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経営と経済, 95(1-2), pp.45-74; 2015
First-mover Advantage Revisited: A Systematic Review and Directions for Future Research

Rikiya Tsuchihashi

Abstract

The relationship between order of entry and firm performance has gained increased attention in the last two decades. Despite the surge in empirical research, the order of entry effect still has many unaddressed issues. To fill the gap, we conduct a systematic literature review. We systematically selected empirical papers, and shortlisted papers matching our selection criteria. We find that the effect of First-mover advantage (FMA) differs depending on the performance measure, especially when market share is used as a dependent variable. FMA does exist but depends on internal firm resources and the external environment.

Keywords: First-mover advantage; systematic review; entry timing

1. Introduction

The relationship between order of entry and firm performance has gained increased attention in the last two decades. Decisions about the time of entry are considered a key factor for building a competitive advantage in strategic management and marketing research. Since the work by Lieberman and Montgomery, many scholars have conducted empirical research using large samples. Bowman and Gatignon, Tufano,
Urban et al., qualitative case studies, and theoretical approach, especially, there has been a rise in empirical studies based on new methodologies, focusing on the impact of the differences in environment for every company, and the influence of speed capabilities on entry to new markets. Despite the surge in empirical and theoretical research, the order of entry effect still has many unaddressed issues. In addition, while a large volume of empirical work has been conducted, the review literature summarizing and critically assessing the empirical findings has been scant, especially since the late 1990s. This paper examines the extent to which results gained from empirical studies in the past 30 years have changed compared to those obtained from studies conducted in the early 1980s. We focused on the following two questions: whether the difference in entry timing measure as an independent variable affects the first-mover advantage (FMA) and whether the difference in firms’ environmental conditions affects FMA.

With the aim of enhancing the accuracy of review, we opted for a systematic review instead of the traditional narrative review. Narrative review, commonly used in management research and a somewhat primitive method of reviewing, has methodological problems when it comes to sample selection. A systematic review can avoid sampling biases, as samples are selected according to a set of clear criteria. We systematically selected empirical papers from the SciVerse Scopus database, and shortlisted papers matching our selection criteria. We assessed these papers in terms of their analytical methods, industry-wise difference, and FMA support rate. We explore how the empirical literature on FMA has advanced in the last 30 years.
Lastly, we suggest directions for future research.

2. First-mover advantages and disadvantages

Lieberman and Montgomery have summarized FMA in a comprehensive manner. Their paper, considered pivotal research on FMA, was awarded the Best Paper prize by the Strategic Management Society in 1998. Lieberman and Montgomery highlighted certain first-mover advantages and disadvantages. The advantages are i) technological leadership, ii) preemption of scarce assets, and iii) switching costs and buyer choice under uncertainty. Technological leadership is obtained by capitalizing on the learning curve and patents. Preemption of scarce assets means that the first mover makes more profit than followers due to the preemption of scarce resources. For example, the preemption of input factors and locations in terms of geography and product characteristics prevents followers from entering the market. Switching costs and buyer choice under uncertainty means that followers have to make additional investments to gain new customers when such switching costs exist. When customers have to make a decision under uncertainty, they tend to buy the pioneer’s products. While pioneering a market increases a firm’s profit, there are certain disadvantages as well. The first is the free-rider effect, which means that the late-mover might be able to free-ride on the pioneering firm’s investments, such as R&D, buyer education, and infrastructure development. Followers can imitate the pioneer’s innovation at a lower cost. The second drawback is the resolution of technological or market uncertainty, which means that followers can gain profits when market uncertainty ends; entry in uncertain markets involves a high degree of risk. The third disadvantage is the shift in
technology or customer needs, which means that incumbent firms may not be able to respond to the discontinuous innovations by new entrants, and thus may lose their position as market leader. The fourth drawback is incumbent inertia, which means that the lock-in effects and cannibalization of existing products impede the incumbents from responding to environmental change.

Pioneers can hold on to market share until other competitors enter the market. In a monopolistic scenario, the pioneer’s market share is always percent. However, as other rivals enter the market, the pioneer’s market share decreases. According to Urban et al., the market share of the pioneer drops from percent to percent after five rivals have entered the market. Urban et al. demonstrate that, in general, the market share relative to the pioneering brand is as follows for first, for second, for third, for fourth, for fifth, and for sixth.

Robinson and Fornell analyzed the effect of pioneering on market share using data from the consumer goods industry and found that the order of entry was linked to market share. The source of pioneering-related advantages is firm-based superiority.

Past systematic assessment of FMA

Empirical research has been on the rise since the seminal work by Lieberman and Montgomery. However, this spike in interest triggered variations in the empirical results and created confusion about the effect of entry timing on performance. At the same time, in the mid, some researchers conducted narrative and systematic reviews of entry timing effect. We present the findings of these review articles.

Vandewerf and Mahon conducted a meta-analysis of statistical-
First-mover Advantage Revisited: A Systematic Review and Directions for Future Research

cal analyses extracted from empirical papers about first-mover advantage. In their research on FMA, scholars have used a variety of methods and variables and have tested whether the differences in the methods and variables among papers affect the existence of FMA. Of tests, indicated a positive relationship between the early entrant and performance, and tests delivered statistically significant results. However, out of the tests indicated a negative relationship, and seven tests were statistically significant. Research that uses market share as a firm’s performance variable may support FMA more strongly than research that uses survival rate or profit rate.

Kalyanaram, Robinson, and Urban suggested empirical generalizations in four parts in a market featuring mature consumer goods and industrial goods, the order of market entry and market share have a negative relationship for consumer-packed goods and prescription anti-ulcer drugs, the market share of entrants divided by the market share of first entrants nearly equals one divided by the square root of the order of market entry the technology and resource profile of pioneers is different from that of followers and late entrants and entry order is not related to the long-term survival rate. Based on these four empirical generalizations, the authors concluded that a firm should possess appropriate technologies and resources in order to gain FMA.

Szymanski, Troy, and Bharadwaj conducted a meta-analysis of papers on the relationship between order of entry and market share. The results were as follows. First, on average, entering early in a market has a significantly positive effect on market share. Second, omitting breadth of product line and marketing expenditure from the analysis model, using SBU as an analysis unit rather than brand, and assessing order of entry using the variable of first mover rather than entry order strengthened the effect of
Szymanski et al. conducted a meta-analysis from the contingency perspective. The authors analyzed whether entry order exerted a direct impact on business performance, considering market strategy variables such as breadth of product line, product customization, product quality and market place factors such as market growth, consumers’ purchase frequency. According to their analysis, the relationship between entry order and performance can be assessed accurately by using a model that includes interaction effects, while service quality, vertical integration, R&D expenditure, shared facilities and customers, market growth rate, and consumers’ purchase frequency are factors that enhance the effect of FMA. Meanwhile, a shared marketing program weakens the impact of FMA. These results indicate that entering early is not automatically associated with high performance; however, the mix of marketing strategy variables and market place factors affects market share.

Robinson, Kalyanaram, and Urban reviewed the literature on FMA and found that being a pioneer does bring benefits in spite of the costs and risks involved, and suggested that not only entry timing but also the lead time between the first entrant and second entrant is important for FMA.

Lieberman and Montgomery drew some findings from past empirical work. First, the entry order effect does exist, especially for market share; however, this effect is better understood as an interaction than as a direct effect. Second, the effects of entry order differ according to product categories and geography. Third, FMA disappears over time. However, longer lead times of rivals entering the market enhance FMA. Fourth, although entry order effects are significant and robust, these effects are weaker than the effect of the marketing mix associated with price and advertising.
Later entrants have opportunities to catch up to and surpass pioneers by leveraging these effects.

We summarize the past narrative and systematic review articles as follows:

- The existence of FMA depends on the analytical methods. In particular, empirical research that employs market share as a dependent variable tends to support FMA more strongly than does research employing other variables, e.g., profit rate or survival.

- The existence of FMA depends on the internal and external environment. Especially, internal marketing resources or strategy and external environmental conditions affect firm performance.

3. Methods

As discussed above, entering early has advantages as well as disadvantages. Many scholars have conducted empirical research to determine whether first movers can increase profits. We conducted systematic research on these empirical studies to confirm FMA.

Systematic review, as distinct from the traditional narrative review, is a review of the literature based on a systematic protocol. Chalmers and Altman, Tranfield et al., and others. Narrative review and systematic review differ in several ways. Cook et al. Systematic review focuses on narrower research questions. In a systematic review, authors select research samples based on a specified protocol. Traditional narrative review may suffer sampling bias because researchers intentionally choose the research for their study purposes. Systematic review is a more sophisticated method of judging the results of previous studies.
We used SciVerse Scopus, the largest abstract and citation database of peer-reviewed literature, for our systematic review. SciVerse Scopus contains humanities and social sciences journals. Unlike Tranfield et al., who recommended the collection of broad items, our research does not include certain papers, such as unpublished papers and conference proceedings. We chose only academic refereed journals because such journals guarantee the quality of research.

We searched and abstracted empirical literature on FMA from SciVerse Scopus. The search words and protocol were in line with Szymanski et al.

We searched SciVerse Scopus using five terms: first-mover advantage, pioneer advantage, order of entry, timing of market entry, pioneering effort.

We selected the articles that included at least one of these five terms in their title.

We searched the articles published between and we began in because a systematic review has not been conducted since this year. We obtained search results.

We read the abstracts and contents of the papers and selected the articles that focused on the relationship between entry timing and performance. We thus obtained articles.

4. Results

Table summarizes the results of the empirical studies abstracted according to the above protocol. Does the effect of FMA depend on the differences in measures of performance as a dependent variable and measures of entry timing as an independent variable?
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<th>Researchers</th>
<th>Data</th>
<th>Dependent variables</th>
<th>Independent variables</th>
<th>Results</th>
<th>FMA</th>
<th>Journal</th>
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<tr>
<td>Jakopin and Klein</td>
<td>mobile network operators from countries</td>
<td>Market share</td>
<td>Entry position</td>
<td>Both first-movers and incumbents in the mobile telecommunications service industry are more successful in terms of market share and EBITDA than late entrants or greenfield companies.</td>
<td></td>
<td>Journal of Business Research</td>
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<tr>
<td>Magnusson et al.</td>
<td>advertising subsidiaries in Eastern Europe countries advertising subsidiaries in the Middle Eastern and African markets countries</td>
<td>Market share</td>
<td>Entry order lag</td>
<td>Early entrants outperform later entrants in both geographic regions, and the first-mover effect is moderated by environmental dynamics. Specifically, early entry is more likely to lead to sustainable competitive advantage in markets characterized by political stability and limited economic integration.</td>
<td></td>
<td>Marketing Management Journal</td>
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<tr>
<td>Murray, Ju, and Gao</td>
<td>foreign firms operating in China</td>
<td>Market share</td>
<td>Early entrants</td>
<td>Early entrants enjoy higher market share but suffer from lower survival rate than late entrants.</td>
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<td>Journal of International Marketing</td>
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<tr>
<td>Ghosh</td>
<td>banks service firms and pharmaceutical companies manufacturing firms in India</td>
<td>Profit after tax</td>
<td>Order of entry</td>
<td>First-mover advantages exist for manufacturing firms but such advantages do not get translated for service sector firms. Moderating effects of firm size and marketing intensity are found to exist only for manufacturing firms.</td>
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<td>Romanian Journal of Marketing</td>
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<td>Authors</td>
<td>Sample Size and Setting</td>
<td>Measures</td>
<td>Findings</td>
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<td>Kim and Lee (2011)</td>
<td>6,605 Korean manufacturing firms that existed between 1989 and 2005</td>
<td>Market share growth, Entry order (second, third, late) Entry lag and entry gap High R&amp;D High advertising</td>
<td>Early entrants, including first movers, have higher market share, except in regimes with high technological opportunity and low R&amp;D appropriability.</td>
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<td>Wang, Chen, and Xie (2010)</td>
<td>45 product categories (e.g., computer hardware, computer software, consumer electronics, and telecommunication equipment) affected by network effects</td>
<td>Survival, Entry order (whether pioneer or not) Extent of network effects Cross-generation incompatibility Within-generation incompatibility</td>
<td>In markets with strong network effects, a pioneer has longer survival duration than early followers if the pioneer is cross-generation compatible but not within-generation compatible. In markets with weak network effects, a pioneer has longer survival duration than early followers if the pioneer is within-generation compatible but not cross-generation compatible.</td>
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<td>Balaji (2009)</td>
<td>1780 firms across 20 industries in the manufacturing sector in India</td>
<td>Average sales, Average market share, Entry order (early entrants or late entrants)</td>
<td>Early entrants hold an average market share of 1.1%, while late entrants hold 0.05%.</td>
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<td>First-mover Advantage Revisited: A Systematic Review and Directions for Future Research</td>
<td>Magnusson, Westjohn, and Boggs (2009)</td>
<td>379 subsidiaries in 43 developing markets across Eastern Europe, Asia, the Middle East, Africa, and Latin America</td>
<td>Market share</td>
<td>Entry order lag × firm size</td>
<td>Entry order lag × international experience depth</td>
<td>Entry order lag × major ownership</td>
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<td>Fernandez and Usero (2007)</td>
<td>61 firms providing mobile telecommunications services in the EU, Norway, and Switzerland.</td>
<td>Market share erosion (ratio of the market share of the follower firm to that of the first mover)</td>
<td>Order of entry (second, third, fourth…)</td>
<td>Time in market</td>
<td>Number of pioneers’ experience</td>
<td>Number portability</td>
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<td>Author(s)</td>
<td>Sample Size</td>
<td>Independent Variables</td>
<td>Dependent Variables</td>
<td>Findings</td>
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<td>Rodríguez-Pinto, Gutiérrez-Cillén, and Rodríguez-Escudero (2007)</td>
<td>136 product launches by Spanish manufacturing firms</td>
<td>Product’s sales and profitability relative to competitors</td>
<td>Order of entry (pioneer, one of the pioneers, early follower, late entrant) Scale of entry R&amp;D resources Marketing resources</td>
<td>Entering the market early leads to a stronger competitive position. The positive outcomes of early entry may be invalidated if the pioneering firm has poor R&amp;D resources.</td>
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<td>Mittal and Swami (2004)</td>
<td>394 companies across 32 industries (consumer goods industries and industrial goods industries) in India</td>
<td>Average market share Average sales Average profit before tax Average return on investment</td>
<td>Entry order (pioneers or followers)</td>
<td>In general, the pioneers perform better than the followers, and firms that enter early into the market have larger sales, market share, and profits than followers.</td>
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<td>Boulding and Christen (2003)</td>
<td>PIMS database (363 business units of consumer goods, 858 business units of industrial goods)</td>
<td>Net income ROI</td>
<td>Pioneer (1 or 0)</td>
<td>On average, first-to-market leads to a long-term profit disadvantage relative to later entrants. In both industries, pioneering leads to an initial profit advantage that erodes over time. The advantage lasts for about 12 to 14 years. The moderating effects tend to be stronger for the consumer goods sample, where limited customer learning, a strong market share position, or patent protection can eliminate the long-term profit disadvantage and even lead to a sustainable pioneering profit advantage.</td>
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<td>Key Variables</td>
<td>Findings</td>
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<td>Lopez and Roberts (2002)</td>
<td>Financial services industry (pension funds, credit cards, debit cards) in Costa Rica</td>
<td>Market share, Entry order, Elapsed time</td>
<td>In pension funds, an early entrant gained a maximum market share over time. In credit cards and debit cards, the pioneer does not have any advantage.</td>
<td>Journal of Business Research</td>
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<tr>
<td>Isobe, Makino, and Montgomery (2000)</td>
<td>Survey data from over 220 Sino-Japanese joint ventures in China</td>
<td>Perceived economic performance, Employee retention likelihood, Overall satisfaction</td>
<td>The greater the resource commitment to technology transfer, and the faster the entry, the more likely it was that joint ventures attained superior economic performance.</td>
<td>Academy of Management Journal</td>
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<tr>
<td>Pan, Li, and Tse (1999)</td>
<td>14,466 foreign firms in China</td>
<td>Early entrants (whether first to enter), Lead time</td>
<td>Early entrants have significantly higher market share and profitability than late entrants.</td>
<td>Journal of International Business Studies</td>
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<tr>
<td><strong>Song, Benedetto, and Zhao (1999)</strong></td>
<td>Survey data from 2,419 firms (1,437 manufacturing firms and 982 service providers) in 9 countries</td>
<td>Market share ROI</td>
<td>Pioneering</td>
<td>Managers from all countries perceive pioneering as something that is associated with higher market share and / or profitability. Manufacturing firm managers perceive pioneering risks to be significantly more important: this is not often seen among service firm managers.</td>
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<td><strong>Luo and Peng (1998)</strong></td>
<td>Test 1: 31 foreign-invested ventures operating in the Jiangsu Province in China. Test 2: Mail survey (a random sample of foreign-invested firms that had been operating in China for at least eight years, N = 96)</td>
<td>Test 1: ROI Sales growth Asset turnover Risk Test 2: After-tax returns on sales After-tax returns on equity Sales growth Asset turnover Competitive position Level of operational risk</td>
<td>Time lag (elapsed time from 1979)</td>
<td>The existence of significant first-mover advantages, and the risk-return tradeoff between the first-mover and late-mover strategies.</td>
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© Strategic Management Journal
© Thunderbird International Business Review
| Makadok (1998) | 1,015 funds in the money market mutual fund industry | Price Market share | Entry timing | First-mover and early-movers both enjoy a highly sustainable pricing advantage and a moderately sustainable market share advantage. | Strategic Management Journal |
| Murthi, Srinivasan, and Kalyanaram (1996) | PIMS database | Market share ROI | Pioneer Early follower Relative product efficiency Relative marketing efficiency | After controlling management skills (production efficiency and marketing efficiency), the effect of pioneering on market share remains robust. | Journal of Marketing Research |
First, the results indicate that entry order effects exist, especially when market share is used. Table 1 shows that the difference in dependent variable affects FMA. To assess these effects, we collected tests on the entry order effect from papers. We counted the number of tests as follows. For example, if a paper contained three models for examining the effect of entry order on performance, we counted them as three tests. The number of tests is usually bigger than the number of papers because a paper typically conducts empirical tests by using more than two models.

The papers that are part of our research contain tests. Of these, employ market share as a dependent variable, and tests are statistically significant. On the other hand, the support rate for profit rate is percent six out of nine tests, the survival rate is percent three out of four, and accounting profit is percent three out of six. This indicates that using market share tends to support FMA.

Murray et al observed that the first entrant to a market in China gained higher market share than its followers. Mascarenhas demonstrated that first entry in international markets for four off-shore drilling
products resulted in higher long-term international market share and market survival. Pan, Li, and Tse ⁷⁷, using information about foreign firms operating in China, observed that early entrants enjoy higher market share and ROA than later entrants. Although these studies support FMA, Kim and Lee ⁷⁸ demonstrate that there is no relationship between entry timing and market share in regimes with high technological opportunity and low R&D appropriability, such as for Korean manufacturing firms that existed between and ⁰⁰.

Next, we assess the measures of entry timing as an independent variable. The variable of entry timing can be divided into two measures: entry order and entry lag. Entry order is the most intuitive measure, counted as first, second, third, fourth, and so on. The other measures of entry order are category, which forms groups such as early entrants, followers, and late entrants ⁷⁹ Rodríguez-Pinto et al., ⁸⁰ Murthi et al., ⁸¹, and a dichotomous measure, such as pioneer or not ⁸² Wang et al., ⁸³, Boulding and Christen, ⁸⁴.

Entry lag is late entrants’ time delay after the early entrants have entered a specific market. Traditional empirical research, especially that based on PIMS data, tends to use entry order as an independent variable ⁸⁵ e.g., Lambkin, ⁸⁶ Robinson and Fornell, ⁸⁷. However, the variable of time lag has often been used since ⁸⁸ e.g., Lopez and Roberts, ⁸⁹ Fernandez and Usero, ⁹⁰ Magnusson et al., ⁹¹ Kim and Lee, ⁹² Murray et al., ⁹³ Jakopin and Klein, ⁹⁴. In the empirical results obtained from our review, both entry order and entry lag support FMA. These results indicate that the manner of measuring entry timing does not impact performance.
Characteristics of data

The empirical studies conducted in the late 1980s and early 1990s are centered largely on the United States. Lieberman and Montgomery. However, since the late 1980s, data collected from all over the world have been used in FMA research. In addition, while prior research focuses on the manufacturing industry, the interest of recent papers has been the service sector that does not shed light on prior studies. Tests of entry timing effects have spread to various countries and industries.

The data used in the empirical studies were of two types: data on emerging markets, and data on the service industry, rather than the manufacturing industry.

Of the papers analyzed emerging markets such as Eastern Europe Magnusson et al., China Murray et al., Isobe et al., Luo and Peng, India Ghosh, Balaji, Mittai and Swami, and Costa Rica Lopez and Roberts. This tendency to use data from emerging markets has been prevalent since the late 1980s.

Research conducted using data from emerging markets can be divided into two types. First is the analysis of foreign companies that entered an emerging market Murray et al., Magnusson et al., Isobe et al., Luo and Peng, and Balaji, Mittai and Swami, Lopez and Roberts. For example, Isobe et al., using data on Japanese joint ventures that entered the Chinese market, found that joint ventures that entered early had significantly higher performance. Second is the analysis of entire companies, including local companies, within emerging markets Ghosh, Balaji, Mittai and Swami, Lopez and Roberts. Balaji, using data on companies in industries in India, showed that early entrants had higher market share than followers. These studies indicate that,
in emerging markets, entering earlier than rivals might enhance performance.

Although research on manufacturing industries has accumulated, little research has appeared on service industries. However, in recent years, research on the service industry has been steadily increasing. This includes the mobile telecommunications industry [Jakopin and Klein, 2001], Fernandes and Usero, 2003, advertising agencies [Magnusson et al., 2004], pension funds [Lopez and Roberts, 2005], and money market mutual funds [Makadok, 2006]. The results pertaining to the service industry support FMA, but there are some exceptions. Fernandes and Usero, 2003, analyzing firms in the European mobile telecommunications industry, found that the effect of FMA diminishes in these conditions where there is an absence of number portability and market where follower companies entered early. Lopez and Roberts, 2005, also show that followers eroded the market share of early entrants in the credit card market in Costa Rica.

Table 3 indicates the relationship between product category and the support rate of FMA. As can be seen in this table, the effects of FMA differ across product categories. For example, the support rate of FMA in the manufacturing industry is higher than that in the service industry. This means that imitating other companies is easier in the service sector than in manufacturing. In addition, as with product category, country
Table 4. FMA support rate country-wise

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<th>Support</th>
<th>No support</th>
<th>Total</th>
<th>Support rate</th>
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<tr>
<td>Emerging market</td>
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<td>Support</td>
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<td>No support</td>
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<td>Support rate</td>
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Type affects FMA. Table 4 shows that the support rate of emerging countries is \( \frac{3}{4} \)% percent, while that for nations other than emerging countries is \( \frac{2}{3} \)% percent, which indicates that entering earlier than other companies is a better strategy in emerging countries.

**First-mover advantages and disadvantages**

In this section, we summarize the results obtained from empirical studies on FMA. Although \( \frac{3}{4} \) out of \( \frac{1}{2} \) studies support FMA, the remaining eight studies showed that advantages for early entrants are weak or disappear as time passes. These mixed results invoke two contingent factors: internal resources and the condition of markets.

First, internal firm resources compensate for the disadvantages of late entry. For example, Magnusson, Westjohn, and Boggs \( \frac{3}{4} \) found that later entrants in emerging markets could overcome disadvantages if they had experience of management in a foreign country or if they entered into an alliance with a local-country corporation. Rodríguez-Pinto, Gutiérrez-Cillán, and Rodríguez-Escudero \( \frac{3}{4} \) also noted that early entrants cannot sustain high performance without sufficient R&D resources. Boulding and Christen \( \frac{3}{4} \) revealed that first-to-market leads to cost disadvantage and long-term profit disadvantages relative to later entrants. Nevertheless, pioneers benefit from lack of consumer learning, strong market position, and patent protection. These three factors moderate the pioneer’s cost disadvan-
The second contingent factor is market conditions. Magnusson, Gordon, and Aurand using a sample of advertising subsidiaries in Eastern Europe, the Middle East, and Africa, reveal that early entrants have higher performance than later entrants in these geographic regions and that the entry timing effect is moderated by environmental dynamics. Political instability and economic openness inhibit early entrants’ ability to generate FMA. Kim and Lee also pointed out that market conditions weaken the possibility of FMA. They demonstrated that early entrants have a higher market share, except in regimes characterized by high technological opportunity and a low level of R&D appropriability. Wang, Chen, and Xie analyzed how the strength of network effects and product compatibility affect the survival advantage of pioneers. They observed that, in markets with high network effects, the pioneer can enjoy a survival advantage when cross-generation compatibility and within-generation incompatibility exist. By contrast, in markets with low network effects, the pioneer has more of a survival advantage when cross-generation incompatibility and within-generation compatibility exist. These empirical results show that market conditions constitute an important moderating factor in FMA.

5 Discussion and suggestions for future research

In this paper, we assessed the results of past empirical research, which was systematically abstracted from the SciVerse database. As shown in the previous section, out of studies support FMA, while the rest partially support FMA according to the prevailing conditions. In this chapter, we
summarize the findings on FMA from our systematic review, and suggest directions for future research.

First, we found that the effect of FMA differs depending on the performance measure, especially when market share is used as a dependent variable. This result is similar to past systematic reviews \cite{Vanderwerf and Mahon}. Market share may be strongly associated with entry timing because no rivals exist when the pioneer enters a market for the first time. Indeed, a pioneer’s market share is high percent. Then, the second mover and third mover start business in the market, but the pioneer’s share is still high. This advantage might be generated by consumer preferences, as consumers learn about brands and their preferences \cite{Carpenter and Nakamoto}. Finally, although the benefits of being a first-mover dissipate over time, the pioneer’s market share does not tend to decrease dramatically in the early stage. Thus, it can be said that the market share of the pioneer is associated with performance.

On the other hand, the conditions of the profit rate and survival probability for the pioneer differ from those for market share. Pioneering leads to an even stronger long-term cost disadvantage \cite{Boulding and Chriseten}. Pioneers should spend relative to high marketing expenses because radical new product does not gain legitimacy from consumers and society. While pioneers have the disadvantage of the cost incurred to introduce a new product, followers are able to imitate their innovation at a low cost. This situation generates a contradiction between high market share and low profit rate and survival probability.

Second, we found that FMA does exist but depends on internal firm resources and the external environment. This result indicates that we should consider the entry timing effect not as a first condition but as a second or
third condition Lieberman and Montgomery, Zachary et al., Vidal and Mitchell point out that whether the first mover becomes an early survivor depends on the degree to which the early entrant possesses the core and complementary resources needed for a new market relative to followers. Suarez and Lanzolla demonstrate that environmental dynamics the pace of technology evolution as well as market evolution either impose restrictions or create opportunities for the exploitation of FMA. As these results indicate, FMA might be better understood as an indirect effect than a direct effect.

Theoretical direction

The following points need to be considered for future research. First, future research should consider the connection between the resource-based view RBV and FMA. Although Lieberman and Montgomery emphasized the importance of this theoretical linkage, not much progress has been made in the last decade. In an exceptional case, Finney, Lueg, and Campbell developed a conceptual framework involving RBV and FMA. According to the authors, whether the pioneer gains competitive advantages depends on the resource management process, efficient acquisition of resources, bundling combining of resources, positioning of resources, and maintenance protection of resources. They conclude that market-entry timing is not a panacea but, instead, part of the firm strategy. Efficient resource management helps pioneers sustain competitive advantage.

While resource acquisition and management are imperative for the competitive advantage of pioneers followers, excessive focus on resources veils the importance of entry timing effects. If the focal point of the discussion moves to the relative merit of firm resources, the discussion will be the same
as that from the RBV. To avoid duplication, future research should carefully test the effects of resources and of entry timing at the same time.

Second, we need to elaborate the relationship between external environment or industrial institution and FMA. Unlike that on internal resources, research on the external environment has not been accumulated [Suarez and Lanzolla, 2002]. However, studies have started to focus on the effect of environments and institutions. For example, Mugunsson et al. [2004] observed that political instability or market openness affects the pioneering advantage. Wang, Chen, and Xie [2005] also pointed out that the strength of network externality in a market has a significant effect on the survival rate of the pioneer. In addition, the theoretical model of environmental dynamics for building FMA sheds light on the perspective for FMA research. As the effect of entry timing differs from country to country, we need to determine what country- and industry-specific conditions contribute to pioneers’ advantage.

Third, there is a need to analyze the factors affecting firm entry timing [e.g., Mitchell, 2004; Robinson, Fornell, and Sullivan, 2004; Thomas, 2004; Schoenecker and Cooper, 2004; Fuentelsaz, Gomez, and Polo, 2004; King and Tucci, 2004]. Prior FMA studies focus on the effect of entry timing on firm performance. However, if entering earlier than rivals contributes to firm performance, an important question needs to be answered: What factors affect firm entry timing?

For example, King and Tucci [2004] found that production and sales experience in previous market niches encourages firms to enter a new market in the disk drive industry. Mitchell [2004] noted that an incumbent is likely to enter a new technical subfield if it possesses industry-specialized assets [e.g., a direct distribution system]. Likewise, Helfat and Lieberman [2004]
showed that firms enter markets when they perceive that their pre-entry resources and capabilities match the required resource profiles in those markets. They noted that, if the similarity between pre-entry resources and the required resource profile is high, the chance of survival is also high. As these studies imply, clarifying the factors that affect entry timing helps us understand how to build competitive advantage and the mechanism of FMA.

Fourth, further studies should examine the first-mover disadvantages and late-mover advantages. Lieberman and Montgomery suggested that entering early has both advantages and disadvantages. However, most studies have focused on the first-mover advantage. Although our results from the systematic review support FMA, not all first movers win. Shankar, Carpenter, and Krishnamurthi, Zhang and Markman, and Rhee presented two late-comer strategies that enable a late entrant to become a successful competitor. The first strategy for overcoming the latecomer disadvantage is to focus investment on the target product segments. The second strategy is to explore the latecomer advantage of odd timing. Through odd timing, latecomers can catch up with early movers by breaking existing rules. Leveraging these strategies, latecomers may have opportunities to deliver higher performance than early entrants.

**Limitations**

The limitations of this study are two-fold. First, we did not preclude the problem of sampling biases. A systematic review is more reliable than a narrative review because the former involves a systematic protocol for selecting the papers used. However, sampling biases are not completely excluded. We selected only empirical studies from refereed journals to ensure the quality
of the research. Meanwhile, some scholars suggest that including not only refereed journals but also non-refereed and unpublished journals would enhance the validity of the review [Tranfield et al., 2003]. Future studies might expand the sample of target journals to pursue broader generalizations about FMA.

Second, our study might have had accuracy of analysis issues. We collected empirical studies and examined the entry order effect through a quantitative approach. This approach raises the question of whether the number of tests that support FMA differs significantly from the number of those that do not. Therefore, future research should conduct a statistical analysis, such as a meta-analysis, to investigate this difference.

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1 Studies preceded by [ ] were included in the empirical dataset.


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