

PIONEERING ADVANTAGES IN MANUFACTURING AND SERVICE INDUSTRIES: EMPIRICAL EVIDENCE FROM NINE COUNTRIES

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Although one might expect differences between manufacturing and service firms in pioneering advantages, the extent of these differences has not yet been investigated. This is the first cross-national study that compares such differences in nine countries/regions: the United States, the United Kingdom, Germany, Japan, China, Taiwan, Hong Kong, South Korea, and Singapore. We develop several hypotheses concerning the perceptions of managers of manufacturing firms and service firms regarding the benefits and post-entry risks of pioneering, and the cost and differentiation advantages accruing to the pioneering firm. We test the hypotheses with data from 2,419 firms representing all nine countries and both industrial sectors. We find that: (1) managers from all countries perceive pioneering to be associated with higher market share and/or profitability; (2) manufacturing firm managers perceive pioneering risks to be significantly more important than do service firm managers; (3) cost and differentiation advantages of pioneering are, for the most part, more significant to manufacturing than to service firm managers; (4) Western manufacturing firm managers perceive the cost advantages to be more important than Asian Pacific manufacturing firm managers. We conclude by presenting the managerial implications of our findings. Copyright © 1999 John Wiley & Sons, Ltd.

INTRODUCTION

Firms that pioneer new products stand to gain many competitive advantages. They can capitalize on economies of scale and scope, establish a leader reputation among customers, capture the best perceptual positions or distribution channels, and so on (see Lieberman and Montgomery, 1988, for a more detailed discussion). Developing a new product category and then taking it first into the market is, however, extremely costly, time consuming, and risky (Song and Montoya-Weiss, 1998). For example, a new line of jets

may require Boeing to invest an amount greater than the net worth of the firm (Urban and Hauser, 1992: 531), and the NeXT desktop computer, which cost \$200 million in product development, did not achieve substantial sales (Powers et al., 1993). In the financial services sector, developing a new product can cost \$5 million or more (Tufano, 1989). Clearly, it is important for prospective pioneers to understand not only the potential advantages of pioneering, but also the likelihood that those advantages will be achieved and sustained.

Over the past two decades, pioneering advantage has been an important and popular topic in both management and marketing research (e.g., Lieberman and Montgomery, 1988, 1998; Robinson, 1988; Robinson and Fornell, 1985; Robinson, Fornell, and Sullivan, 1992; Kalyanaram, Robinson, and Urban, 1995). Most of the empirical evidence for these principles has been drawn from

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studies of North American manufacturing firms. The extent to which pioneering advantages are generalizable to service industries or to other regions of the world has received far less empirical attention.

This study is the first on market pioneering drawn from an extensive nine-country data base. In it, we make two research contributions. First, we estimate pioneering advantages and risks perceived by service managers as compared to manufacturing industry managers. Second, we examine the generalizability of our findings across nine countries. Our data base contains responses from 2,419 senior executives of firms from both manufacturing and service in the United States, the United Kingdom, Germany, Japan, China, Taiwan, Hong Kong,¹ South Korea, and Singapore. We present the same standardized set of questions to managers in each country and in both sectors. We use descriptive statistics (t-tests on means and mean differences) to make direct cross-national and cross-industry (i.e., manufacturing versus services) comparisons of beliefs about pioneering advantage principles. Our analysis allows us to identify a series of perceived principles and their generalizability, which can then be the basis of further theoretical and empirical work (Dunne, Roberts and Samuelson, 1988).

The study of pioneering advantages in service is important given its rapid growth and its importance, particularly in the U.S. economy. Between the early 1980s and the early 1990s, the share of U.S. GDP accounted for by service industries increased from about \$2 trillion to about \$4 trillion, while the share from manufacturing goods-producing industries remained between \$1 trillion and \$1.5 trillion (Henkoff, 1994). In the late 1990s, the service sector represents 70 to 80 percent of U.S. employment and GDP, and the U.S. trade surplus in services reached about \$60 billion in 1992 and is still growing (Henkoff, 1994; Zeithaml and Bitner, 1996: 8–10). A comparative study of manufacturing and services is important because of the great differences between services and manufactured goods (intangibility, simultaneous production and consumption, and so on). Services may be more

easily copied than manufactured goods, so pioneering advantages in services may not be easily sustainable (Tufano, 1989; de Brentani, 1989; Terrill, 1992). If the industry is not equipment intensive or if the assets required to produce the service are not very complex, service pioneers will not be able to sustain a competitive advantage (Bharadwaj, Varadarajan, and Fahy, 1993). Because contextual factors may affect the application of pioneering principles to the service sector, managers of service firms may not believe that many of the advantages of pioneering commonly found in (predominantly manufacturing-based) empirical studies hold true for their industry. By comparing service and manufacturing, we will show more clearly how general these advantages are.

It has recently been noted that the market focus of most firms involved in new product development (NPD) is domestic rather than global. Given the increasing global competitiveness in the new product market, a more global focus is advisable (Nakata and Sivakumar, 1996; Song and Parry, 1997a, b). Because of different cultural and business environments, managers from different countries or cultures may not all perceive the pioneering advantages in the same way. For example, in the U.S. market, a firm may choose a pioneering strategy to deter potential entrants, while in other markets worldwide, other benefits (such as establishing a strong brand image) may seem more important. Our empirical findings reveal many cross-national similarities and differences in the perceived pioneering advantages.

Research hypotheses

The question of whether pioneering a product results in sustainable competitive advantage has been studied extensively. For detailed reviews of research in this area and summaries of the empirical findings, see Lieberman and Montgomery (1988, 1998); Kerin, Varadarajan, and Peterson (1992); Robinson *et al.* (1992); and Kalyanaram *et al.* (1995). Research findings in this area often conflict. For example, several empirical studies of manufacturing industries find that pioneers obtain sustainable advantage and outperform later entrants in market share and/or profitability, other things being equal (Fornell, Robinson, and Wernerfelt, 1985; Kalyanaram and Urban, 1992;

¹ Hong Kong is a special administrative region of China. Throughout this paper we use the terms 'country' or 'national' rather than 'country/region' or 'national/regional', while acknowledging Hong Kong's unique status.

Lambkin, 1988; Parry and Bass, 1990; Robinson, 1988; Robinson and Fornell, 1985; Robinson *et al.*, 1992). A few studies of financial securities innovations also find evidence that the pioneer enjoys a long-term market share advantage (see, e.g., Tufano, 1989). Other studies, however, find a mixed relationship between pioneering and sustainable advantages (e.g., Glazer, 1985; Lilien and Yoon, 1990; Golder and Tellis, 1993).

There are several reasons for the inconsistent findings. Order of entry is unlikely to be the only determinant of competitive advantage (Kerin, Varadarajan, and Peterson, 1992; Szymanski, Troy and Bharadwaj, 1995). A firm with marketing or manufacturing strengths, for example, may be better off entering later (Lieberman and Montgomery, 1998). In addition, the definition of pioneers (Golder and Tellis, 1993) and the measures of pioneering advantages (Kerin, Varadarajan, and Peterson, 1992) have varied (see discussion in Lieberman and Montgomery, 1998). Furthermore, the extent of pioneering advantages clearly varies across industries and situations. Product characteristics (such as low purchase frequency and high cost) and market/industry conditions (such as high industry-wide advertising expenditures and R&D scale economies) leading to high entry barriers make the pioneer's advantages more sustainable through time (Robinson and Fornell, 1985; Robinson, 1988; Fornell, *et al.*, 1985). Because there are several excellent review articles, in the following subsections we focus on developing our research hypotheses. The Appendix provides a brief summary of the literature.

Pioneering performance advantages and pioneering risks

As noted above, research suggests that pioneers tend to outperform later entrants in long-term market share and profits, and may sustain these advantages under certain conditions, for example, in mature goods markets (Brown and Lattin, 1994; Kalyanaram *et al.*, 1995; see also the discussion of contingencies in Szymanski, Troy, and Bharadwaj, 1995).

Pioneers, however, may lose the competitive advantage they gain by their early market entry. Lieberman and Montgomery (1988) identify four risk categories: free-rider effects, technological or market uncertainties, shifts in technology or customer needs, and inflexibility of the pioneer's

organization or investments in fixed assets. Several empirical results (e.g., Golder and Tellis, 1993; Brown and Lattin, 1994; Huff and Robinson, 1994) concur that pioneers do not always sustain their initial advantages. Sustainability is more likely if competitors cannot imitate the pioneer on important product attributes (Kerin, Varadarajan, and Peterson, 1992). Others argue that getting to market first does not necessarily ensure first-mover gains (e.g., Li and Calantone, 1998; Kerin, *et al.*, 1992). Increases in prices and/or costs, deterioration of relative product quality, and loss of initial product line breadth can all lead to reduced pioneer market share as competitors enter (Robinson and Fornell, 1985; Robinson, 1988). This discussion suggests the following two hypotheses:

Hypothesis 1: Pioneers are perceived to have higher market performance than later entrants.

Hypothesis 2: Pioneers are perceived to have higher levels of risks after market entry than later entrants.

Cost and differentiation pioneering advantages

The investments made by a rational innovating firm must be more than offset by the expected benefit after successful launch of the innovation. If we express profit simply as $(P-C)Q$, where P , C , and Q are price, cost, and quantity, respectively, the innovation investment should be offset by higher prices, lower costs, and/or larger quantities in order for the innovation to be marginally profitable (Tufano, 1989).

Concerning specific sustainable competitive advantages accruing to the pioneer, Lieberman and Montgomery (1988) provide one classification scheme, comprising three sources of pioneering advantages: preemption of assets, technological leadership, and buyer switching costs. First, the pioneer can gain an advantage through preemption of key assets, which can include product or geographic space as well as process inputs and physical resources. That is, the pioneering firm has the opportunity to incur the lowest plant and equipment costs, enter the highest-potential market segments, and preempt the best distribution channels (Robinson and Fornell, 1985;

Robinson, 1988; Lieberman and Montgomery, 1988; Kerin *et al.*, 1992).

Second, the pioneer may gain a sustainable advantage through technological leadership (Song and Montoya-Weiss, 1998). The pioneer can enjoy the greatest scale economies and the greatest advantage from the learning curve, especially if it can maintain a market share lead and/or protect its innovation via patents. By serving as an entry barrier to prospective entrants, technological innovation can help the pioneer preserve a product quality lead over its competitors (Gorecki, 1986). While some theoretical models of 'patent races' have been built to illustrate the advantage gained by the pioneer, Lieberman and Montgomery (1988) note that such patent races tend to be important only in a limited number of industries (e.g., pharmaceuticals).

Third, a pioneer can differentiate itself as the perceived highest-quality provider, or build a positive reputation or brand image (Bond and Lean, 1977; Calantone and Di Benedetto, 1988; Gorecki, 1986; Meyer and Roberts, 1986; Lilien and Yoon, 1990; Kerin *et al.*, 1992). These advantages increase the pioneer's perceived value, lessening the likelihood of customer switchout and permitting the pioneer to charge premium prices and earn above-average profits (Schmalensee, 1982; Klempner, 1987; Lieberman and Montgomery, 1988). This puts pressure on later entrants to improve product quality or value significantly (Carpenter and Nakamoto, 1989; Lilien and Yoon, 1990).

Porter (1980) distinguishes two sources of competitive advantage: competitive cost (lower relative cost) advantages and differentiation (superior customer value) advantages (see also Day and Wensley, 1988; Song and Parry, 1997b). Day and Wensley (1988) also note that firms can employ two different methods for assessing competitive advantage. A firm using a competitor-centered method assesses its position relative to competitors through its relative skills and resources, its value chain, and, ultimately, its relative cost position. By contrast, a firm using a customer perspective is concerned about differentiation advantages and customer loyalty. According to the framework suggested by Porter (1980) and Day and Wensley (1988), all the pioneer's potential sources of competitive advantages would ultimately be manifested as either cost or differentiation advantages. For example,

preemptive pioneering advantages (i.e., blocking competitive entry to desirable distribution channels or access to low-cost suppliers) ultimately provide the pioneer with lower costs through the value chain and thus a cost advantage. By establishing a strong brand image with its customers or positioning itself as the high-quality provider, the pioneer obtains a differentiation advantage that may be difficult for competitors to overtake, permitting the pioneer to charge higher prices over the long term. In short, the pioneer can potentially capitalize on both cost and differentiation advantages. We propose these hypotheses:

Hypothesis 3: Pioneers are perceived to obtain cost advantages over later entrants.

Hypothesis 4: Pioneers are perceived to obtain differentiation advantages over later entrants.

Cross-industry differences (manufacturing versus services)

Service products differ from manufactured goods in several ways: intangibility, simultaneous production and consumption, heterogeneity of service offering, and perishability (e.g., Zeithaml, Parasuraman, and Berry, 1985). Thus, we can expect that managers in service and manufacturing firms will perceive pioneering advantages and sustainability differently (Bharadwaj, *et al.*, 1993).

For example, a manufacturing pioneer can establish a sustainable advantage through patent protection of its innovative new product (Lieberman and Montgomery, 1988; Robinson, 1988; Gorecki, 1986), whereas a service pioneer may not be able to protect its new service because of its intangibility. New financial securities, for example, are not patentable, and the SEC requires the innovating firm to reveal product design information. Imitators can thus easily free-ride on innovative products, incurring costs 50 to 75 percent lower than those of innovators (Tufano, 1989), and in very little time catch up with or surpass the pioneer (de Brentani, 1989; Terrill, 1992). Service providers therefore tend to commit fewer financial and human resources to pioneering new offerings unless the resulting advantage can be sustained (de Brentani, 1989). However, while pioneering offers fewer advantages in services

than in manufacturing, it also costs less and involves less risk. Formally, we hypothesize that:

Hypothesis 5: The perceived pioneering performance advantage is higher in manufacturing firms than in service firms.

Hypothesis 6: The perceived pioneering risk after market entry is higher in manufacturing firms than in service firms.

The extent of pioneering advantage accruing to service firms (both cost and differentiation types) may depend on context. For example, if there is an opportunity for spatial preemption (such as taking all the most strategic locations for ATM machines) or if the value of the service grows as the number of adopters increases (as for Internet services), there may be sustainable pioneering advantages (Bharadwaj *et al.*, 1993). In other cases, such as when a minimal investment in equipment is needed, pioneering advantage may dissipate rapidly.

Service firms can sustain pioneering advantage also by leveraging assets not easily copied by competitors. Sears did this when it used its name and systems infrastructure to position the Discover Card (Terrill, 1992). Moreover, financial services innovators can use innovations to expand their market base, gain information about investor identities and preferences, and thereby reduce search costs for future business. Their temporary information advantage can lead to a cost advantage in the future (Tufano, 1989). Without such opportunities, the pioneer will find a cost advantage difficult to sustain. Therefore, one would expect that service managers are less likely than manufacturing firm managers to believe that pioneers get such advantages.

The heterogeneity of services also creates opportunities for later entrants to tailor their services to particular customer needs, and this also makes it more difficult for service pioneers to sustain an early differentiation advantage (de Brentani, 1989). In his study of financial securities innovations, Tufano (1989) found that innovators were not able to create a differentiated service and sustain a higher price, though they enjoyed cost advantages, which they passed on as lower prices and resulted in larger market shares. In sum, the following hypotheses are suggested:

Hypothesis 7: The perceived cost advantages of pioneering are higher in manufacturing than in services.

Hypothesis 8: The perceived differentiation pioneering advantages are higher in manufacturing than in services.

Cross-national differences

Several cultural dimensions have been found useful in understanding the cultural differences between the West and East (e.g., Hofstede and Bond, 1988; Earley, 1993; Hofstede, 1994). We focus on three of these that we believe may affect managers' perception of pioneering advantages.

One key difference between Western and Eastern cultures is *long-term* versus *short-term orientation* (Hofstede, 1994; Hofstede and Bond, 1988). Long-term orientation includes values such as thrift, perseverance, respect for tradition, and fulfillment of social obligations, and reflects a dynamic, future-oriented mentality (Hofstede and Bond, 1988). A second distinguishing cultural dimension is *individualism*, 'the degree to which people . . . prefer to act as individuals rather than as members of groups' (Hofstede, 1994). An individualistic culture values freedom of choice, competition, and control of one's fate (Tse *et al.*, 1988). Collectivistic cultures, in contrast, value group harmony, cohesiveness, and social objectives (Tse *et al.*, 1988). Western countries tend to be more short-term-oriented and individualistic, Asian Pacific nations long-term-oriented and collectivistic (Hofstede, 1994).

A third cultural dimension, *uncertainty avoidance*, is 'the degree to which people . . . prefer structured over unstructured situations' (Hofstede, 1994). Uncertainty-avoiding cultures tend to tolerate less risk in decision making (Tse *et al.*, 1988), and feel greater anxiety over the future (Hofstede, 1994; Nakata and Sivakumar, 1996). Most Asian Pacific countries score high on uncertainty avoidance, while most Western countries score low (Hofstede, 1994). Hong Kong and Singapore, however, also score low on this dimension, possibly because of Western influence (see Tse *et al.*, 1988; Ralston *et al.*, 1993; McCullough *et al.*, 1986; Tan and Farley, 1987).

In addition to cultural dimensions, government policies can also influence the perceived advantage of a pioneering strategy. The Japanese Minis-

try of International Trade and Industry (MITI) encourages intense competition (first for the Japanese market, then for the export market) and a 'survival of the fittest' mentality (Tsurumi, 1982; Keys and Miller, 1984; Kagano *et al.*, 1985; Abegglen and Stalk, 1986). The survivors are protected from foreign competition and fueled for global expansion by high entry barriers imposed by the government. At the same time, MITI encourages networking among competing firms in selected industries (e.g., high-tech research) (Kagano *et al.*, 1985). As a result, though competition can be fierce, Japanese firms often set long-term objectives and choose not head-on competition, but niche or differentiation strategies that allow them to coexist with competitors (Kagano *et al.*, 1985). Furthermore, inter-organizational networks such as Japanese keiretsus and South Korean chaebols encourage manufacturer-supplier trust, and long-term commitment and stability (Kagano *et al.*, 1985; Clark and Fujimoto, 1991; Dyer, 1996; Hitt *et al.*, 1997).

In the Asian Pacific business and cultural environment, differentiation advantages would be particularly relevant, as they foster a harmonious, long-term relationship with customers and support competitive coexistence (Kagano *et al.*, 1985). That is, businesses are encouraged not to undercut competitors on cost, but to differentiate their offerings from competitors' (through product or process innovation, and/or superior quality image), and to build long-term relationships with customer segments. The high collectivism common to Asian Pacific countries fosters integration within the 'in-group' while accentuating the differences between existing competitors and new entrants. Thus, in-group members get preferential treatment, and destructive competition among them is limited (Tse *et al.*, 1988). Further protection to in-group members is provided by government policies (such as the actions of MITI) that effectively reduce some competitive risk and by a culture that avoids uncertainty. Pioneering advantages that have to do with cost reduction (i.e., erecting cost-related entry barriers and preempting favorable competitive positions) will be less critical in this environment than differentiation advantages that allow competitors to coexist.

Compared with the Asian Pacific region, the U.S. and other Western business environments

exhibit more distant, adversarial relationships with suppliers and customers, and are more threatened by entrants who face fewer entry barriers. Therefore, Western firms tend to set short-term objectives focused on profitability and short-term shareholder gains, and they often adopt competitive, head-to-head strategies fueled by cost efficiency (Kagano *et al.*, 1985). Comparatively speaking, then, Western managers are more likely to view pioneering as a means by which they can reduce costs throughout the value chain and thereby preempt competition.

In sum, Asian Pacific firms may be just as likely as Western firms to pursue a pioneering strategy (Kotler and Fahey, 1982; Deshpande, Farley and Webster, 1993; Song and Parry, 1993; Parry and Song, 1994), but may do so with different intentions, because of enduring cultural differences affecting managerial decision-making (Tse *et al.*, 1988; Kotabe *et al.*, 1991; Smith, Peterson and Wang, 1996). The following hypotheses are therefore suggested:

Hypothesis 9: Cost advantages of pioneering are perceived to be greater by Western managers than by Asian Pacific managers.

Hypothesis 10: Differentiation advantages of pioneering are perceived to be greater by Asian Pacific managers than by Western managers.

We can summarize our key predictions as follows:

1. Pioneers are perceived to outperform later entrants, but also to face higher levels of risks after market entry.
2. Pioneers are perceived to gain both cost advantages and differentiation advantages over later entrants.
3. Because of differences between service products and manufactured goods, managers from manufacturing firms will perceive pioneers to have greater performance advantages and greater post-entry risks than will managers from service provider firms.
4. Because of service products—manufactured goods differences, managers from manufacturing firms will perceive pioneers to have greater cost and differentiation advantages than will managers from service provider firms.
5. Because of cultural and business environmen-

tal differences, the cost advantages of pioneering will be perceived to be greater by Western managers, and the differentiation advantages will be perceived to be greater by Asian Pacific managers.

Methodology

For this study, we gather survey data directly from managers rather than relying on secondary data as is common in empirical studies of pioneering. We do this for two reasons: (1) Managerial opinion and perceptions may provide information that secondary data are too noisy to reveal. (2) Study of managerial opinions will allow us to establish benchmarks that may be useful, for example, to prospective new entrants.

Research methods and measurement development processes

Our research design follows the Douglas and Craig (1983) procedure for international research. The survey instrument must be equivalent, if not literally identical, across the nine countries; that is, the 'terms in each version of the questionnaire should have a common frame of reference across cultures' (Adler, 1983; Douglas and Craig, 1983).

To create the survey instrument, we reviewed the literature to generate a pool of items describing pioneering performance advantages, pioneering risks, cost advantages, and differentiation advantages. Next, we conducted group interviews with marketing managers from fifteen U.S. firms using the guidelines provided by Bellenger, Bernhardt, and Goldstucker (1976). Participants completed a questionnaire that included the items and were asked to indicate any difficulty in responding to them; they also were asked to offer suggestions and contribute additional items.

We used this field research to assess the validity of the measures, the conceptual and functional equivalence of the constructs. We determined whether the theoretical constructs serve the same function in different cross-national contexts and are expressed in similar attitudes or behaviors across different samples. We also determined whether the interpretation of the constructs, measurement items, response categories and stimuli is identical across nationals. Based on the results of the interviews, we eliminated or modified some items and added others. We then con-

ducted interviews in two Japanese firms and six Chinese firms to establish construct validity; assess equivalence of constructs, measures, and samples; and determine the extent of possible cultural and/or response format bias. We asked managers whether they believed the items measured the constructs they were intended to measure and whether they had a common frame of reference across cultures.

After the Japanese and Chinese interviews, a list of constructs and the corresponding items was sent to an expert panel of business and engineering academics at U.S. and Japanese universities and to a multinational panel of 32 experienced practitioners. Panelists were asked to evaluate each item for clarity, specificity, and representativeness (Churchill, 1979; Gerbing and Anderson, 1988).

Based on the panels' feedback, the questionnaire was prepared in English, and a parallel-translation/double-translation procedure was used to generate Japanese, Chinese, German, and Korean translations (Adler, 1983; Sekaran, 1983). These questionnaires were pretested with 34 bilingual MBA students and with the field research participants used earlier. We deleted items identified as ambiguous. To avoid any confusion, a *pioneer* was defined in the questionnaire as 'a firm that is the first to introduce a new product/brand into its primary markets.'

Sample design and data collection

The Japanese sampling frame consisted of all public manufacturing and service companies traded on the Tokyo, Osaka, and Nagoya stock exchanges. The U.S. sampling frame was taken from manufacturing and service firms listed in *Manufacturing USA*, the *Directory of High Technology Industry*, and *Service Industries USA*. Sampling frames from the other seven countries were taken from manufacturing and service firms listed in the *World Business Directory*. Through trade associations, personal contacts, and public information sources, key contact persons were identified, and a presurvey was conducted to gain firms' tentative commitment to participate in the research project and to ensure that the final samples would be comparable across countries.

From the sampling frames, a random sample of 1,000 firms from both Japan and the U.S., and a random sample of 600 firms from all other coun-

tries, was selected. Each sample consisted half of manufacturing firms and half of service firms. Under the close supervision of one of the authors, all research assistants were instructed to follow the same data collection protocol and were made responsible for contacting and gathering data from an approximately equal number of companies.

To administer the mail survey, we followed a procedure adapted from the Total Design Method for survey research (Dillman, 1978). The contact person in each company was asked to forward the questionnaire to a senior executive experienced in making market entry decisions (such as a CEO, president, vice president for marketing, vice president for corporate strategic planning, or director of the international division). To increase the response rate, we sent the survey as part of our regular mailing of reports. We also heavily promoted this study in our regular newsletters, established personal contacts and a good relationship with the companies, and (in some cases) obtained appropriate endorsements from trade associations and business leaders. Furthermore, we offered several incentives for participation, including periodic research reports, executive seminars, and research briefings. The building of personal contacts and company relationships required months of sustained effort, particularly in the Asian Pacific countries, but resulted in very satisfactory response rates (notably in Japan, China, and South Korea).

After four follow-up letters and, in some cases, multiple phone calls and faxes, questionnaires were received from 2,419 firms (1,437 manufacturing firms and 982 service providers). The breakdown by country and the response rates (adjusted for return mail and deletion of unusable questionnaires) are provided in Table 1. Response rates ranged from 19.7 to 75.3 percent—the highest in Japan, China and South Korea for the aforementioned reasons. The final manufacturing sample includes firms in automobiles, chemicals, communications equipment, consumer electronics and parts, machinery, pharmaceuticals, and semiconductors. The final services sample consists of firms from long-term credit banks, banks, securities financing, securities services, mass-sales stores, food services, automobile sales, insurance, real estate, shipping and trucking, communications, publishing, leisure and hotels, and consulting services.

Table 1 presents the respondent profiles. It

shows that respondents had significant experience in the areas of making major market entry decisions. On average, they had made between 13.7 and 23.9 major market entry decisions in the past five years, and had on average from 13.6 to 28.3 years of work experience. During the past year, the respondents had made an average of between 7.7 and 15.9 overseas business trips, and they had attended between three and four industry association meetings. We therefore conclude that the sample of respondents was experienced and knowledgeable.

We controlled for each of the background characteristics found in Table 1 by splitting each country sample into high and low groups for each characteristic (age, experience, etc.) and testing differences in means. We found that there were no significant differences in perceptions between high and low groups on any of the characteristics in Table 1. We therefore conclude that these characteristics do not affect managerial perceptions of pioneering advantage.

Measures

The items generated in the Measurement Development Processes section above were grouped theoretically into four categories (performance, post-entry risk, cost advantages, and differentiation advantages) based on our review of the literature (a later section describes our data reduction procedure). Our field research suggests that we use eleven-point Likert-type scales to elicit levels of agreement, with values ranging from 0 (strongly disagree) to 10 (strongly agree).² For all data analysis, these were subsequently centered such that -5 represented 'strongly disagree', 0 represented 'neither agree nor disagree', and 5 represented 'strongly agree'.

Pioneering Performance Advantages have commonly been described in the literature as increased market share and profits (e.g., Robinson and Fornell, 1985; Robinson *et al.*, 1992). These scale items were designed to measure perceptions regarding the pioneering firm's market share and profitability.

² Our experience with cross-national surveys suggests that 0-to-10 scales are better understood across multiple nations than are the 1-to-7 or 1-to-6 scales more commonly seen in North American research, perhaps because of their structural similarities to the metric system.

Table 1. Profiles of responding managers

a. Manufacturing firms	U.S.	U.K.	Germany	Japan	China	Taiwan	Hong Kong	South Korea	Singapore
Number of participating firms	223	83	107	294	225	127	124	166	88
Response rate (%)	44.8	31.6	38.5	58.7	75.3	44.1	41.8	55.3	32.9
Age	44.4 (3.0)	43.6 (3.0)	47.0 (3.0)	47.4 (2.7)	41.7 (4.7)	40.4 (6.7)	45.0 (3.4)	42.5 (3.3)	45.1 (3.2)
Years of working experience	15.2 (3.3)	13.6 (3.4)	20.4 (1.8)	23.2 (2.7)	19.5 (3.0)	19.8 (2.6)	17.0 (2.3)	20.6 (1.9)	20.6 (3.0)
Number of major market entry decisions made in past five years	17.5 (2.7)	17.0 (3.2)	15.4 (3.0)	21.0 (3.3)	17.2 (2.3)	23.9 (3.3)	15.4 (2.2)	20.6 (2.4)	17.3 (3.8)
Number of overseas trips made in past year	12.0 (3.5)	13.1 (2.6)	15.9 (2.4)	9.1 (3.1)	10.9 (2.8)	12.0 (3.1)	10.7 (2.8)	11.2 (2.8)	12.5 (3.0)
Number of industry association meetings attended in past year	3.5 (1.1)	3.4 (1.1)	3.6 (0.8)	3.6 (0.9)	3.3 (1.1)	3.5 (1.2)	3.5 (1.1)	3.6 (0.9)	3.7 (0.9)

b. Service firms	U.S.	U.K.	Germany	Japan	China	Taiwan	Hong Kong	South Korea	Singapore
Number of participating firms	147	61	73	201	141	95	86	119	59
Response rate (%)	29.4	20.3	24.3	40.2	47.0	31.7	28.7	39.7	19.7
Age	40.1 (3.8)	40.43 (3.37)	43.47 (3.50)	45.42 (2.86)	41.8 (4.4)	46.7 (6.9)	40.5 (3.8)	41.5 (3.0)	41.6 (3.4)
Years of working experience	17.8 (4.1)	15.82 (3.55)	19.41 (2.38)	22.04 (3.15)	17.7 (3.3)	28.3 (3.2)	17.9 (2.6)	19.6 (2.3)	18.6 (3.3)
Number of major market entry decisions made in past five years	18.5 (3.5)	16.54 (3.73)	17.21 (3.15)	17.64 (4.36)	16.8 (2.2)	21.2 (4.5)	16.6 (3.1)	17.7 (3.2)	13.7 (3.9)
Number of overseas trips made in past year	8.9 (3.4)	10.30 (3.06)	13.53 (3.48)	7.73 (3.24)	8.4 (3.1)	9.6 (3.5)	8.4 (2.7)	11.7 (2.7)	10.4 (3.1)
Number of industry association meetings attended in past year	3.1 (1.1)	3.21 (1.02)	3.11 (1.05)	3.04 (1.08)	2.9 (1.0)	3.0 (1.0)	3.0 (1.0)	3.0 (1.0)	3.2 (0.9)

*Cells show means and standard deviations (in parentheses) by country.

As noted in the text, a time-consuming process of building relationships and contacts with senior-level managers in the Asian Pacific firms was used. Senior management commitment to the study resulted in high compliance among the respondents, and, consequently, high response rates—particularly in Japan, China, and South Korea. These response rates are generally higher in both the manufacturing and service samples. It was interesting to note that manufacturing sample response rates were consistently higher than service sample response rates. We find this surprising observation difficult to understand—it may be a reflection that more service managers perceive pioneering advantages to be less important in their industries, and simply thought the study was irrelevant to them. If anything, this is consistent with the data analysis results in subsequent tables.

Pioneering Risks After Market Entry are measured using a set of scale items based on the major categories of post-market-entry pioneering risks described in the literature (Lieberman and Montgomery, 1988; Robinson, 1988; Huff and Robinson, 1994): competitive free-riding and loss of initial advantage due to declining product qual-

ity, product line breadth, and cost advantage. We are primarily concerned with the advantages and disadvantages of early entry into a given product category (i.e., using a particular technology), and do not include the threat posed by revolutionary technological change. A new competitor with a substantially new technology may render obsolete

all firms competing with the old technology, pioneer and later entrants alike.

Cost Advantages. From the literature we developed several scale items to capture the *competitor-centered* advantages of lower production costs, better access to labor and to experienced managers, better access to raw material supplies, and better choice of location (Robinson and Fornell, 1985; Robinson, 1988; Lieberman and Montgomery, 1988).

Differentiation Advantages are measured using scale items that measure managers' perceptions regarding the pioneer's advantage in brand image or familiarity with customers, the perceived qual-

ity of its products, and its ability to charge a premium price (Schmalensee, 1982; Lilien and Yoon, 1990; Kerin *et al.*, 1992).

Analyses and results

Scale reliabilities and analyses

The variables were theoretically grouped into four categories (see above), and a principal compo-

Table 2. Detailed results of hypothesis testing (H1 and H5): Overall pioneering performance advantages

	(1) Higher ROI	(2) Higher Market Share
US	2.33	2.20
Manufacturing	(19.81)	(18.25)
US	0.29	1.29
Service	(1.44) ns	(6.49)
Cross-Industry Comparison	8.85*	3.89*
t-test statistics		
UK	2.36	2.14
Manufacturing	(11.30)	(9.68)
UK	0.43	1.02
Service	(1.40) ns	(3.32)
Cross-Industry Comparison	5.23*	2.99*
t-test statistics		
Germany	1.64	1.63
Manufacturing	(9.30)	(9.35)
Germany	0.58	0.59
Service	(2.19)	(2.28)
Cross-Industry Comparison	3.38*	3.33*
t-test statistics		
Japan	1.85	1.86
Manufacturing	(17.70)	(18.03)
Japan	0.46	0.43
Service	(2.70)	(2.55)
Cross-Industry Comparison	7.01*	7.17*
t-test statistics		
China	1.13	1.20
Manufacturing	(8.80)	(8.98)
China	-0.55	-0.19
Service	(-2.58) ns	(-0.92) ns
Cross-Industry Comparison	6.78*	5.62*
t-test statistics		

Table 2. Continued

Taiwan	1.43	2.22
Manufacturing	(9.31)	(13.30)
Taiwan	-0.80	1.13
Service	(-3.47) ns	(4.33)
Cross-Industry Comparison	8.04*	3.54*
t-test statistics		
Hong Kong	1.20	2.07
Manufacturing	(7.03)	(11.85)
Hong Kong	-0.53	0.98
Service	(-2.07) ns	(3.61)
Cross-Industry Comparison	5.60*	3.40*
t-test statistics		
South Korea	0.90	1.88
Manufacturing	(6.37)	(13.65)
South Korea	-0.60	0.35
Service	(-2.84) ns	(1.64) ns
Cross-Industry Comparison	5.91*	5.98*
t-test statistics		
Singapore	1.15	2.08
Manufacturing	(5.99)	(11.27)
Singapore	-0.59	0.46
Service	(-2.09) ns	(1.60) ns
Cross-Industry Comparison	5.08*	4.77*
t-test statistics		

Notes:

Test of H1: ns = there is no evidence of perceived pioneering performance advantage on this item.

In all other cases, there is evidence of perceived pioneering performance advantage on this item.

Test of H5: Difference between means is significant at:
* = $p < 0.01$; ** = $p < 0.05$ (one tail t-test)

The two scale items abbreviated above are:

1. Pioneers will have higher levels of return on investment (Lilien and Yoon, 1990).

2. Pioneers will have higher levels of market share (Robinson and Fornell, 1985, Urban *et al.*, 1986).

The value in parenthesis below each reported mean is the t-statistic.

For the cross-industry comparisons, the differences in industry means are calculated using (manufacturing mean minus service mean). Thus, a significant positive t-test statistic indicates that the manufacturing mean is significantly *higher* than the service mean.

nents factor analysis was carried out for each of the nine countries to reduce the total number of scale items across the four theoretical constructs to fourteen. We retained scale items according to the following criteria: (1) Each factor must contain the same scale items across the nine countries. (2) Each scale item's factor loading must be comparable across all nine countries. (3) For each factor, the item-to-total correlation must exceed 0.30. The final set of scale items is provided in Tables 2 to 5. One factor (Pioneering Performance Advantages) contained two measures of performance, return on investment (ROI) and market share. We did not combine these two items onto one multiple-item construct; instead we measured perceived pioneering performance separately for each. For each of the other three factors, we obtained a multiple-item scale by simply adding the individual scale items and then dividing by the number of items in the scale. All 54 construct reliabilities (nine countries \times 2 industry sectors \times 3 constructs) exceed the 0.70 level recommended by Peter (1979).³

To test Hypothesis 1, we performed a series of one-tailed t-tests on both performance measures. To test Hypotheses 2 to 4, we performed one-tailed t-tests on each multiple-item scale, and then followed up by examining the means on individual scale items. For all of these four hypotheses, we find evidence that a pioneering advantage or risk is significant if the mean score is significantly greater than zero at the 5 percent significance level. For the cross-industry Hypotheses (5 to 8), we compare the mean scores between the manufacturing and service sectors. We regard a hypothesis as supported if the mean scores are significantly different in the hypothesized direction at the 5 percent significance level. For Hypotheses 5 to 8, the t-test results and associated probabilities reported in the tables assume unequal variance. Since nine countries are included in the study, the cross-national hypotheses (Hypotheses 9 and 10) are tested using multiple analysis of variance and Duncan multiple-range tests.

Tables 2 to 5 provide the detailed results of our hypothesis testing. In Tables 3 to 5, the first column provides the means for the multi-item scale, and the remaining columns provide the

means on each individual scale item included in the multi-item scale (under each mean, the t-statistic is given in parentheses). These tables show that Hypotheses 1 to 9 are all fully or partially supported by the data.

Main hypotheses (H1 to H4)

Pioneering Performance (H1). As shown in Table 2, H1 is strongly supported in the manufacturing sector. Manufacturing managers from all nine countries believe that pioneers tend to have higher market shares and returns on investment. The means for the manufacturing firm samples on the ROI scale item, indicated in the first column of Table 2 (U.S. _{manuf.} = 2.33; U.K. _{manuf.} = 2.36, Germany _{manuf.} = 1.64, etc.) are all significantly greater than zero at the $p < 0.05$ level, as are all means on the market share scale item.

In the service sector, H1 is supported for market share performance in all Western countries and three of the six Asian Pacific countries (Japan, Taiwan, and Hong Kong), but is not supported for ROI performance. That is, in general, service sector managers tended to agree that pioneers get market share advantages but not necessarily higher profits.

Pioneering Risks After Market Entry (H2). H2 is strongly supported in manufacturing firms in all nine countries; see first column of Table 3 (U.S. _{manuf.} = 1.71; U.K. _{manuf.} = 1.80, Germany _{manuf.} = 1.92, etc.; all nine means significantly greater than zero at $p < 0.05$). Manufacturing managers from all nine countries believe that pioneers will eventually lose market share because of deterioration of product quality, declining product line breadth, declining absolute cost advantages, and competitive free-riding.

Judging from the multi-item means in Table 3, H2 is surprisingly not supported in any of the services samples. That is, counter to H2, service industry respondents do not think pioneering leads to significant post-entry risks. The individual scale item means, however, show that service managers from Japan and Taiwan see competitive free-riding as a significant risk of pioneering. None of the other scale items seems significant to service managers from any of the nine countries.

Cost Advantages (H3). H3 is supported in all Western countries, as well as in the Japanese

³ Construct validities available from authors upon request.

Table 3. Detailed results of hypothesis testing (H2 and H6): Pioneering risks after market entry

	Overall Risks (multi-item scale)	(1) Deterioration of Quality	(2) Declining Product Line Breadth	(3) Losing Cost Advantages	(4) Free-ride Risks
US	1.71	1.91	2.61	1.36	0.96
Manufacturing	(13.13)	(11.76)	(22.13)	(8.35)	(5.73)
US	-0.62	-0.43	-0.28	-0.52	-1.25
Service	(-3.35) ns	(-1.96) ns	(-1.14) ns	(-2.53) ns	(-5.82) ns
Cross-Industry Comparison	10.31*	8.60*	10.64*	7.19*	8.11*
t-test statistics					
UK	1.80	2.08	2.49	1.47	1.17
Manufacturing	(8.37)	(7.78)	(12.28)	(5.19)	(4.48)
UK	-0.43	-0.15	-0.25	-0.23	-1.10
Service	(-1.58) ns	(-0.46) ns	(-0.70) ns	(-0.77) ns	(-3.46) ns
Cross-Industry Comparison	6.43*	5.37*	6.78*	4.14*	5.51*
t-test statistics					
Germany	1.92	1.61	2.06	1.66	2.34
Manufacturing	(12.75)	(7.48)	(10.49)	(8.12)	(14.67)
Germany	-0.03	-0.44	0.21	-0.32	0.42
Service	(-0.13) ns	(-1.60) ns	(0.75) ns	(-1.17) ns	(1.46) ns
Cross-Industry Comparison	7.00*	5.87*	5.49*	5.85*	5.78*
t-test statistics					
Japan	1.94	1.63	2.07	1.66	2.39
Manufacturing	(21.70)	(12.60)	(16.29)	(13.82)	(23.87)
Japan	-0.19	-0.52	0.15	-0.72	0.33
Service	(-1.29) ns	(-3.00) ns	(0.92) ns	(-4.32) ns	(1.82)
Cross-Industry Comparison	12.52*	9.96*	9.09*	11.61*	9.84*
t-test statistics					
China	1.90	1.76	2.29	1.44	2.10
Manufacturing	(16.08)	(10.82)	(16.51)	(9.41)	(15.03)
China	-0.45	-0.50	-0.37	-0.54	-0.38
Service	(-2.59) ns	(-2.42) ns	(-1.71) ns	(-2.71) ns	(-1.81) ns
Cross-Industry Comparison	11.21*	8.57*	10.39*	7.89*	9.90*
t-test statistics					
Taiwan	2.25	2.18	2.57	1.48	2.76
Manufacturing	(16.76)	(10.12)	(16.60)	(7.12)	(19.46)
Taiwan	-0.20	-0.36	-0.46	-0.55	0.56
Service	(-1.13) ns	(-1.41) ns	(-1.63) ns	(-2.34) ns	(2.10)
Cross-Industry Comparison	10.97*	7.62*	9.40*	6.48*	7.33*
t-test statistics					
Hong Kong	2.07	1.88	2.59	1.19	2.63
Manufacturing	(14.66)	(8.44)	(16.40)	(5.78)	(16.13)
Hong Kong	-0.23	-0.58	-0.19	-0.56	0.42
Service	(-1.12) ns	(-2.07) ns	(-0.59) ns	(-2.20) ns	(1.50) ns
Cross-Industry Comparison	9.34*	6.87*	7.88*	5.36*	6.83*
t-test statistics					

Table 3. Continued

South Korea	1.83	1.52	1.96	1.53	2.31
Manufacturing	(15.36)	(8.92)	(11.52)	(9.25)	(16.92)
South Korea	-0.23	-0.55	0.05	-0.61	0.19
Service	(-1.26) ns	(-2.52) ns	(0.22) ns	(-2.94) ns	(0.80) ns
Cross-Industry Comparison	9.52*	7.50*	6.76*	8.09*	7.67*
t-test statistics					
Singapore	2.16	1.67	2.51	1.76	2.72
Manufacturing	(13.40)	(6.58)	(11.65)	(6.86)	(15.54)
Singapore	-0.51	-0.73	-0.24	-0.86	-0.20
Service	(-2.05) ns	(-2.31) ns	(-0.73) ns	(-2.77) ns	(-0.58) ns
Cross-Industry Comparison	9.04*	5.92*	7.04*	6.50*	7.40*
t-test statistics					

Notes:

Test of H2: ns = there is no evidence of perceived pioneering risk on this item.

In all other cases, there is evidence of perceived pioneering risk on this item.

Test of H6: Difference between means is significant at: * = $p < 0.01$; ** = $p < 0.05$ (one tail t-test).

The four scale items abbreviated above are:

1. Pioneers will lose market share over time because of deterioration of their product quality (Robinson and Fornell, 1985; Robinson, 1988)
2. Pioneers lose market share over time because of declining product line breadth. (Robinson and Fornell, 1985; Robinson, 1988)
3. Pioneers lose market share over time because of declining absolute cost advantages. (Robinson and Fornell, 1985; Robinson, 1988)
4. Late entrants are able to 'free-ride' on the pioneer's development of the market (Lieberman and Montgomery, 1988)

The value in parenthesis below each reported mean is the t-statistic.

For the cross-industry comparisons, the differences in industry means are calculated using (manufacturing mean minus service mean). Thus, a significant *positive* t-test statistic indicates that the manufacturing mean is significantly *higher* than the service mean.

service and Hong Kong manufacturing samples, as shown in Table 4 (U.S._{manuf.} = 2.86, U.S._{service} = 0.63, U.K._{manuf.} = 2.82, etc.). These respondents concur that pioneers tend to gain over late entrants such cost advantages as lower production costs, better access to labor and to experienced managers, and preemption of raw material supplies, equipment, and locations.

It is interesting to note that H3 is not supported in the Asian Pacific samples, except as noted above. However, in almost all of these cases, one scale item is significant: pioneers can preempt equipment and locations. Therefore, while Asian Pacific managers do not expect cost advantages from pioneering generally, respondents from Japan, China, South Korea, and Singapore all expect cost savings from superior equipment and favorable locations.

Differentiation Advantages (H4). H4 predicts that pioneers will gain differentiation advantages over later entrants. This hypothesis is strongly supported in the manufacturing sector in all nine countries (Table 5), and in the service sector in seven of the nine countries (all but China and

Singapore). The individual scale item means revealed consistent results. Thus, managers across all countries and both manufacturing and service sectors agreed that pioneers obtain product quality and brand image advantages that permit them to charge high prices.

Cross-industry hypotheses (H5 to H8)

To examine differences between manufacturing and service sectors, H5 compares the perceptions of manufacturing and service firm managers within each country as to the two performance measures, and H6 to H8 compare perceptions of manufacturing and service firm managers as to the three multi-item scales. The t-statistics obtained appear in Tables 2 to 5. All four of these hypotheses are supported.

Pioneering Performance and Risks (H5 and H6). Hypotheses 5 and 6 are strongly supported across all nine countries (see Tables 2 and 3), as is shown by the significant, positive cross-industry comparison t-statistics. Consistent with H5 and H6, manufacturing managers agree more

than service managers that (1) pioneers will receive a higher market share; (2) pioneers will receive a higher return on investment; and (3) pioneers risk losing their initial advantage because of competitive free-riding or deterioration of product quality, product line breadth, or absolute cost advantage. In Table 3, manufacturing manager means were consistently higher than service manager means on each of the individual pioneering risk scale items as well, lending further support to H6.

While these findings are new, they are consistent with intuitions derived from past research and the characteristic differences between manufacturing and services. For example, it is relatively easier to pioneer a new service, especially if minimal investment in equipment is required (see de Brentani, 1989; Terrill, 1992; Zeithaml *et al.*, 1985). Consequently, it is harder for service pioneers to protect themselves from competitive encroachment, as barriers to entry may be relatively lower in service products than for manufactured goods, and patent protection may be less relevant (Bharadwaj *et al.*, 1993). As seen above, unless a substantial asset investment is required,

or unless competitors can be preempted (for example, by taking up the best locations), it will be more difficult for the service pioneers to sustain pioneering advantages (Bharadwaj *et al.*, 1993). Thus, manufacturing managers perceive that the advantages of pioneering are greater than do service providers; but, since fewer resources are committed to services, less is at stake, and consequently the risks of pioneering are also lower for services.

Cost and Differentiation Benefits (H7 and H8). H7 predicts that the perceived cost advantages of pioneering will be higher in manufacturing than services. This hypothesis is supported in the U.S., U.K., Germany, and Hong Kong samples (see Table 4). In South Korea, no significant difference between the multi-item means was found, while cost advantages were not found to be significant to either manufacturing or service managers in China, Taiwan, or Singapore.

For Japan, we made a significant finding counter to H7: Japanese service providers perceive cost advantages of pioneering to be significantly greater than do the manufacturing managers, and therefore must place more importance

Table 4. Detailed results of hypothesis testing (H3 and H7): Cost advantages

	Overall Cost Advantages (multi-item scale)	(1) Advantages in Product Costs	(2) Advantages in Superior Labor	(3) Advantages in Experienced Managers	(4) Advantages in Raw Materials	(5) Advantages in Equipment & Locations
US Manufacturing	2.86 (22.59)	2.98 (20.50)	2.75 (17.29)	2.57 (15.07)	3.41 (24.10)	2.58 (17.75)
US Service	0.63 (3.42)	0.43 (1.91)	0.57 (2.48)	0.33 (1.40) ns	2.00 (9.21)	-0.20 (-0.94) ns
Cross-Industry Comparison t-test statistics	10.00*	9.54*	7.79*	7.63*	5.43*	10.88*
UK Manufacturing	2.82 (13.11)	2.89 (11.67)	2.66 (9.84)	2.67 (9.64)	3.36 (13.85)	2.53 (10.28)
UK Service	1.07 (4.16)	0.87 (2.54)	1.26 (3.81)	0.84 (2.57)	2.48 (8.72)	-0.10 (-0.31) ns
Cross-Industry Comparison t-test statistics	5.24*	4.79*	3.27*	4.30*	2.37	6.60*
Germany Manufacturing	3.14 (27.15)	3.36 (23.23)	3.07 (20.33)	3.17 (19.13)	3.47 (27.18)	2.65 (15.75)
Germany Service	0.72 (3.31)	0.71 (2.46)	1.19 (4.21)	0.95 (3.03)	1.74 (6.10)	-0.99 (-3.60) ns
Cross-Industry Comparison t-test statistics	9.82*	8.18*	5.87*	6.30*	5.53*	11.31*

Table 4. Continued.

Japan	0.12	-1.06	1.25	-1.14	0.20	1.32
Manufacturing	(0.86) ns	(-5.98) ns	(8.00)	(-6.23) ns	(1.12) ns	(6.71)
Japan	0.96	0.14	1.34	0.32	1.15	1.84
Service	(5.71)	(0.65) ns	(6.89)	(1.38) ns	(5.48)	(8.61)
Cross-Industry Comparison	-3.90*	-4.30*	-0.37	-4.92*	-3.41*	-1.76**
t-test statistics						
China	-0.53	-1.48	0.41	-1.59	-0.40	0.41
Manufacturing	(-3.22) ns	(-7.21) ns	(2.00)	(-7.64) ns	(-1.84) ns	(1.70)
China	0.12	-0.60	0.44	-0.53	0.06	1.23
Service	(0.58) ns	(-2.33) ns	(1.68)	(-1.89) ns	(0.21) ns	(4.43)
Cross-Industry Comparison	-2.46*	-2.67*	-0.09	-3.03*	-1.31	-2.22**
t-test statistics						
Taiwan	-2.01	-2.45	-1.43	-2.94	-1.63	-1.58
Manufacturing	(-10.68) ns	(-9.62) ns	(-5.42) ns	(-12.24) ns	(-6.19) ns	(-5.00) ns
Taiwan	-0.81	-1.19	-0.84	-1.42	-1.09	0.49
Service	(-3.48) ns	(-3.62) ns	(-2.79) ns	(-4.23) ns	(-3.47) ns	(1.36) ns
Cross-Industry Comparison	-3.40*	-3.03*	-1.47	-3.69*	-1.30	-4.31*
t-test statistics						
Hong Kong	1.88	1.98	1.73	1.65	2.40	1.63
Manufacturing	(11.47)	(9.79)	(8.53)	(7.75)	(12.33)	(8.90)
Hong Kong	-0.38	-0.67	-0.12	-0.72	0.97	-1.36
Service	(-1.67) ns	(-2.25) ns	(-0.40) ns	(-2.40) ns	(3.44)	(-5.40) ns
Cross-Industry Comparison	8.03*	7.34*	5.21*	6.45*	4.19*	9.60*
t-test statistics						
South Korea	0.31	-0.83	1.42	-0.96	0.37	1.56
Manufacturing	(1.76)	(-3.31) ns	(7.15)	(-3.84) ns	(1.52) ns	(6.49)
South Korea	0.57	-0.22	1.13	-0.08	0.71	1.30
Service	(2.68)	(-0.77) ns	(4.48)	(-0.27) ns	(2.51)	(4.58)
Cross-Industry Comparison	-0.92	-1.61	0.92	-2.21*	-0.91	0.69
t-test statistics						
Singapore	0.09	-1.26	1.33	-1.33	0.40	1.33
Manufacturing	(0.39) ns	(-4.08) ns	(4.67)	(-4.07) ns	(1.26) ns	(3.68)
Singapore	0.36	-0.49	0.97	-0.42	0.56	1.19
Service	(1.17) ns	(-1.23) ns	(2.63)	(-0.98) ns	(1.43) ns	(2.84)
Cross-Industry Comparison	-0.68	-1.52	0.78	-1.67**	-0.32	0.26
t-test statistics						

Notes:

Test of H3: ns = there is no evidence of perceived cost advantage on this item.

In all other cases, there is evidence of perceived cost advantage on this item.

Test of H7: Difference between means is significant at: * = $p < 0.01$; ** = $p < 0.05$ (one tail t-test)

The five scale items abbreviated above are:

- Pioneers will enjoy lower production costs (Robinson and Fornell, 1985).
- Pioneers will obtain better access to superior labor (Lieberman and Montgomery, 1988).
- Pioneers can secure more experienced managers (Lieberman and Montgomery, 1988).
- Pioneers can preempt raw material supplies. Late entrants often get lower quality, higher priced raw materials (Lieberman and Montgomery, 1988).
- Pioneers can preempt equipment and locations. Late entrants will have to compete with more inferior equipment and in unfavorable locations (Lieberman and Montgomery, 1988).

The value in parenthesis below each reported mean is the t-statistic.

For the cross-industry comparisons, the differences in industry means are calculated using (manufacturing mean minus service mean). Thus, a significant positive t-test statistic indicates that the manufacturing mean is significantly *higher* than the service mean.

Table 5. Detailed results of hypothesis testing (H4 and H8): Differentiation advantages

	Overall Differentiation Advantages (multi-item scale)	(1) Brand Image	(2) Product Quality	(3) Price Premium
US Manufacturing	2.54 (24.12)	2.26 (17.22)	2.22 (15.95)	3.12 (27.16)
US Service	1.13 (7.00)	0.46 (2.04)	1.20 (6.42)	1.72 (8.19)
Cross-Industry Comparison	7.30*	6.97*	4.36*	5.85*
t-test statistics				
UK Manufacturing	2.50 (14.11)	2.18 (9.61)	2.16 (8.95)	3.16 (16.37)
UK Service	1.36 (5.74)	0.95 (2.89)	1.16 (3.96)	1.97 (6.47)
Cross-Industry Comparison	3.84*	3.08**	2.61	3.31*
t-test statistics				
Germany Manufacturing	1.85 (12.09)	1.64 (9.47)	1.62 (9.24)	2.28 (14.32)
Germany Service	0.60 (2.32)	0.58 (2.22)	0.52 (1.99)	0.70 (2.32)
Cross-Industry Comparison	4.16*	3.43*	3.49*	4.65*
t-test statistics				
Japan Manufacturing	2.06 (23.57)	1.86 (18.21)	1.88 (18.41)	2.45 (27.51)
Japan Service	0.55 (3.37)	0.46 (2.77)	0.47 (2.82)	0.73 (4.19)
Cross-Industry Comparison	8.17*	7.15*	7.17*	8.85*
t-test statistics				
China Manufacturing	1.44 (14.72)	1.32 (11.58)	1.12 (8.72)	1.88 (17.78)
China Service	-0.27 (-1.46) ns	-0.60 (-2.88) ns	-0.43 (-2.11) ns	0.22 (0.99) ns
Cross-Industry Comparison	8.17*	8.12*	6.43*	6.73*
t-test statistics				
Taiwan Manufacturing	2.45 (16.09)	2.19 (11.71)	2.08 (10.32)	3.07 (18.51)
Taiwan Service	0.93 (4.61)	0.39 (1.47) ns	0.96 (3.86)	1.45 (5.43)
Cross-Industry Comparison	5.99*	5.55*	3.51*	5.14*
t-test statistics				
Hong Kong Manufacturing	2.56 (19.36)	2.30 (13.38)	2.19 (12.13)	3.21 (22.42)
Hong Kong Service	1.23 (6.06)	0.76 (2.67)	0.99 (3.89)	1.94 (7.26)
Cross-Industry Comparison	5.51*	4.65*	3.85*	4.18*
t-test statistics				

Table 5. Continued

South Korea	2.14	1.90	1.89	2.62
Manufacturing	(18.34)	(13.89)	(13.89)	(22.64)
South Korea	0.51	0.42	0.41	0.70
Service	(2.48)	(1.99)	(1.94)	(3.12)
Cross-Industry Comparison	6.89*	5.87*	5.87*	7.64*
t-test statistics				
Singapore	2.23	2.11	2.10	2.48
Manufacturing	(12.43)	(11.16)	(10.99)	(13.00)
Singapore	0.51	0.42	0.39	0.71
Service	(1.80) ns	(1.49) ns	(1.32) ns	(2.15)
Cross-Industry Comparison	5.14*	4.95*	4.87*	4.62*
t-test statistics				

Notes:

Test of H4: ns = there is no evidence of perceived differentiation advantage on this item.

In all other cases, there is evidence of perceived differentiation advantage on this item.

Test of H8: Difference between means is significant at: * = $p < 0.01$; ** = $p < 0.05$ (one tail t-test)

The three scale items abbreviated above are:

1. Pioneers will have a better brand image in the industry (Lieberman and Montgomery, 1988).
2. Pioneers' products are perceived to have higher quality by consumers (Robinson and Fornell, 1985).
3. Pioneers can charge a premium for the same products (Lieberman and Montgomery, 1988).

The value in parenthesis below each reported mean is the t-statistic.

For the cross-industry comparisons, the differences in industry means are calculated using (manufacturing mean minus service mean). Thus, a significant positive t-test statistic indicates that the manufacturing mean is significantly *higher* than the service mean.

on the cost advantages of pioneering than do their counterparts in manufacturing. While this finding is contrary to H7, it may partially be explained by the competitive environment in Japan, where MITI often regulates competition and orchestrates or encourages cooperation among competitors mostly in manufacturing industries. Japanese service providers are less likely to be protected from competition, and so may value the cost advantages of pioneering, whereas manufacturing firms value its differentiation advantages.

Hypothesis 8 is strongly supported in all nine countries (see Table 5). That is, the differentiation advantages of superior brand image, higher product quality, and premium price seem more important to manufacturing than service managers in all nine countries. Again, individual scale item means largely supported the findings reported for the multi-item scale means.

Cross-national hypotheses (H9 and H10)

Hypotheses 9 and 10 compare cross-nationally managers' perception of cost and differentiation advantages. The MANOVA and Duncan multiple-range results for the tests of these hypotheses are presented in Table 6.

Cost Advantages (H9). H9 is supported clearly for the manufacturing samples but only partially for the service samples. MANOVA analysis of both manufacturing and service sectors (Table 6, parts (a) and (c) respectively) showed that the cost advantages of pioneering were perceived significantly differently by managers in different countries. Duncan multiple-range testing of the manufacturing samples showed that the managers from the three Western countries perceived cost advantages to be very important; Asian Pacific managers perceived them to be relatively less important; and Hong Kong managers scored between these two. This observation is consistent with previous studies of Hong Kong managers, which found a blend of Western and Asian cultural traits (Tse *et al.*, 1988; Ralston *et al.*, 1993). The Duncan multiple-range findings were not as clear-cut for the service samples, though they were generally consistent with H9. Managers from the U.K., Germany, and the U.S. were among those that most valued cost advantages (though they were insignificantly different from managers from Japan, South Korea, and Singapore). Service sector managers from China, Taiwan, and Hong Kong valued cost advantages least.

Differentiation Advantages (H10). H10 is not

Table 6. MANOVA and Duncan Multiple-Range Test results (H9 and H10)

(a) H9: Cost advantages of pioneering are perceived to be greater by Western managers than by Asian Pacific managers in Manufacturing Firms

MANOVA test of difference of means:

Mean Square (model) = 454.46

Mean Square (error) = 4.55

F value = 99.85 (significant at $p < 0.0001$)

Duncan Multiple-Range Test results:

Country	Construct Mean	Ger.	U.S.	U.K.	H.K.	S. Korea	Japan	Sing.	China
Germany	3.14	—							
U.S.	2.86	NS	—						
U.K.	2.82	NS	NS	—					
Hong Kong	1.88	S	S	S	—				
S. Korea	0.31	S	S	S	S	—			
Japan	0.12	S	S	S	S	NS	—		
Singapore	0.09	S	S	S	S	NS	NS	—	
China	-0.53	S	S	S	S	S	S	S	—
Taiwan	-2.01	S	S	S	S	S	S	S	S

Note: In this table, NS = not significantly different at $p < 0.05$; S = significantly different at $p < 0.05$.

(b) H10: Differentiation advantages of pioneering are perceived to be greater by Asian Pacific managers than by Western managers in Manufacturing Firms

MANOVA test of difference of means:

Mean Square (model) = 25.07

Mean Square (error) = 2.40

F value = 10.45 (significant at $p < 0.0001$)

Duncan Multiple-Range Test results:

Country	Construct Mean	H.K.	U.S.	U.K.	Taiwan	Sing.	S. Korea	Japan	Germany
Hong Kong	2.56	—							
U.S.	2.54	NS	—						
U.K.	2.50	NS	NS	—					
Taiwan	2.45	NS	NS	NS	—				
Singapore	2.23	NS	NS	NS	NS	—			
S. Korea	2.14	S	NS	NS	NS	NS	—		
Japan	2.06	S	S	S	NS	NS	NS	—	
Germany	1.85	S	S	S	S	NS	NS	NS	—
China	1.44	S	S	S	S	S	S	S	S

supported. MANOVA found significant differences across the construct means in both manufacturing and service samples; however, mean scores from Asian Pacific respondents were not consistently significantly higher than those from Western respondents. For the manufacturing sample, Duncan multiple-range tests showed that the five countries with the highest construct means (Hong Kong, U.S., U.K., Taiwan, and Singapore) were not significantly different from each other. As Table 6(b) shows, there were several other cases of non-significant differences. Similarly, for the service sector (Table 6(d)), the U.K., Hong

Kong, U.S., and Taiwan construct means were the highest, and not significantly different from each other. In both manufacturing and service sectors, the only clear-cut conclusion is that the mean in the China sample is significantly lower than all others.

A summary of all hypothesis test results is provided in Table 7.

Discussion

The two objectives of this paper were: (1) to measure and compare pioneering advantages and

Table 6. Continued

(c) H9: Cost advantages of pioneering are perceived to be greater by Western managers than by Asian Pacific managers in Service Firms

MANOVA test of difference of means:

Mean Square (model) = 38.93

Mean Square (error) = 5.15

F value = 7.55 (significant at $p < 0.0001$)

Duncan Multiple-Range Test results:

Country	Construct Mean	U.K.	Japan	Germany	U.S.	S. Korea	Sing.	China	H.K.
U.K.	1.07	—							
Japan	0.96	NS	—						
Germany	0.72	NS	NS	—					
U.S.	0.63	NS	NS	NS	—				
S. Korea	0.57	NS	NS	NS	NS	—			
Singapore	0.36	NS	NS	NS	NS	NS	—		
China	0.12	S	S	NS	NS	NS	NS	—	
Hong Kong	-0.38	S	S	S	S	S	S	NS	—
Taiwan	-0.81	S	S	S	S	S	S	S	NS

(d) H10: Differentiation advantages of pioneering are perceived to be greater by Asian Pacific managers than by Western managers in Service Firms

MANOVA test of difference of means:

Mean Square (model) = 28.16

Mean Square (error) = 4.52

F value = 6.23 significant at $p < 0.0001$)

Duncan Multiple-Range Test results:

Country	Construct Mean	U.K.	Hong Kong	U.S.	Taiwan	Germany	Japan	S. Korea	Singapore
U.K.	1.36	—							
Hong Kong	1.23	NS	—						
U.S.	1.13	NS	NS	—					
Taiwan	0.93	NS	NS	NS	—				
Germany	0.60	S	NS	NS	NS	—			
Japan	0.55	S	NS	NS	NS	NS	—		
S. Korea	0.51	S	S	NS	NS	NS	NS	—	
Singapore	0.51	S	S	NS	NS	NS	NS	NS	—
China	-0.27	S	S	S	S	S	S	S	S

risks as perceived by service and manufacturing industry senior managers; and (2) to generalize our findings across a nine-country data base. All research hypotheses but one were either strongly or partially supported, though not necessarily across all countries or both industrial sectors. Cases where only partial support was found suggested interesting insights on cross-national differences or differences between manufacturing and service firms. The major findings that emerged from the hypothesis tests are summarized below.

First, respondents from all countries agree that

pioneering improves firm performance (ROI and market share). This suggests that many of the principles identified empirically in the North American context are generalizable elsewhere. Also, manufacturing managers perceive the pioneering performance advantages, and the pioneering risks after market entry, to be significantly higher than do service managers. In general, service managers see the performance advantages of pioneering mostly as increased market share, not higher profits. Further, since it is easier to introduce a new service than a new

Table 7. Summary of hypothesis testing

	Western Countries		Asian-Pacific Countries	
	Manuf. Firms	Service Firms	Manuf. Firms	Service Firms
Pioneering Advantages and Risks				
<i>H1: Pioneers are perceived to have higher market performance than later entrants.</i>	Supported	Supported (for Mkt. Share) Not Supported (for ROI)	Supported	Partially Supported (for Mkt. Share) Not Supported (For ROI)
<i>H2: Pioneers are perceived to have higher levels of risk after market entry than later entrants.</i>	Supported	Not Supported	Supported	Not Supported
<i>H3: Pioneers are perceived to obtain cost advantages over later entrants.</i>	Supported	Supported	Not Supported	Not Supported
<i>H4: Pioneers are perceived to obtain differentiation advantages over later entrants.</i>	Supported	Supported	Supported	Supported
Cross-Industry Differences		Western Firms	Asian-Pacific Firms	
<i>H5: The perceived pioneering performance advantage is higher in manufacturing firms than in service firms.</i>		Supported	Supported	
<i>H6: The perceived pioneering risk after market entry is higher in manufacturing firms than in service firms.</i>		Supported	Supported	
<i>H7: The perceived cost advantages of pioneering are higher in manufacturing firms than in service firms.</i>		Supported	Supported	
<i>H8: The perceived differentiation advantage of pioneering is higher in manufacturing firms than in service firms.</i>		Supported	Supported	
Cross-National Differences		Manufacturing Firms	Service Firms	
<i>H9: Cost advantages of pioneering are perceived to be greater by Western managers than by Asian Pacific managers.</i>		Supported	Partially Supported	
<i>H10: Differentiation advantages of pioneering are perceived to be greater by Asian Pacific managers than by Western managers.</i>		Not Supported	Not Supported	

Notes:

For Hypotheses 1–8: (1) ‘Supported’ means that the hypothesis was supported in most of the countries in this category (i.e., at least two of the three Western countries, or at least four of the six Asian Pacific countries). (2) ‘Partially supported’ means that the hypothesis was supported in three of the six Asian Pacific countries. (3) ‘Not supported’ means that the hypothesis was supported in only one or zero countries.

For Hypotheses 9 and 10: (1) ‘Supported’ means that, in the Duncan multiple-range tests, there was a clear distinction between Western firms and Asian Pacific firms, and that the difference in means is in the hypothesized direction. (2) ‘Partially supported’ means that, in the Duncan multiple-range tests, there was a tendency for Western firms to place more importance on cost advantages than some Asian Pacific firms, but the distinction between the two groups of countries was not as clear-cut (i.e., there was some overlapping).

product, the pioneering service firms face less risk after market entry than the pioneering manufacturers.

Second, Western and Asian Pacific respondents differed significantly in their perceptions of the two categories of pioneering advantage. Western managers expected pioneering to provide cost advantages by preempting competitors from obtaining access to labor, managerial talent, distribution channels, and so on. In contrast, both Western and Asian Pacific managers expected pioneering to provide differentiation advantages, so that later entrants would have to outdo pioneers in quality or value if they hope to displace them.

Third, cost advantages of pioneering appear greater to Western manufacturing managers than to Western service managers. Cost advantages generally did not appear significant to most Asian Pacific managers; however, contrary to H7, cost advantages of pioneering appeared greater to Japanese service managers than to Japanese manufacturing managers. We attribute this surprising finding to the protection against competition available to many Japanese manufacturers through MITI. Differentiation advantages of pioneering appear greater to manufacturing than to service managers in all nine countries.

Fourth, the one hypothesis that was not supported concerned the relative importance of differentiation advantages to Asian Pacific and Western managers. Our findings strongly suggest that the differentiation advantages of pioneering are perceived to be important to Asian Pacific as well as Western respondents. Cost advantages, however, appear significantly more important to Western manufacturing managers than to their Asian Pacific counterparts.

Managerial implications

The data gathered for this study represent the views of respondents in our samples regarding pioneering advantage. Past research has been *ex post* in nature, focusing on the advantages actually realized by firms, whereas we examined managers' *perceptions* of pioneering advantages. It is important for managers to understand these 'mental models', as they (and their rivals) make strategic decisions based on their own beliefs. That is, managers are likely to behave in ways consistent with their perceptions of their business

environment, regardless of whether these perceptions are correct or biased.

As noted recently (Gruca and Sudharshan, 1995), a pioneering firm on entering the market should consider how it can influence or manipulate the competitive environment so as to deter future potential entrants. The significantly different findings we report provide clues as to the business environment in each sample, which can be a starting point for development of an entry strategy or an entry deterrence strategy. There must be underlying reasons why, for example, Asian Pacific manufacturing firm managers perceive differentiation advantages to be important, and it may be because these are critical to success in their environment. Knowledge of managers' perceptions, their understanding of the prevailing business environment and the 'mental model' they use when assessing that environment, can help one develop more effective strategies for entering, or protecting a position in, this environment.

Consider, for example, a U.S. manufacturing firm that wants to enter the Asian Pacific market (say, in Japan). Should it pursue a product pioneering strategy? We find no reason it should not, but it must recognize that the pioneering advantages may be viewed differently there than at home. Japanese competitors will perceive the entry as a threat if it is successful in forming strong ties with one or more key customer segments (for example, by establishing a superior brand image). They will be less concerned if the U.S. firm intends to preempt key suppliers, distributors, or equipment, as pioneering advantages in these areas are not seen as sustainable in the Japanese environment.

To elaborate on the example, the U.S. firm should recognize that identifying potentially lucrative customer segments and forming long-term ties with them will be extremely important to sustained competitive survival in the Japanese market. This can be done, not by preemption of key suppliers or distributors, but by differentiating product quality or image in a way that is important to the targeted customer segments. In short, they can expect competition in Japan to be very different from competition in the U.S. Our findings suggest the U.S. firms can expect Japanese firms that feel threatened by the U.S. entry to respond by protecting and strengthening their own differentiation advantages of quality or brand image, rather than by trying to compete

head-to-head to gain cost advantages. Although we did not test this hypothesis directly in our study, it suggests that the U.S. firm needs to do a better job of assessing the current and potential competitive environment in Japan, and differentiating its offerings from extant Japanese competitors in a way that is meaningful to targeted customer segments. If entry barriers seem too high, or a sustainable long-term position in the market seems unlikely, the entry should not be pursued.

The above recommendations hold mainly for the manufacturing sector, where Asian Pacific firms are likely to be well protected from outside threats by government policy. Asian Pacific service providers seem more concerned than Asian Pacific manufacturers about the cost advantages accruing to pioneers. Thus, a Western service firm entering the Asian Pacific market with a new product should pursue a different strategy than we suggested above. The entry may be seen as a serious threat by indigenous rivals because Asian Pacific service firms have less government protection from foreign competition than manufacturing firms and may also expect less loyalty from their customers (who are not as strongly committed to them as are manufacturing firms' customers).

Limitations and future research

A limitation of the study is that managers' perceptions may not reflect the 'true' pioneering advantages. Results from our interviews with senior executives from the U.S. and elsewhere suggest that this does not invalidate our research, for they are indeed likely to reflect reality, since managers form perceptions or beliefs based on what they observe or experience. Even if some objective 'truth' about pioneering advantages can be established, one can only say that managerial perceptions deviate from it (or the 'norm') by a certain degree. Regardless of the merit of this debate, managers will base their decisions whether to pioneer a product, and how to compete with existing pioneers, based on their own 'mental models'. Table 1 clearly shows that the respondents in all nine countries have made many major market entry decisions, though we caution the reader that the advantages the pioneering firms actually hold in these nine countries may differ from those perceived by the respondents in this study. We nonetheless insist that it is valid and useful

to measure and compare managerial perceptions of pioneering advantage.

A second limitation is that our samples only include senior executives. Other people in their organizations may have different views.

A third limitation is our use of only descriptive statistics (t-tests of means and mean differences). Since our results are more descriptive than conclusive, the 'stylized facts' identified above should serve as a basis for further theoretical development and multivariate empirical studies that may produce more convincing or conclusive results (Dunne *et al.*, 1988). Future research can also extend this study to other nations. In addition, this study has compared managers in only manufacturing and services; further breakdown of the industries should lead to greater insights (for example, medical technology and diagnostic services; financial and banking services). One might also extend this study by tracking successful and unsuccessful pioneers over a period of time and examining the validity of our findings. Though data gathering is likely to be extremely difficult in the case of unsuccessful pioneering launches, such a longitudinal comparative study might validate the pioneering advantage principles developed in this study (shown in Tables 2 to 5) and yield other valuable information about the business environment and firm skills most conducive to successful product launch. Finally, we concur with Lieberman and Montgomery (1998) that much insight and knowledge regarding entry timing strategy can be gained by linking empirical findings on pioneering advantage to the resource-based view of the firm.

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APPENDIX

Summary of Pioneering Advantage Literature

Pioneering Performance Advantages

Pioneers outperform later entrants in terms of market share and/or profitability.

Pioneering Risks After Market Entry

Pioneers lose market share over time due to decreases in product quality, breadth of product line, or absolute cost advantage.

Late entrants 'free-ride' on the market development efforts of the pioneer.

Customer needs or technologies may change.

Incumbent inertia: inflexibility in either the pioneer's organization or fixed asset investment

Cost Advantages

Pioneer can deter entry through preemptive investment in plant and equipment.

Pioneers achieve scale-dependent cost advantages over later entrants.

Pioneers gain an advantage over competitors due to patent protection of product or process innovations. Pioneers gain a differential advantage over competitors by choosing the most attractive niche in perceptual space.

Pioneers gain a differential advantage over

Studies

- Robinson and Fornell (1985)
 Fornell, Robinson and Wernerfelt (1985)
 Urban, Carter, Gaskin and Mucha (1986)
 Robinson (1988)
 Lambkin (1988)
 Parry and Bass (1990)
 Kalyanaram and Urban (1992)
 Robinson, Fornell and Sullivan (1992)

- Robinson and Fornell (1985)
 Robinson (1988)

- Lieberman and Montgomery (1988)
 Lilien and Yoon (1990)
 Kerin, Varadarajan and Peterson (1992)
 Kerin, Varadarajan and Peterson (1992)
 Carpenter and Nakamoto (1989)
 Lieberman and Montgomery (1988)

- Eaton and Ware (1987)
 Robinson and Fornell (1985)
 Robinson (1988)
 Robinson and Fornell (1985)
 Robinson (1988)
 Lambkin (1988)
 Robinson (1988)
 Gorecki (1986)
 Schmalensee (1978)
 Hauser and Shugan (1983)
 Urban, Carter, Gaskin and Mucha (1986)
 Robinson and Fornell (1985)
 Schmalensee (1978)

competitors by preempting the best distribution channel.

Differentiation Advantages

Pioneers gain a differential advantage over competitors due to enhancing product quality or brand image through product or process innovation, thus enabling them to charge a price premium.

Pioneers benefit from information and experience asymmetries on the part of customers.

Pioneers can gain a head start on competitors if they successfully build their brand image or reputation.

Glazer (1985)

Bond and Lean (1977)

Gorecki (1986)

Meyer and Roberts (1986)

Lilien and Yoon (1990)

Kerin, Varadarajan and Peterson (1992)

Whitten (1979)

Schmalensee (1982)

Urban, Carter, Gaskin and Mucha (1986)

Huff and Robinson (1994)

Brown and Lattin (1994)

Bond and Lean (1977)

Lilien and Yoon (1990)