

AN EMPIRICAL STUDY OF LAUNCH ORDER VALUATION BASED UPON STOCK MARKET REACTION

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The preponderance of evidence, reported in more than three decades of research, appears to support a substantial advantage for first-movers, primarily manifested in the form of increased market share. However, there is growing evidence that the market share advantage of pioneering may not provide a long-term financial advantage because of the high costs of developing and introducing new products, the high rate of new product failures, and the dramatically changing marketing environment (Boulding and Christen 2003; Cook 1985; Eddy and Saunders 1980; Moore et al. 1991). This study examines the financial impact of launch order strategy using an event study methodology that incorporates market reactions based upon stock price swings. Results indicate that first-movers do experience a net financial benefit; however much of these initial gains are transitory, and are dissipated with the entry of second and third-movers. Furthermore, first-mover advantages are declining over time.

INTRODUCTION

New product development is a vital element in the survival and success of firms. Due to technological advances, increased competition from home and abroad, and shorter product life cycles, new product development is thought to be more important than ever. Even for large well-diversified companies like Procter and Gamble, products developed in the past ten years represent nearly half of their overall profits (Misrah and Bahbra 2001). However, there are inherent risks to pioneering, and the question of whether it is better to enter the market first or be a follower has been addressed from many different perspectives. More recent research has tended to question whether pioneering advantage is as valuable and durable as it was once presumed.

An important stream of research has incorporated stock market reactions as a meaningful estimate of the net real value of new product launch to the firm (Eddy and Saunders 1980; Chaney, Devinney and Winer 1991). Event studies incorporating stock

market reactions can account for the indirect costs of pioneering, the risks associated with this strategy, and the time value of money (Fama et al. 1969). While this research has provided new insights into the value of first-mover advantage, it has ignored the consideration of timing and order of new product moves (Lee, Smith, Grimm and Schomberg 2000), even though these are the very factors that often determine the success of new product introductions (D'Aveni 1994).

The purpose of this study is to glean some insights about the perceived value of launch order by examining stock market reaction to new product announcements over a twenty year period. It is hoped that this research will indicate whether the relative value of pioneering advantage has changed over the specified time period, and whether pioneering is still a robust strategy to generate shareholder value. To accomplish this purpose, we first offer a review of the launch order literature, then develop seven research hypotheses, outline our methodology for testing, and finally, present results and conclusions.

LITERATURE REVIEW

The strategic importance of the pioneering issue is witnessed by the consistent attention paid to it in the literature since the 1970s. Whether it is in a firm's best interest to pioneer or enter the new market after it has been established by someone else has been discussed in over 200 articles in the academic business literature. Unfortunately, the results of all of these studies have not been consistent.

The Case for Pioneering

A firm that is first to enter the market for a specific product or service is referred to as a pioneer or first-mover (Lieberman and Montgomery 1988). Given the evidence in the economic, management, and marketing literature, being first to market is endorsed as a viable strategy (for instance, Alpert 1987; Buzzell and Sultan 1975; Carpenter and Nakamoto 1990; Conrad 1983; Robinson and Min 2002). Pioneers initially enjoy short-term profits as they operate as a monopoly before later entrants arrive, commonly referred to as pioneer lead-time (Huff and Robinson 1994). Even after competitors enter, pioneers have been found to accrue long-term benefits, including scale economies, technological leadership, brand loyalty, preemptive patenting, switching cost barriers, barriers to competitor entry, product lines that preempt competition, and consumer preference formation (Bain 1956; Carpenter and Nakamoto 1989; Golder and Tellis 1993; Gilbert and Newbery 1982; Kerin et al. 1992; Lieberman and Montgomery 1998).

The Case for Fast Following

While the majority opinion finds strong advantages to pioneering, a growing number of articles have called into question the many benefits assumed to confer long-term advantages to pioneers. Learning curve and scale economy effects have diminished, as inter-firm diffusion of technology and other firm resources such as trade secrets, patents and knowledge diffusion via human resources mobility serve to negate the once heralded

advantages of pioneers (Mellahi and Johnson 2000). Further, it has been shown that market share leadership for pioneers is supported in only 10 percent of major product categories (Golder and Tellis 1993). Being first to market often does not ensure dominant market share or long-term rewards (Cahill 1996; Kerin et al. 1992). Indeed, depending on strategic posture, some firms might benefit from being first-movers, while others might profit from early or late entry (Chen et al. 2002). At the business unit level, being first-to-market may lead to a long-term profit disadvantage (Boulding and Christen 2003).

Despite the ready advantages which accrue to first-movers, there are substantial risks involved in being first to market. New product failure rates remain extremely high, despite considerable academic research and management resources devoted to the issue (Berggren and Nacher 2001). The rate of new product failures has been estimated conservatively at between 70 and 90 percent (Sarin and Kapur 1990), and more recently at between 80 and 95 percent (Berggren and Nacher 2000). In addition, for every four products that enter development, only one makes it to market, and upon launch, at least one of three products fail despite extensive research and planning (Stevens and Burley 1997). An estimated 46 percent of all resources allocated to new product development and commercialization by U.S. firms is spent on products that are cancelled or fail to yield adequate returns (Berggren and Nacher 2000). Consequently, there seem to be real advantages to entering the market later, after learning from the pioneer's mistakes.

Weaknesses in the Research Stream

New product initiatives that increase market share do not necessarily lead to increases in shareholder wealth, which after all, should be the main force shaping managerial decision making, since the shareholders are the owners of the firm (Lee et al. 2000). A better approach to assessing the value of product launch involves placing an objective value on any

change in market share and evaluating the corresponding return on investment (Cook 1985). Such an approach attempts to place an economic-based value on first-mover strategy, weighing both the potential benefits stemming from such a strategy against the costs and risks.

However, to date there is a paucity of empirical research that has incorporated profitability into the analysis, even though reviews of the entry order literature have repeatedly pointed to profit implications as one of the key unanswered questions (Lieberman and Montgomery 1988, 1989; Kerin et al. 1992; Robinson et al. 1994). Previous efforts have relied on surrogate measures such as survival rates and market share or involved piece-meal approaches in relatively obscure industries (i.e., bleached pulp and offshore oil rigs). These decisions adversely impact the generalizability of the results (Nehrt 1996).

The notable exception is Lee et al. (2000), who reported on an event study involving the performance consequences of move timing, order of entry, and competitive imitation as related to first-movers. The researchers did this by examining changes in shareholder stock price returns immediately following the announcement of new product introductions. This choice of research methodology was based upon the idea that financial markets are efficient and stock price shifts resulting from strategic actions such as new product launch will accurately reflect the true value to the firm (Fama 1970, 1991). Further, stock price measures are more closely linked to the actual timing of the new product introduction than annual accounting data (Bettis and Weeks 1987). The use of stock prices to estimate financial impact is an important tool, especially when the net advantages of market introductions may be short-lived due to competitive imitation (as is increasingly the norm) (D'Aveni 1994).

Studying 105 firms in the telecommunications, personal computer and brewing industries for a fifteen year period from 1975 to 1990, Lee et al. (2000) found that at the time of the product

introduction announcement, first-movers experienced an average positive three-day reaction of 2.17 percent. However, after imitators entered the market, first-movers experienced negative effects. A negative average reaction of -0.96 percent was experienced at the first imitation, and a negative average reaction of -1.31 percent was experienced at the second imitation, thus yielding a sum effect of -0.10 percent. Consequently, the study concluded that all first-mover advantages eventually erode as competitors copy or imitate first-movers.

EVENT STUDY METHODOLOGY

Stock prices are presumed to accurately measure the true value of firms, because they reflect the discounted value of all future cash flows, incorporating all relevant information (Chaney, Devinney and Winer 1991). Since shareholders are a major constituency of a firm, creation of value for shareholders should be a major criterion for managers to apply when developing and announcing new products. Therefore, properly conducted event studies, based on changes in stock prices, should reflect the financial impact of corporate policies and strategies more effectively than methodologies based on accounting returns (Eddy and Saunders 1980; Chaney, Devinney and Winer 1991; McWilliams and Siegal 1997). By investigating the price behavior of the firm's stock price at the time when new information is received about an event that affects the firm's cash flows, one is explicitly testing the underlying change in an unbiased market forecast of the firm's future income (Chaney, Devinney and Winer 1991).

The methodological assumptions grounded in financial theory and supported by empirical research indicate that investors will rapidly assimilate the implications of a new product announcement, collectively predict long-term future cash flows (both on the revenue and cost sides), and either buy or sell, depending on whether their expectations indicate that the stock price is too high or too low (Lane and Jacobson 1995). Thus, the change in stock

price following a new product announcement will provide an unbiased estimate of the future long-term earnings from the new product, provided the event study is implemented correctly. All things considered, it is an excellent tool to assess the true value of first-mover advantage (Lee et al. 2000).

The utilization of event study methodology to place an economic-based value on first, second, and third market entrants is important for two main reasons. First, although many strategic management and marketing studies have attempted to evaluate specific strategic decisions, few have attempted to tie their evaluative criteria to the most widely accepted measure of firm valuation, stock price. Second, new product development is the driving force behind corporate and managerial success, yet little evidence exists that associates such behavior to the firm's market value (Eddy and Saunders 1980; Tellis and Golder 1996; Lee et al. 2000).

HYPOTHESIS DEVELOPMENT

Theoretically, the firm that is first to introduce a new product attains an advantage over both fast-followers and later entrants (Lieberman and Montgomery 1988; Porter 1985). These advantages are largely manifested in the form of monopoly profits the first-mover realizes by being the only player in a marketplace niche, and long-term market share advantages garnered by pioneering firms (Chaney, Devinney and Winer 1991; Lee et al. 2000). For example, Chaney et al. (1991) found that firms realize a positive shareholder wealth effect at the precise time of new product introduction announcements. In addition, Lee et al. (2000) discovered that, at the time of new product announcements, first-movers experienced a positive three-day reaction of 2.17 percent. Thus it is posited:

H₁: In aggregate, first-movers will experience positive average abnormal stock returns following a new product announcement.

The magnitude and durability of the advantages first-movers experience are largely determined

by competitor response to new product introductions. By quickly following with an imitation product, which is increasingly the norm, competitors can adversely affect the impact and longitude of first-mover advantage by sharing in and/or reducing their potential profits (D'Aveni 1994; Lieberman and Montgomery 1988; Porter 1985). If financial markets accurately reflect the value of new product introductions, and if pioneering lead-times are declining over the past 25 years, then we should see evidence of a decline in average abnormal stock returns attributable to new product announcements if we compare an earlier period with a later period. Thus it is suggested:

H₂: In aggregate, first-mover average abnormal stock returns accruing from new product announcements will be less in the 1995-2004 period than those observed in the 1985-1994 period.

It has been theorized that firms which are first to introduce new products attain an advantage over both fast-followers and later entrants (Lieberman and Montgomery 1988; Porter 1985). However, the magnitude and durability of these advantages are largely determined by competitor reaction to new product announcements. By entering quickly with an imitation product competitors can adversely affect the magnitude and durability of first-mover advantage by sharing and/or reducing their potential profits (D'Aveni 1994; Lieberman and Montgomery 1988; Porter 1985). In addition, it was discovered by Lee et al. (2000) that first-movers experience, on average, negative abnormal stock returns of 0.96 percent following the new product announcement of the first competitor.

When the second-mover enters the market, the discounted future value of the first-mover's business should be adversely affected, since the added competition will impact sales volume, pricing and marketing expenditures required to maintain market share. Consequently, the stock price should go down. This is consistent with the findings of Lee et al. (2000). Thus, it is suggested:

H₃: In aggregate, first-movers will experience negative abnormal stock returns when a second competitor announces a competitive product.

Conversely, the second-mover should benefit by the addition of the new product to the market, and that benefit should be reflected by some sort of positive effect in the stock price of the second-mover. Thus, it is proposed that:

H₄: In aggregate, second-movers will experience positive average abnormal stock returns that are less than the returns experienced by first-movers.

There is empirical evidence that shows that first-movers experience an even greater abnormal negative effect on stock price (-1.31 percent) when a third company enters the market (Lee et al. 2000). The authors submit that it may be that these later imitators, while achieving little advantage for themselves, substantially erode first-mover advantages by transforming what was once a new product into an ordinary commodity. The researchers fell short of placing an exact percentage value on what they refer to as "little" advantage. Given that their study considered data in only three industries from 1975 to 1990, it is felt that in the current study the third entrant will likely pick up some of these dollars taken away from the first-movers' stock price immediately after entry. Thus, it is posited:

H₅: First-movers will experience negative abnormal stock returns when a third company announces a competitive product.

H₆: Third-movers will experience positive abnormal stock returns that are less than those experienced by first and second-movers.

The business environment has always been characterized by constant change. However, many would agree that since the 1980s the marketing environment has undergone change much more quickly and frequently than ever before. Rapidly expanding market demand, increased globalization of markets, quicker dissemination of information across consumers,

a rise in the mobility of managerial and technical personnel across firms, and substantial growth in the number and importance of scientific journals and trade publications are among the reasons for this unprecedented transformation of the marketing environment (Lee et al. 2000). Kindled by rapid technological advancements and the growth of the Internet, lead-time, arguably the key underpinning of first-mover advantage, likely has dramatically decreased since the 1980s.

Early imitators may learn from the first-mover's experience, such as reducing or avoiding development and testing costs and pricing mistakes (Lee et al. 2000). Further, Drucker (1985) identified several advantages to following, including limiting risk exposure and cutting development costs by reverse engineering.

While much of the first-mover literature asserts there are advantages in moving first, a number of scholars have fostered fast-following as a more profitable strategy (Smith et al. 1992; Teece 1986; Gal-Or 1985). In addition, research has shown that in some instances, a fast-follower can garner results superior to those of the first-mover (Boulding and Christen 2003; Gannon and Grimm 1992; Chaney, Devinney and Winer 1991). In kind, it is plausible that the profitability of first-movers, as measured by abnormal returns to stockholders, has also declined.

It is likely that the previous barriers to entry, which allow pioneers to initially earn short-term monopoly-like profits before competitors enter the market and longer-term benefits believed to accrue to first-movers even after competitors enter, have continued to decline each year as technology continues to grow exponentially. Thus, it is proposed that:

H₇: In the aggregate, second-movers during the 1995-2004 period will earn higher abnormal stock returns than second-movers during the 1985-1994 period.

METHODOLOGY

The main goals of this research effort are to place a market-based value on first, second, and third market entrants and to determine if first-mover advantage has declined over the recent past. In order to test the hypotheses, data was collected over a twenty year time period between 1985-2004 regarding new product announcements of first-movers and the corresponding announcements of second and third market entrants. This time period was chosen to span and extend the time period used in previous studies. The choice of a twenty year time horizon allowed partitioning of the data into two ten year periods so that the hypotheses regarding the decline of first-mover advantage could be tested.

The event study method was chosen as the most viable methodology to test the proposed hypotheses. Event study methodology is a powerful tool that can help researchers assess the financial impact of corporate policies and strategies (McWilliams and Siegal 1997). This methodology provides a rigorous foundation to isolate the component of return due to firm-specific events (the abnormal return) by adjusting stock returns for market-wide movements (Boulding and Christen 2003). The objective of an event study is to assess whether there are any abnormal or excess returns earned by security holders accompanying specific events where an abnormal or excess return is the difference between observed return and that appropriate given a particular return generation.

Sample Size

News reported in the *Wall Street Journal* was used to identify the timing of new product announcements by first-movers and subsequent announcements by second and third moving competitors. The *Journal* is considered the newspaper of record for financially relevant events (McWilliams and Siegal 1997). Because announcements of second and third market entrants are often not considered newsworthy enough to warrant their inclusion in the *Wall Street Journal*, the *New York Times* and Lexis/Nexis data base were also searched

to identify followers, in order to enhance the sample size. For each event window, firms for which there were confounding effects (defined as other economic events which are relevant to the firm in question as reported in the *Wall Street Journal*) were eliminated from the sample.

Although an appropriate sample size for reliable event study implementation has not been precisely identified in the literature, it is widely held that a sample of less than 20 is too small, and samples of at least 50 are more than adequate to ensure sound methodological implementation. The original sample consisted of 1,783 new product announcements made by firms, across 24 subsections of industries, which were listed on the New York Stock Exchange, the American Stock Exchange, or the NASDAQ Composite Index. It was important to the study that the new product announcements were relatively unanticipated by investors. As such, 212 announcements were omitted because they had already been preannounced. Similarly, 321 new product announcements from the automobile industry were omitted because these annual events are largely anticipated. Additionally, 316 new product announcements made by pharmaceutical companies were omitted because it was felt their inclusion would unfairly bias the study toward pioneers, due to the high level of patent protection enjoyed by first-movers in this industry.

A major assumption which must be met for the proper implementation of an event study is that the effect of the particular event in question has happened in isolation from the effects of other firm-specific confounding events which would render the results invalid (McWilliams and Siegal 1997). Great care was taken to rule out confounding events in this study which additionally reduced the final usable sample. Two hundred seventeen of the announcements had to be eliminated because they involved more than one product (multiple announcements) making it impossible to ascertain the actual impact each product announcement had on the firms' abnormal

stock price gains. Another 54 announcements had to be purged due to confounding events during the three day event window (i.e., dividend declarations, impending mergers). Additionally, 43 new product announcement events were discarded due to confounds regarding actions involving either the first or second entrants over the three day event window. This resulted in a final usable sample of 423 paired events to compare the performance of both first and second entrants. This sample represented a broad cross section of public-owned firms and industries.

When third market entrants were considered, further purging reduced the sample size to 158. Though firms are required to release certain information as specified by the Securities and Exchange Commission (SEC) or the exchange in which their securities are traded, new product announcements are not required, nor is the financial press obligated to report all releases (Patterson 1993). This may, at least in part, explain why only 189 third followers could be identified. Of these, 31 had to be discarded due to confounding events of either first, second, or third-movers during the three day window around the third-mover's new product announcement, leaving 158 tri-part events available for comparison.

Data gathered from the Center for Research in Security Prices (CRSP) tapes, compiled at the University of Chicago, was used to calculate the expected normal returns for each firm in the sample based on the overall return of the market and the firm's beta coefficient during each individual three-day event window (the day before, the day of, and the day following the new product announcement). The firm's beta, which reveals the individual stock's volatility compared to the market as a whole, is a critical component in the assessment of the expected return for the firm over a given time period. Each firm's beta was calculated by regressing daily returns against that of the market for 365 trading days prior to the date of the firm's new product announcement. Then each firm's actual return over the three-day event window was compared against its

expected return to calculate its daily abnormal returns. These returns were transformed into an average standardized cumulative abnormal return, thus allowing a market-based value to be assigned to first, second, and third market entrants. Although the actual benefits and/or detriments associated with a new product introduction cannot be fully determined until the market dynamics unfold, stock price reactions have been shown to be an excellent proxy for the actual returns (Lee et al. 2000).

FINDINGS

The hypotheses were constructed in an effort to ascertain the economic ramifications of order of market entry on the first, second, and third market entrants. Prior to this study, there was significant evidence suggesting that there is, at least initially, an economic benefit to moving first. Thus, H_1 suggested that first-movers would realize positive average abnormal stock returns over the full twenty years presented in the study. The hypothesis was confirmed with first-movers realizing positive abnormal average returns of 1.265 over the period of study. In addition, the test statistic, used to assess whether the average cumulative abnormal return is significantly different from zero confirms this ($t = 34.181, .000$ sig.).

Hypothesis two posited that the average abnormal returns garnered by first announcers would be less for the 1995-2004 period compared to those during the 1985-1994 period. The average abnormal returns yielded by first-movers decreased from 1.51 percent ($t = 29.061, .000$ sig.) to 0.97 percent ($t = 22.195, .000$ sig.) for the 1985-1994 to 1995-2004 periods, respectively, a decrease of 36 percent, thus supporting H_2 .

Hypothesis three posited that first-movers would experience negative average abnormal returns when the first competitor entered the market, due largely to the first-mover no longer being able to operate like a monopoly in a particular market. Over the twenty year period of study, first-movers experienced an average abnormal decline in stock price of .62 percent (t

= 32.379, .000 sig.), representing a 49 percent decrease in the first-movers' initial gain, thus supporting H₃. Additionally, over the 1995-2004 time period, 54 percent of the first-movers' initial gains were taken away following the announcement of an imitation product compared to a loss of only 46 percent of the first-movers' initial gains over the 1985-1994 period.

Hypothesis four suggested that between 1985-2004 positive average abnormal returns would be garnered by the first competitor to enter the market with an imitation product. First followers did gain an average abnormal return of .58 percent (t = 32.890, .000 sig.) over the twenty year time period supporting H₄. It is also noteworthy that second-movers averaged gains of .63 percent (t = 24.954, .000 sig.) and .51 percent (t = 22.150, .000 sig.) over the 1985-1994 to 1995-2004 periods, respectively. However, it must be pointed out that second-mover gains as a percentage of first-mover gains increased from 42 percent to 53 percent over the 1985-1994 and 1995-2004 time periods, respectively. This shows that second-movers have fared better in comparison to first-movers over the more recent period. Table I shows the average abnormal gains experienced by first and second-movers following new product announcements, and average abnormal losses for the first-mover.

Lee et al. (2000) discovered that first-movers experienced even greater average negative abnormal return (-1.31 percent) when a third firm entered the market. Thus, it was posited in Hypothesis five that first-movers would

experience negative average abnormal returns when a second follower introduced a new product. The results again showed that from 1985-2004 first-movers did experience an average abnormal loss of .34 percent (t = 16.558, .000 sig.) when the second follower was announced, lending credence to H₅. In addition, the negative abnormal average returns following third-mover announcements increased from .32 percent (t = 16.558, .000 sig.) to .35 percent (t = 12.787, .000 sig.) for the 1985-1994 to 1995-2004 time periods, respectively, adding additional evidence to the theory that first-mover advantage has indeed been declining.

In Lee et al.'s 2000 study the authors surmised that third-movers, while substantially eroding first-mover advantages, achieved little advantage for themselves. The current study strove to place an actual value on the third-mover's efforts. Thus Hypothesis six proposed that third-movers would experience positive abnormal stock returns upon announcement of their entry into an established market. Over the twenty year time period third entrants experienced a positive average abnormal return of .24 percent, lending strong support for H₆. Additionally, the average abnormal returns experienced following the third-mover's announcement increased from .24 percent (t = 10.848, .000 sig.) to .26 percent (t = 12.785, .000 sig.) for the 1985-1994 to 1995-2004 periods, respectively. Table II shows the average abnormal returns garnered by third-movers and the average abnormal losses experienced by first-movers following the third-movers' new product announcement.

TABLE I
Average Impact for Second-Mover Entry

Period	Sample Size	First-Movers' Gains	Second-Movers' Gains	First-Movers' Losses on Second-Mover Entry
1985-2004	423	1.26%, t=34.181, .000sg	.58%, t=32.890, .000sg	.62%, t=32.379, .000sg
1985-1994	229	1.51%, t=29.061, .000sg	.63%, t=24.954, .000sg	.69%, t=24.492, .000sg
1995-2004	194	0.97%, t=22.195, .000sg	.51%, t=22.150, .000sg	.53%, t=22.630, .000sg

Hypothesis seven proposed that in the aggregate, fast followers (second-movers) would attain higher abnormal stock returns than pioneers (first-movers) during the time period between 1985-2004. It was discovered that the average abnormal returns garnered during the event periods were 1.26 percent and .58 percent for pioneers and fast followers, respectively. However, these results must be interpreted with great care. It must be noted that, over this time period, pioneers sustained an average negative abnormal return of .62 percent when second entrants announced their new products. Thus, the actual average gain to pioneers would be .64 percent (1.26 percent minus .62 percent). Nonetheless, it seems apparent that it was economically better to be a first-mover rather than a fast follower over the twenty year period of study. In summary, all seven of the research hypotheses were supported (Table III).

announcements by first-movers very positively. Out of 423 new product announcements all but seven observations yielded positive abnormal three-day returns for first-mover firms. Three had no effect and four actually lead to negative abnormal average returns for first-movers. The gains averaged 1.26 percent, ranging from a low of -.30 percent to a high of 4.37 percent. One has to remember that what is being measured here is not an actual post-facto account of the total financial impact of these new product announcements, but rather a forming of a consensus as to the general long-term financial impact of the new product just announced. These abnormal changes in stock price serve as an appropriate and effective proxy by reflecting the aggregate expectations of investors regarding the change in long-term future cash flows (Eddy and Saunders 1980; Chaney, Devinney and Winer 1991; Lane and Jacobson 1995; Lee et al. 2000).

SUMMARY AND CONCLUSIONS

Given the findings in previous studies and the results from this work there is no doubt that the financial markets view new product

The extent to which these returns are long-lasting depends largely upon the reactions of competitors. However, the results show that on average first-movers relinquish .62 percent of

TABLE II
Average Impact for Third-Mover Entry

Period	Sample Size	Third-Movers' Gains	Second-Movers' Losses on Third-Mover Entry
1985-2004	158	.25%, t=15.290, .000 sig	.34%, t=16.558, .000 sig
1985-1994	83	.24%, t=9.554, .000 sig.	.32%, t=10.848, .000 sig.
1995-2004	75	.26%, t=12.285, .000 sig.	.35%, t=12.785, .000 sig.

TABLE III
Results of Hypothesis Tests

Hypothesis	Relationships	Result
H ₁	First-movers will experience positive average abnormal stock returns.	Supported
H ₂	First-mover returns will be less in the later period than in the earlier period.	Supported
H ₃	First-movers will experience negative returns upon entry by a second-mover.	Supported
H ₄	Second-mover returns will be less than first-mover returns.	Supported
H ₅	First-movers will experience negative returns upon entry by a third mover.	Supported
H ₆	Third-mover returns will be less than first and second-mover returns.	Supported
H ₇	Second-mover returns will be greater in the later period than in the earlier period.	Supported

their initial gains following the announcement of entry by the first competitor. In all but 16 of the 423 cases, first-movers gave back part of their initial gains. In ten of these cases first-movers experienced no effect and six actually gained additional abnormal returns following the second entrant's announcement.

The initial average abnormal returns garnered by first-movers were also negatively impacted by the announcement of a third market entrant. Out of 158 announcements of market entry by second followers, first followers again gave back some of their initial gains in all but ten instances. Three second follower announcements resulted in no impact and seven resulted in additional abnormal gains for the first-mover. The negative abnormal returns for first-movers averaged .34 percent over the 1985-2004 period. Similar to the findings regarding second-mover entry, the extent to which initial gains were lost depended largely on the amount of lead-time and the comparative relative advertising intensity ratios of first and third-movers.

There also seems little doubt that both second and third market entrants garner substantial positive abnormal returns following their announcements of market entry. Second entrants averaged abnormal stock price increases of .58 percent, while third entrants averaged abnormal gains of .25 percent. Second-movers realized positive abnormal three-day returns in all but ten observations, seven of which were negative and three had no impact. Similarly, third-movers experienced positive abnormal returns in all but twelve observations, eight of which were negative, while four resulted in no impact.

It is impossible to conclude whether it is best to be a first, second, or third company to enter a new product market, given the data that was collected. Rather, the economic ramifications of order of entry are likely to depend upon the industry, economic conditions at the time of entry, and the strategic postures taken by early industry participants. However, it can be

concluded that first-movers are initially rewarded economically. Nonetheless, it has been shown that these advantages have decreased over the 1985-2004 time period.

STUDY LIMITATIONS AND FUTURE RESEARCH

The structured content analysis which was conducted in this study was a very long and arduous process. However, it was felt this was the most effective way to identify the first three firms which announced the entry of a particular product. Future endeavors of this type should attempt to measure the negative abnormal stock price effects likely to be experienced by second and third-movers when the pioneer announces its new product. Although there is no way of anticipating who these followers will be with any degree of certainty, researchers need only check the negative effect these followers experienced following the first-mover's announcement. Then a conclusion could be drawn as to which of the three entrants performed better financially, at least in the eyes of the investment community.

There are undoubtedly significant differences in the success of first, second, and third-movers that vary by industry. However, there is no apparent way to secure a large enough sample size in any one particular industry using the data gathering methodology employed in this study. Researchers interested in doing individual industry comparisons should employ the data gathering technique used by Lee et al. (2000). The authors chose three industries, identified the new products that were developed by industry participants, and then conducted a key word search to identify publications in which these new products were announced. Additionally, achieving an adequate sample size for industry specific studies may be achieved by expanding the database as in the work by Eddy et al. (1993) which used The Funk and Scott Index, Electronic News, Datamation, and various other periodicals to identify new product announcements.

Finally, there are undoubtedly many firm specific variables such as pioneer lead-time, relative R&D intensity, and relative advertising intensity that affect the performance of firms developing and entering new markets. Research regarding other variables (i.e., degree of market versus sales orientation) would also be valuable in further explaining the value of first-mover advantage.

REFERENCES

- Alpert, Frank H. (1987), "Product Categories, Product Hierarchy, and Pioneership: A Consumer Behavior Explanation for Pioneer Advantage," in *AMA Educators' Proceedings*, Susan P. Douglas et al. eds., Chicago: American Marketing Association, pp. 133-138.
- Bain, Joe S. (1956), *Barriers to New Competition, Their Character and Consequences in Manufacturing Industries*, Cambridge: Harvard University Press.
- Berggren, Eric and Thomas Nacher (2000), "Why Good Ideas Go Bust," *Management Review*, 89(2), pp. 32-36.
- Berggren, Eric and Thomas Nacher (2001), "Introducing New Products Can Be Hazardous to Your Company: Use the Right New Solution Delivery Tools," *Academy of Management Executive*, 15(3), pp. 92-101.
- Bettis, Richard A. and David Weeks (1987), "Financial Returns and Strategic Interactions: The Case of Instant Photography," *Strategic Management Journal*, 8(6), pp. 549-563.
- Boulding, William and Markus Christen (2003), "Sustainable Pioneering Advantage? Profit Implications of Market Entry Order," *Marketing Science*, 22(3), pp. 371-392.
- Buzzell, Robert D. and Paul W. Farris (1977), "Marketing Cost in Consumer Goods Industries," in *Strategy + Structure = Performance*, H. Thorelli, ed., Bloomington, IN: Indiana University Press, pp. 122-145.
- Buzzell, Robert D., Bradley T. Gale and Ralph G. M. Sultan (1975), "Market Share – A Key to Profitability," *Harvard Business Review*, 53(1), pp. 97-106.
- Cahill, Dennis (1996), "Pioneer Advantage: Is it Real? Does it Matter?" *Marketing Intelligence and Planning*, 14(4), pp. 5-8.
- Carpenter, Gregory S. and Kent Nakamoto (1990), "Competitive Strategies for Late Entry into a Market with a Dominant Brand," *Management Science*, 36(10), pp. 1268-78.
- Carpenter, Gregory S. and Kent Nakamoto (1989), "Consumer Preference Formation and Pioneering Advantage," *Journal of Marketing Research*, 26(August), pp. 285-298.
- Chaney, Paul K., Timothy M. Devinney and Russell S. Winer (1991), "The Impact of New Product Introductions on the Market Value of Firms," *Journal of Business*, 64(4), pp. 573-610.
- Chen, Sheng-Syan, Kim Wai Ho, Kueh Hwa Ik and Cheng-Few Lee (2002), "How Does Strategic Competition Affect Firm Values? A Study of New Product Announcements," *Financial Management*, 21(2), pp. 67-84.
- Conrad, Cecilia (1983), "The Advantage of Being First and Competition Between Firms," *International Journal of Industrial Organization*, 1(4), pp. 353-364.
- Cook, Jr. Victor J. (1985), "The Net Present Value of Market Share," *Journal of Marketing*, 49(3), pp. 49-63.
- D'Aveni, Richard A. (1994), *Hyper-competition: Managing the Dynamics of Strategic Maneuvering*, New York: Free Press.
- Drucker, Peter F. (1985), "The Discipline of Innovation," *Harvard Business Review*, 63(3), pp. 67-72.
- Eddy, Albert R., R. Fletcher, Harold D. Margenthaler, Charles R. Reinhart and J. Walter (1993), "Financial Signaling and New Product Announcements," *Mid-Atlantic Journal of Business*, 29(1), pp. 97-108.
- Eddy, Albert R. and George B. Saunders (1980), "New Product Announcements and Stock Prices," *Decision Sciences*, 11(1), pp. 90-97.
- Fama, Eugene F., Lawrence Fisher, Michael C. Jensen and Richard Roll (1969), "The Adjustment of Stock Prices to New Information," *International Economic Review*, 10(1), pp. 1-21.

- Fama, Eugene F. (1970), "Efficient Capital Markets: A Review of Theory and Empirical Work," *Journal of Finance*, 25(2), pp. 383-417.
- Fama, Eugene F. (1991), "Efficient Capital Markets: II," *Journal of Finance*, 46(5), pp. 1575-1617.
- Gal-Or, Esther (1985), "First-Mover and Second-Mover Advantages," *International Economic Review*, 26(3), pp. 649-653.
- Gannon, Martin J. and Curtis M. Grimm (1992), "An Organization in Formation – Processing Profile of First-Movers," *Journal of Business Research*, 25(3), pp. 231-241.
- Gilbert, Richard J. and David M. G. Newbery (1982), "Preemptive Patenting and the Persistence of Monopoly," *American Economic Review*, 72(3), pp. 514-526.
- Golder, Peter N. and Gerard J. Tellis (1993), "Pioneer Advantage: Marketing Logic or Marketing Legend?" *Journal of Marketing Research*, 30(2), pp.158-70.
- Huff, Lenard C. and William T. Robinson (1994), "Note: The Impact of Lead-Time and Years of Competitive Rivalry on Pioneer Market Share Advantages," *Management Science*, 40(10), pp. 1370-77.
- Kerin, Roger A., P. Rajan Varadarajan and Robert A. Peterson (1992), "First-Mover Advantage: A Synthesis, Conceptual Framework, and Research Propositions," *Journal of Marketing*, 56(4), pp. 33-52.
- Lane, Vicki and Robert Jacobson (1995), "Stock Market Reactions to Brand Extension Announcements: The Effects of Brand Attitude and Familiarity," *Journal of Marketing*, 59(1), pp. 63-78.
- Lee, Hun, Ken G. Smith, Curtis M. Grimm and August Schomberg (2000), "Timing, Order and Durability of New Product Advantages with Imitation," *Strategic Management Journal*, 21(1), pp. 23-30.
- Lieberman, Marvin B. and David B. Montgomery (1988), "First-Mover Advantages," *Strategic Management Journal*, 9 (Summer), pp. 41-58.
- Lieberman, Marvin B. and David B. Montgomery (1998), "First-Mover (Dis)Advantages: Retrospective and Link with the Resource-Based View," *Strategic Management Journal*, 19(2), pp. 1111-1125.
- McWilliams, Abigail and Donald Siegal (1997), "Event Studies in Management Research: Theoretical and Empirical Issues," *Academy of Management Journal*, 40(3), pp. 626-657.
- Kamel, Mellahi and Michael Johnson (2000), "Does It Pay to Be a First-Mover in e.Commerce? The Case of Amazon.com," *Management Decision*, 38(7), pp. 445-454.
- Mishra, Debi Prasad and Harjeet S. Bhabra (2001), "Assessing the Economic Worth of New Product Preannouncement Signals: Theory and Empirical Evidence," *Journal of Product and Brand Management*, 10(2), pp. 75-93.
- Moore, Michael J., William Boulding and Ronald C. Goodstein (1991), "Pioneering and Market Share: Is Entry Time Endogenous and Does it Matter?" *Journal of Marketing Research*, 28(1), pp. 97-104.
- Nehrt, Chad (1996), "Timing and Intensity Effects of Environmental Investments," *Strategic Management Journal*, 17(7), pp. 535-547.
- Patterson, William C. (1993), "First-Mover Advantage: The Opportunity Curve," *Journal of Management Studies*, 30(5), pp. 759-777.
- Porter, Michael E. (1985), *Competitive Strategy*, New York: The Free Press.
- Robinson, William T., Gurumurthy Kalyanaram and Glen L. Urban (1994), "First-Mover Advantages from Pioneering New Markets: A Survey of Empirical Evidence," *Review of Industrial Organization*, 9(1), pp. 1-23.
- Robinson, William T. and Sungwook Min (2002), "Is the First to Market the First to Fail? Empirical Evidence for Industrial Goods Businesses," *Journal of Marketing Research*, 39(1), pp. 120-128.
- Sarin, Sharad and Gour M. Kapur (1990), "Lessons from New Product Failures: Five Case Studies," *Industrial Marketing Management*, 19(4), pp. 301-313.

- Smith, Ken G., Curtis M. Grimm and Martin J. Gannon (1992), *Dynamics of Competitive Strategy*, Newbury Park, CA: Sage.
- Stevens, Greg A. and James Burley (1997), "3,000 Raw Ideas = 1 Commercial Success!" *Research Technology Management*, (May/June), 40(3), pp. 16-27.
- Teece, David J. (1986), "Profiting from Technological Innovation: Implications for Integration, Collaboration, Licensing and Public Policy," *Research Policy*, 15, pp. 285-305.
- Tellis, Gerard J. and Peter N. Golder (1996), "First to Market, First to Fail? Real Causes of Enduring Market Leadership," *Sloan Management Review*, 37(2), pp. 65-75.