.com	AWEB	1995	1999	32.8	1
BARNESANDNOBLE COM	barnesandnoble.com	BNBN	1997	1999	202.6	6
BROADVISION	broadvision.com	BVSN	1993	1996	115.5	1
CDNOW	cdnow.com	CDNW	1994	1998	160.7	7
CYBERIAN OUTPOST	outpost.com	COOL	1995	1998	85.2	13
DOUBLECLICK	doubleclick.com	DCLK	1995	1998	258.3	16
EBAY	ebay.com	EBAY	1996	1998	224.7	5
ETOYS	etoy.com	ETYS	1997	1999	130.1	1
EXCITE	excite.com	XCIT	1994	1996	216.3	9
FLYCAST	flycast.com	FCST	1996	1999	32.1	5
IDT	idt.com	IDTC	1990	1996	732.2	1
LYCOS	lycos.com	LCOS	1995	1996	135.5	22
MACROMEDIA	macromedia.com	MACR	1992	1993	149.9	8
OPEN MARKET	openmarket.com	OMKT	1994	1996	83.2	5
PSINET	psinet.com	PSIX	1988	1995	554.7	28
REAL NETWORKS	real.com	RNWK	1994	1997	131.2	6
ROWE	rowe.com	ROWE	1994	1999	307.6	1
VERSANT	versant.com	VSNT	1991	1996	25.9	3
YAHOO	yahoo.com	YHOO	1994	1996	588.6	19

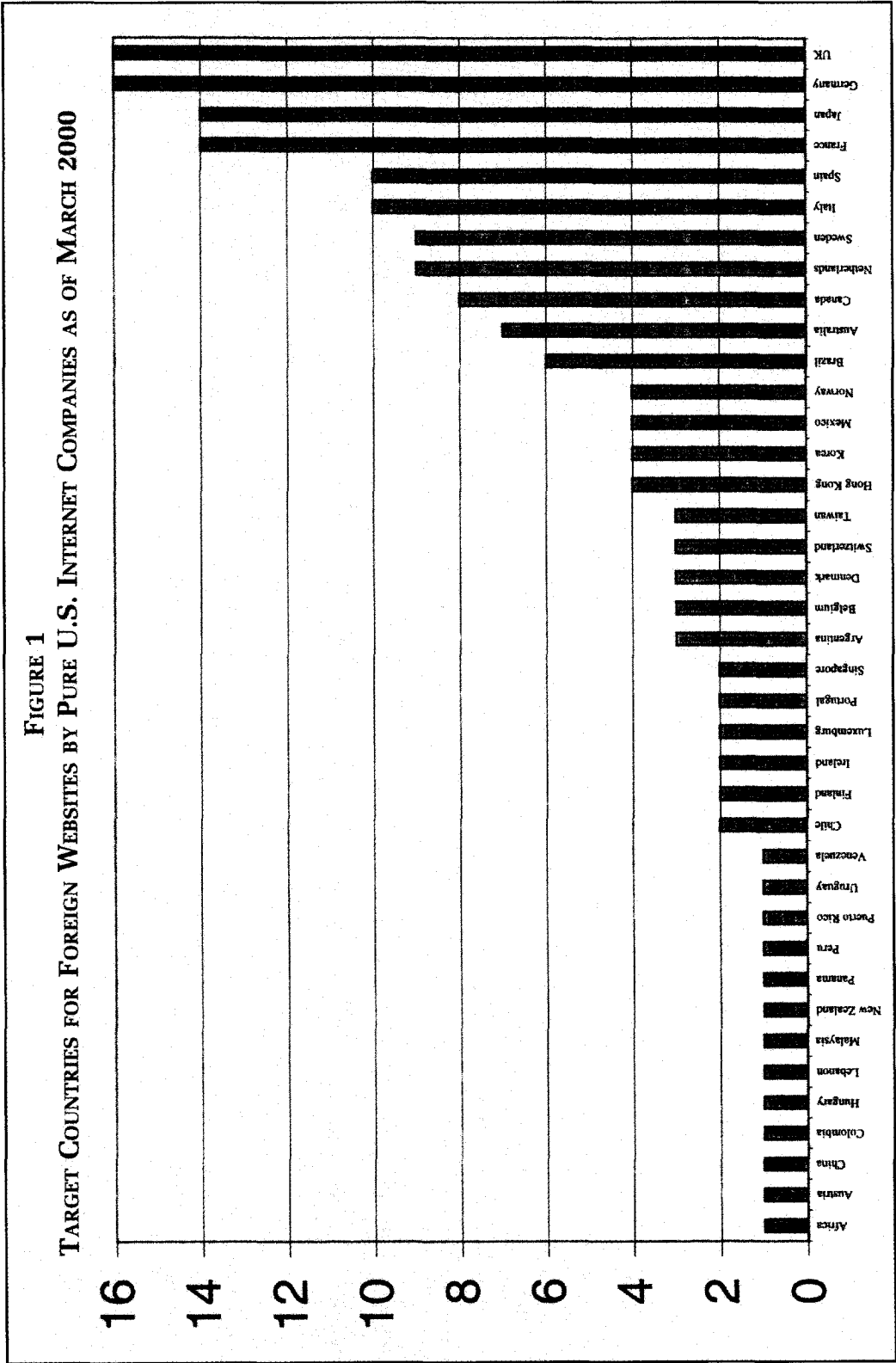


TABLE 2
COMPARISON OF MEAN VALUES OF FIRMS WITH FOREIGN WEBSITES AND
FIRMS WITHOUT FOREIGN WEBSITES

	1999 N	Revenues (\$mn)	Age Total (years)	Age IPO (years)	Cash (\$mn)	PPE (\$mn)	Visibility (count)	Reach (percent)	R&D (\$mn)	NPA (count)	Partner (count)
Firms with Foreign Websites	23	46211	5.35	3.13	0.29	0.23	319.30	0.12	0.15	7.00	13.22
Firms without Foreign Websites	63	124.80	6.32	2.43	0.35	0.43	74.30	0.02	0.28	3.08	7.38
t-statistic		1.60	-1.50	1.60	-1.05	-2.55	2.94	2.59	-1.98	1.57	1.63
Difference - Significance Level		$p < 0.10$	$p < 0.10$	$p < 0.10$	n.s.	$p < 0.01$	$p < 0.01$	$p < 0.01$	$p < 0.01$	$p < 0.10$	$p < 0.10$

N = 86; one-sided t-test.

those that do not. Comparing the two sub-samples reveals that firms with foreign websites tend to have higher revenues; are younger with respect to their total age; are older with respect to their public age;² have fewer tangible assets; and have higher media visibility. Further, firms with foreign websites exhibit a greater reach, lower R&D expenditures,

a higher number of new product announcements, and more partnerships relative to firms without a foreign presence.

Table 3 provides the descriptive statistics and the correlation matrix for our sample. It reveals that the average firm in our sample has one foreign website, reaches 4 percent of the North American

TABLE 3
DESCRIPTIVE STATISTICS AND CORRELATION MATRIX

Variable	Mean	Std. Dev.	1	2	3	4	5	6	7	8
1 Country-specific Websites	0.95	2.30								
2 Public Age	2.57	1.72	0.31							
3 Cash	0.35	0.25	-0.15	-0.24						
4 Property, Plant and Equipment (PPE)	0.39	0.50	-0.09	-0.21	0.13					
5 Visibility	108.44	195.51	0.39	0.29	-0.17	-0.08				
6 Reach	0.04	0.06	0.64	0.27	-0.04	-0.08	0.64			
7 R&D Expenditures	0.26	0.42	-0.08	-0.09	0.33	0.52	-0.10	-0.07		
8 NPA	3.33	4.22	0.28	0.06	-0.05	-0.70	0.33	0.42	-0.09	
9 Partnering	8.42	10.43	0.36	0.13	0.03	0.01	0.50	0.61	-0.05	0.57

Correlations greater than or equal to 0.28 are significant ($p < 0.05$), N = 81.

web population, has announced three new product or service introductions, and has entered into 8 partnership agreements. Further, the univariate correlations between the dependent variable and the independent variables provide preliminary evidence for our hypotheses. In Table 3, the independent variables for VISIBILITY (our proxy for reputation), REACH (our measure of traffic), NPA (a proxy of competitive activity), and PARTNERING (a proxy of cooperative activity), are all positively correlated with the dependent variable and are statistically significant.

Table 3 also indicates that many of our independent variables are correlated with each other. Given the nature of the constructs being examined, i.e., market-based intangible assets, such as reputation and traffic, and competitive and cooperative activity, this level of collinearity is not unexpected. For this reason, we formulated hypotheses about the relationships between the overarching constructs (intangibles) and the dependent variable, using the specific variables (VISIBILITY, REACH, and R&D) as multiple operationalizations of the same construct. To assess whether these inferences are robust to the consideration of the control variables, PUBLIC AGE, CASH, and PPE, we conducted multivariate regression analyses.

We estimated multivariate regression models using ordinary least squares (OLS). To control for concerns related to heteroscedasticity, we used a White test (1980), which indicated that the final results are not materially affected by such concerns. The final sample consisted of 81 firms, since five firms were identified as outliers and removed from the sample. The statistical results based on the reduced sample ($N = 81$) were not materially different than the results obtained

when using the full sample of 86 firms; however, the models in the reduced sample exhibit a better 'fit' as indicated in their higher adjusted R^2 values.³

Results

Table 4 provides the results of our regression analyses. Model 1 is the base model, and Models 2 to 6 estimate the relationship between the dependent and independent variables. Models 2, 3 and 4 test Hypothesis 1, which posited that intangible assets of a firm are positively related to internationalization. In Model 2, VISIBILITY is positive and significant ($p < 0.01$). The model shows a significant improvement over the base model ($p < 0.01$, $\Delta \text{adj. } R^2 = 0.08$). In Model 3, REACH is positive and significant ($p < 0.001$), and this model also shows a significant improvement over the base model ($p < 0.001$, $\Delta \text{adj. } R^2 = 0.34$). Finally, in Model 4, R&D is not significant. Overall, these results support Hypothesis 1.

Model 5 tests Hypothesis 2, which posited that greater levels of competitive activity would be positively related to internationalization. In Model 5, NPA is positive and statistically significant ($p < 0.05$), and the model shows a significant improvement over the base model ($p < 0.05$, $\Delta \text{adj. } R^2 = 0.06$). Thus, we find support for Hypothesis 2.

Model 6 tests Hypothesis 3, which posited that greater levels of cooperative activity are positively related to internationalization. In Model 6, PARTNERING is positive and statistically significant ($p < 0.01$), and the model is a significant improvement over Model 1, the base model ($p < 0.01$, $\Delta \text{adj. } R^2 = 0.10$). Thus, we find support for Hypothesis 3.

Hypotheses 4 and 5 posited, respectively, that the interaction effect between a firm's competitive and cooperative ac-

TABLE 4
RESULTS OF REGRESSION ANALYSES

		Model 1 (Base)	Model 2	Model 3	Model 4	Model 5	Model 6
Controls	Constant	0.25 (0.67)	0.02 (0.64)	0.04 (0.53)	0.23 (0.68)	-0.24 (0.68)	-0.12 (0.64)
	Public Age	0.38* (0.15)	0.27† (0.15)	0.17 (0.12)	0.37* (0.15)	0.37* (0.15)	0.32* (0.14)
	Cash	-0.71 (1.01)	-0.42 (0.97)	-0.84 (0.80)	-0.62 (1.07)	-0.63 (0.98)	-0.90 (0.95)
	PPE	-0.10 (0.51)	-0.09 (0.48)	-0.01 (0.40)	-0.01 (0.60)	-0.03 (0.49)	-0.14 (0.48)
H1: Intangible Assets	Visibility		0.01** (0.01)				
	Reach			22.34*** (3.30)			
	R&D				-0.20 (0.74)		
H2: Competitive Activity	NPA					0.14* (0.06)	
H3: Cooperative Activity	Partnering						0.07** (0.02)
Adjusted R ²		0.07	0.15	0.41	0.06	0.13	0.17
F-statistic		2.93*	4.61**	14.97***	2.19†	3.90**	5.08**
Δ adj. R ² compared to Base Model			0.08**	0.34***	-0.01	0.06*	0.10**
Dependent variable = Number of country-specific websites.							
Standard errors are reported in parentheses, †p < 0.1 *p < 0.05, **p < 0.01, ***p < 0.001, N = 81.							

tivity and its intangible assets is positively related to the firm's propensity to internationalize. To test these hypotheses, we examined a series of regression models using the interaction terms (see Table 5). The four interaction terms were based on the two statistically significant intangible asset variables (VISIBILITY and REACH) and the two statistically significant strategic activity variables (NPA and PARTNERING).⁴

In Model 8, the interaction term between VISIBILITY and NPA is both positive and statistically significant ($p < 0.01$), and this model is a significant im-

provement over Model 7 ($p < 0.01$, Δ adj. $R^2 = 0.07$). In Model 10, the interaction term between REACH and NPA is positive, but not statistically significant. Thus, we find mixed support for Hypothesis 4. In Model 12, the interaction term between VISIBILITY and PARTNERING is positive and statistically significant ($p < 0.05$), and this model is a significant improvement over Model 11 ($p < 0.05$, Δ adj. $R^2 = 0.04$). In Model 14, the interaction term between REACH and PARTNERING is positive, but not statistically significant. Therefore, we find mixed support for Hypothesis 5.

TABLE 5
RESULTS OF REGRESSION ANALYSES

		Model 7	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14
Controls	Constant	-0.27 (0.66)	0.55 (0.70)	0.01 (0.56)	0.12 (0.63)	-0.15 (0.63)	0.41 (0.67)	0.07 (0.54)	0.23 (0.60)
	Public Age	0.28† (0.15)	0.17 (0.15)	0.17 (0.13)	0.15 (0.13)	0.27† (0.15)	0.18 (0.15)	0.17 (0.14)	0.14 (0.13)
	Cash	-0.42 (0.96)	-0.56 (0.92)	-0.83 (0.81)	-0.83 (0.81)	-0.66 (0.96)	-0.59 (0.93)	-0.83 (0.81)	-0.79 (0.81)
Intangible Assets	PPE	-0.04 (0.48)	-0.11 (0.46)	-0.01 (0.41)	-0.02 (0.41)	-0.12 (0.47)	-0.12 (0.46)	-0.01 (0.40)	-0.01 (0.41)
	Visibility	0.01* (0.01)	0.01 (0.01)			0.01 (0.01)	0.01 (0.01)		
	Reach			22.00*** (3.68)	20.52*** (5.18)			23.10*** (4.15)	20.64*** (5.71)
Competitive Activity		0.10†	-0.02	0.01	-0.01				
Cooperative Activity	NPA	(0.06)	(0.07)	(0.05)	(0.06)				
	Partnering					0.05* (0.03)	0.02 (0.03)	-0.01 (0.02)	-0.02 (0.03)
H4: Interaction Competitive Activity and Intangible Assets	Visibility × NPA		0.01** (0.01)						
	Reach × NPA				0.13 (0.33)				
	Visibility × Partnering						0.01* (0.01)		
H5: Interaction Cooperative Activity and Intangible Assets	Reach × Partnering								0.09 0.14
Adjusted R ²		0.17	0.24	0.40	0.40	0.19	0.23	0.40	0.40
F-statistic		4.35**	5.15***	11.84***	9.78***	4.67***	4.95***	11.85***	9.86***
Δ adj. R ²			0.07**		0.00		0.04*		0.00
compared to Model with main effect only									

Dependent variable = Number of country-specific websites
Standard errors are reported in parentheses, †*p* < 0.1 **p* < 0.05, ***p* < 0.01, ****p* < 0.001, N = 81.

Examining the results from the interaction models suggests that the interaction effects are significant for VISIBILITY, indicating a positive significant relationship between propensity to inter-

nationalize and the degree of leveraging firm reputation in either competitive or cooperative activity. In contrast, we find no support for an interaction effect between REACH, our measure for web traf-

fic, and either competitive or cooperative action on the propensity of pure U.S. Internet firms to internationalize.⁵

DISCUSSION AND CONCLUSION

Our purpose was to investigate the degree to which firm-level factors lead U.S.-based Internet firms to internationalize their Internet presence. Using a broad sample of U.S. pure Internet firms, we focused on understanding what firm-specific factors are associated with efforts to establish country-specific websites, which in the context of e-commerce can be viewed as a form of foreign direct investment. Our approach is consistent with a vast body of international business research establishing the linkage between firm-specific advantages and internationalization. Further, it extends this research by emphasizing the link between resources and strategic actions, and the relevance of the domestic strategic activity of firms for understanding their internationalization strategies. Our findings support the general notion that firm-specific sources of competitive advantage are significant predictors of why firms go abroad, but seem to contradict the commonly held view that Internet firms are born global.

First, our findings highlight that the intangible assets of Internet firms are important predictors of their propensity to internationalize. Specifically, two intangible assets—web traffic and reputation—which appear to be critical to competing effectively domestically, are also strongly associated with internationalization. Because the value of traffic increases with the size and diversity of the network it represents (Shapiro and Varian, 1999), accumulating traffic as an intangible asset creates incentives for firms to internationalize in order to grow the size and diversity of their user base. Ad-

ditionally, the accumulation of traffic creates incentives for users to patronize the websites with the highest level of traffic, where they can benefit from more services, especially those related to user interactions such as e-mail, chat rooms, discussion boards, and recommendation boards. This is particularly true for portals or e-tailers (e.g., Amazon.com, CD-Now and BarnesandNoble.com, and Cyberian Outpost). These firms were also the firms with the largest number of foreign websites in our sample. Portals are providers of broad based interactive services, and their business models are based on generating and monetizing traffic via advertising revenues. Although e-tailers generate their primary source of revenue through selling of physical or informational products, they also benefit from the network effects of traffic as discussed above.

These observations suggest that the more valuable an intangible asset is in the domestic business model of a firm, the more likely it is that the firm will deploy this asset in foreign markets. Furthermore, the value of an intangible assets depends on its size or exposure (as is the case with traffic and reputation), greater this value, the more likely it is that an Internet firm will pursue internationalization strategies. These ideas are speculative, and although we could not test them directly, they seem to be consistent with the patterns in the data, and provide possible directions for future research.

These ideas may also help explain the lack of significant effects of R&D intensity—a finding that contrasts with previous studies on internationalization. One reason may be that all firms in our sample are leading U.S. Internet firms, which are likely to have similar levels of technological prowess. As a result, R&D-re-

lated assets may not be as rare or inimitable and, therefore, they represent a source of competitive advantage to a lesser degree than reputation or web traffic. Another reason may be that R&D intensity is not central to the business model of the Internet firms such as portals and e-tailers. These are the firms that have the strongest propensity to internationalize in our sample. Therefore, R&D may be less valuable and important in internationalization. As research on the value drivers of e-business models develops (Amit and Zott, 2001), we will be able to make more specific predictions about the relative importance of intangible assets in internationalization strategies of Internet firms. However, our arguments here suggest that future research on the effects of variation in business models on international strategies will be important for advancing our understanding of the role different intangible assets play in determining Internet-based global competition.

Second, our findings highlight that the domestic strategic activity of Internet firms is significantly related to internationalization. We know of no other studies that consider the role of action-based variables in internationalization. Hence, we believe that this is a promising direction for future research in international business. Understanding the impact of competitive dynamics on competitive advantage is likely to become increasingly important because new rivals and emerging business models frequently contest a firm's competitive advantage in hyper-competitive environments. Therefore, competitive advantage must be continuously defended through competitive and cooperative actions (Garud et al., 1998; Ferrier et al., 1999; Rindova and Kotha, forthcoming).

Applied to internationalization, this logic suggests that firms with higher levels of competitive and cooperative activity are better able to sustain their competitive advantage, and are more likely to capitalize on it by pursuing internationalization. Indeed, we find that high levels of both competitive and cooperative activities are associated with internationalization.

Additionally, our findings suggest that cooperative activity is more strongly associated with internationalization than competitive activity. The stronger effect of cooperative activity may be due to some learning effects from engaging in partnering behavior. Gulati (1999) observed that as firms' experience with alliances increase they develop collaborative capability. Since alliances and partnerships are a common mode of internationalization (Kogut and Singh, 1998), firms with higher levels of cooperative activity domestically are likely to have superior collaborative capability and will be more adept at partnering for internationalization.

This difference may also be due to cooperative activity enabling firms to leverage resources better, and to move faster in various domains, including international expansion (Chang, 1995). Again, although we do not have data to investigate the relationship between international partnerships and the propensity of Internet firms to invest in country-specific sites, anecdotal evidence suggests that this has been the case with some prominent Internet firms. For example, Yahoo! was one of the first Internet portals to pursue internationalization with its Yahoo! Japan site launched in April 1996. This move was related to Softbank's (Japan's largest publisher of computer-related computer magazines and books) significant equity investment in

Yahoo! and the two firms' several media-related joint projects. Again, although research has examined the role of partnering as a mode of entry, little research attention has focused on the level and the pattern of cooperative activity as predictors of internationalization strategies.

Finally, we examined the impact of the interaction effects of assets and strategic actions on internationalization. Our findings in this regard are mixed. Firms that exhibited high levels of reputation and competitive and cooperative actions simultaneously were more likely to internationalize. In contrast, the interaction effects between web traffic and competitive and cooperative actions on internationalization were not significant. These differences can be attributed to a number of reasons. For one, traffic has a much stronger effect on internationalization than our other independent variables, indicating that traffic may be creating value for a firm in a direct fashion. Firms can monetize traffic directly through advertising revenues from advertisers who view traffic as an opportunity to reach an audience. In comparison to web traffic, reputation can be described as a more latent asset. The value of reputation is realized when consumers face a choice about what products and services to obtain and from which providers. For example, the established reputation of a firm affects the speed of adoption of its new products (Yoon, Guffey, and Kijewski, 1993). Therefore, it is logical that the value of reputation as an asset is realized to a greater degree when a firm undertakes a higher level of competitive activities, such as new product introductions. Similarly, reputation plays an important role in partner selection in strategic alliances. Therefore, it is likely that its value as an asset is realized to a greater degree when a firm engages

in higher levels of cooperative activities such as partnering. These ideas suggest that potentially interesting interactions exist between assets and actions, but future research is needed to establish differences in these interactions across assets and international contexts.

Limitations and Future Research

The findings presented in this paper should be interpreted with caution for several reasons. The restrictive nature of our sample, focusing on only leading U.S. Internet firms, can introduce unknown selection biases that restrict the generalizability of our findings. However, we wish to note that at this stage we were limited by the lack of availability of a large sample of firms undertaking internationalization and our data collection methodology of hand collecting data from press releases, which restricts our ability to increase the sample size easily. As Internet firms get more established, and as established listings of Internet firms become institutionalized (akin to Fortune 500), future researchers can expand our analysis to a larger sample of Internet firms in an effort to generate more generalizable findings.

The cross-sectional nature of our sample does not permit us to go beyond simply documenting the statistical associations between our independent and dependent variables. To establish "true" causation, we suggest that researchers focus on the *process* of international expansion, a domain that has not yet received enough research attention (Chang, 1995; Dunbar and Kotha, 2000). In this context, we suggest a case-based longitudinal study, rich in descriptive detail, which highlights the processes used by the firms in our sample to establish a foreign presence.

The sample of firms we studied is predominantly B2C firms, and for these firms web traffic and reputation are central to competitive advantage. However, these variables are less likely to be important in other sectors of the Internet economy such as B2B (Rajgopal, Venkatachalam, and Kotha, 2001). Hence, the generalizability of our findings is perhaps limited to this sector of the Internet economy. Future research could identify the firm specific factors that drive internationalization in B2B firms.

Further, our measure of internationalization focused on the visible commitment that an Internet firm makes to its international presence, and as such it does little to inform us about mode of entry or additional investments in physical assets such as establishing a foreign office when a firm enters a foreign market. One of the most important strategic decisions that a multinational corporation must make is selecting the mode of entry into a market (Shane, 1994). As noted earlier, since the Internet is unlike any other marketplace, extending our understanding of entry mode decisions might be a fruitful avenue for further research.

Finally, our research question focused on examining firm-specific (internal) factors associated with internationalization by Internet firms. However, national context variables have been found to affect internationalization processes for traditional firms. Whereas on the Internet national boundaries have been argued to matter less (Kobrin, 1999), our data suggests that the firms in our sample followed internationalized to a different degree in different geographic regions. A cursory review of Figure 1 suggests the firms in our sample had foreign websites in 39 countries. However, the largest distribution of these sites is found in the

UK, Germany, Japan, France, Spain, and Italy. Interestingly, these countries exhibit substantial variations with respect to Hofstede's (1983) cultural distance dimension and language, which suggests that national culture and language barriers perhaps play a less important role (vis-à-vis traditional firms) in location decisions. Levels of technology adoption, both of computers and Internet access, are perhaps more important as contextual factors for the internationalization of Internet firms. Future researchers can also attempt to highlight contextual factors such as patterns in technology adoption, telecom infrastructure, taxation regimes, regulatory issues, and national culture and study their impact on an Internet firm's decision to locate in certain countries.⁶

In this paper we did not focus explicitly on the performance implications of internationalization. We recognize, however, that rent-yielding intangible resources are only a *necessary* condition for foreign direct investment and their existence does not guarantee that entry into a foreign market will be successful (Chang, 1995). Future researchers should, therefore, seek to examine the performance effects of internationalization by Internet firms and the relationship between performance and different approaches to internationalization.

Conclusion

Our findings can be interpreted as evidence that Internet firms, like traditional firms, rely on transferring competitive advantages from the home market to foreign markets. Our study offers a caution to both managers and researchers of Internet firms who assume that removing physical constraints by using the Internet translates into an immediate global market. Some of the traditional

impediments to globalization such as the costs associated with liability of foreignness and the need for compensating advantage may still apply. In our study we found a positive relationship between sources of competitive advantage—both embedded in assets and derived from competitive activity—and the propensity of Internet firms to internationalize. Moreover, internationalization may further enhance the value of the assets and actions, by increasing their leverage and use. By studying the strategic behavior of Internet firms, international business scholars have a unique opportunity to extend our theories and understand empirically the development of a marketplace that is virtual and global, at the same time. The rapid diffusion of the Internet globally, and the accompanying internationalization of Internet firms provide a fertile research domain for developing new theories and testing extant theories of internationalization in new contexts.

NOTES

1. As a result, the value of traffic as an asset on the Internet has been compared to the value of real estate in the physical world. Just as for a choice location in a prime shopping area, traffic is an asset that is difficult to imitate or substitute.

2. The difference among the firms in the sample with regard to the two age variables can be understood if one takes into consideration that firms with growth orientation (including internationalization) will tend to pursue resources for growth more aggressively by entering the public market for capital earlier than other firms.

3. The five outliers were Cyberian outpost, DoubleClick, Lycos, PSI Net and Yahoo! To identify outliers we used R-Student measure. We deleted those ob-

servations that exhibited an absolute value greater than 3 on this measure. To check the robustness of our results, we estimated more conservative logit regression models to the 0, 1 dependent variable (1 = firm has at least one foreign website, 0 = otherwise) and found that the results were consistent with those found using OLS. Further to control for the three firm types in our sample (i.e., infrastructure, e-tailers, and e-service firms) we created two dummy variables and estimated regression models using them. However, these dummy variables turned out not to be significant in any of our regression models and are hence not reported here.

4. We also examined the two remaining interaction terms (R&D x NPA, R&D x PARTNERING). These were not significant and are hence not reported here.

5. We also assessed Models 7-14 for potential multi-collinearity. The results of a variance inflation factor (VIF) analysis indicate that the VIF is less than 10 in each case. Thus, problems potentially caused by multi-collinearity can be neglected (Kleinbaum, Kupper, & Muller, 1988).

6. For a discussion of some of these issues see the papers by Lynch and Beck, and Oaxley and Yeung in this Issue.

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