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### **Emerald Article: Do switching costs really provide a first-mover advantage?**

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# Do switching costs really provide a first-mover advantage?

Switching costs

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## Abstract

**Purpose** – The purpose of this article is to present a model that compares the switching costs that consumers face when they buy pioneering and follower products.

**Design/methodology/approach** – A study of 255 new products indicates that switching costs are actually higher when switching from an existing product to a pioneering product.

**Findings** – The study shows that people who buy a pioneering product may also face switching costs, if the pioneering product is launched in an existing category where consumers are already familiar with similar products.

**Research limitations/implications** – The results help to reinforce the view that first movers have advantages and demonstrate that switching costs do not lead to a higher level of consumer retention.

**Practical implications** – This study provides interesting managerial implications on how to launch new products more effectively when they suffer from switching costs.

**Originality/value** – Researchers commonly view switching costs as a barrier to market entry that protects enterprises that launch pioneering products and gives them a competitive advantage over those that launch follower products. The underlying idea is that people only experience switching costs when they change to a different follower product, rather than when they purchase a pioneering product instead of the product that they usually purchase.

**Keywords** Order of entry, Switching costs, Speed to market, Market performance, Financial performance, Consumers

**Paper type** Research paper

## 1. Introduction

In the dynamic and turbulent environment in which firms compete, the successful marketing of new products is a critical factor for their survival and growth (Iyer *et al.*, 2006). Surprisingly, the analysis of success factors has traditionally been confined to large enterprises. This small number of studies focusing on SMEs contrasts with the economic and social significance of SMEs. SMEs make up more than 99 percent of the total number of firms in Europe and are a key element when it comes to the creation of jobs and wealth. As a result, there has been increasing interest in SMEs in recent years



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(Bagchi-Sen, 2001; O'Regan *et al.*, 2005). Moreover, and despite their public prominence and political influence, the economic impact of large business is about equal to that of small business (Hausman, 2005). SMEs account for over 99 percent of businesses, create roughly 50 percent of the total value added worldwide and, depending on the country, generate between 60 percent and 90 percent of all new jobs (Knight, 2001). Pissarides (1999) argues that SMEs potentially constitute the most dynamic firms in an emerging economy, and according to other authors (Qian, 2002), not only in domestic markets, but also in international ones. As a result, it is widely acknowledged that growing small businesses have a positive economic impact in terms of generating wealth, innovation and jobs (Doern, 2009). However, in spite of their prevalence, SMEs continue to face numerous challenges in managing their resources (Edelman *et al.*, 2005), while academics and managers demand an explanation regarding their impact on new product performance. This paper focuses on a specific aspect of launching strategies, the order of entry (Langerak *et al.*, 2008) and the role that switching costs (Dube *et al.* 2009) have on market and financial performance of firms.

Pioneering products are, broadly speaking, products that introduce new functionality and/or improvements to existing functionality in the market. Numerous studies have examined how launching pioneering products may give firms a competitive advantage over those that launch new follower products (Bowman and Gatignon, 1996; Carpenter and Nakamoto, 1989; Kerin *et al.*, 1992; Rodriguez-Pinto *et al.*, 2008). Broadly speaking, two schools of thought exist regarding first-mover advantages with respect to follower products:

- (1) some studies emphasize the cognitive, attitudinal, and behavioral aspects of consumers, which may favor pioneering brands or products (Alpert and Kammiss, 1994; Carpenter and Nakamoto, 1989; Kardes and Kalyanaram, 1992); and
- (2) other studies draw attention to the advantages of creating barriers to market entry (Kerin *et al.*, 1992).

However, the benefit of launching pioneering products might also depend on whether or not the product category is also new. When a pioneering product falls into a new category, consumers do not have any similar substitute product to compare the pioneering product with.

In contrast, when a firm launches a pioneering product in an existing category, consumers can easily compare the benefits that the pioneering product offers with those that related products in the category offer. This study examines the costs of switching from an existing product to a pioneering product when the pioneering product falls into an existing category.

Switching costs are the one-time costs that consumers incur when they switch from one product to another (Bell *et al.*, 2005) and include:

- the cost of searching out, evaluating, and learning about new products; and
- the perceived uncertainty or psychological costs involved in breaking with a supplier (Burnham *et al.*, 2003).

Some researchers argue that consumers' unwillingness to switch products because of the costs that they incur when doing so is one of the main barriers to entry that new competitors face (Karakaya and Stahl, 1989; Lieberman and Montgomery, 1998; Porter, 1980). Even in cases where consumers are unhappy with their current product,

switching costs may prevent them from switching to another one (Heide and Weiss, 1995; Kohli, 1999), simply because of the perceived disadvantages of changing (Hendricks and Singhal, 1997). In markets where switching costs are high, firms that already have pioneering products on the market and that already have a consumer base are more likely to retain their competitive edge with respect to firms that launch new follower products (Krishnan *et al.*, 2000), because the consumers are unwilling to switch from using the pioneering products to using new follower products because of the costs that they incur when doing so (Kerin *et al.*, 1992).

This paper adopts a new perspective to learn the extent to which consumers experience switching costs when they switch from buying an existing product to a pioneering product. The analysis focuses on whether switching costs really constitute a first-mover advantage or whether they reduce the performance of pioneer products. In spite of the generally accepted view that switching costs act as an entry barrier to firms that launch new follower products and provide those that launch pioneering products with a competitive edge, few empirical studies have provided results that confirm this theoretical view. This study contributes to the existing research by providing new insight into the relationship between order of entry, switching costs, and the performance of new pioneering products.

The organization of the remainder of the paper is as follows. Section 2 presents the theoretical background. Section 3 motivates and presents the hypotheses. Section 4 describes the methods for collecting the data and testing the hypotheses. Section 5 presents the results. Section 6 presents conclusions, discusses the implications of the findings, and states the limitations of the study.

## 2. Theoretical background

Consumers frequently face switching costs because they have already made a commitment to using a particular product. These switching costs need not be limited to objective or so-called economic costs. Consumers can experience procedural, financial, and relational costs when switching to from one product to another (Burnham *et al.*, 2003). When consumers say that switching products is not worth the effort, the barriers to switching that they perceive may be any combination of the following:

- search costs;
- transaction costs;
- learning costs;
- loyal consumer discounts;
- consumer habit;
- emotional costs and cognitive effort; and
- financial, social, and psychological risk on the part of the buyer (Fornell, 1992).

The literature on economics, marketing, and strategy emphasizes the importance of switching costs. Studies in the literature on economics emphasize that switching costs provide enterprises with market power, which allows them to fix prices above marginal costs and realize extraordinary profits (Farrell and Klemperer, 2002). Studies in the literature on marketing claim that when they face switching costs, consumers tend to be more reluctant to change their product and are more likely to continue to use

their existing product (Bell *et al.*, 2005). Strategic studies highlight both the importance of switching costs for the analysis of extended rivalry (Porter, 1980) and their potential as a source of sustained competitive edge (Kerin *et al.*, 1992; Lieberman and Montgomery, 1998). When a product reaches the market before its competitors, consumers may continue to use it, on the basis of either brand identification, or the perceived risk involved in switching, or both. Both of these factors make it more difficult for a consumer to adopt the product of a later entrant, which motivates the hypothesis that the order of entry and the existence of switching costs affect how a product performs. The objective of this study is to examine this effect empirically (Figure 1 shows the hypothesized relationships).

In line with existing research, which demonstrates the multidimensional nature of the performance of new products (Hart, 1993; Griffin and Page, 1996; Henard and Szymanski, 2001), this study considers three performance-related dimensions:

- (1) speed to market;
- (2) market performance; and
- (3) financial performance.

Speed to market is defined as the capacity to launch a new product on or ahead of schedule. It describes a firm's ability to accelerate the activities and tasks involved in the development process of commercializing a new product on time. Market performance is conceptualized as the ability to secure a superior position in the marketplace, capturing the achievement of superior market share and competitive advantage. Finally, financial performance refers to the profitability of the new product. In our framework, speed to market represents a firm capacity to achieve a superior product outcome. The distinction between market and financial performance is pertinent in view of the existing debate between the market share and profitability relationship (Boulding and Christen, 2003).

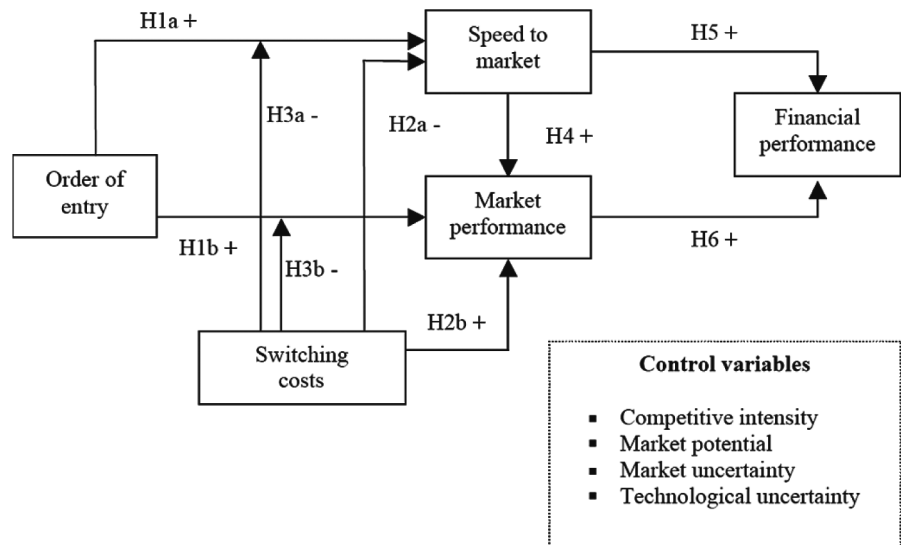


Figure 1.  
Conceptual model

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### 3. Hypotheses

#### 3.1 *Effect of order of entry on the performance of new products*

Carpenter and Nakamoto (1989) indicate that a pioneering brand can influence consumer preferences. Kardes and Kalyanaram (1992) argue that consumers tend to develop favorable attitudes toward the first brands to enter a market. Findings from research in psychology suggest that consumers fix pioneering new products in their minds (Lukas and Menon, 2004). That is to say, products that the consumer encounters first have an anchoring effect on the consumer. Given this anchoring effect, firms have a motivation to speed up the development process for a new product when they have a chance to launch that product before the competition (Lambert and Slater, 1999). On the other hand, firms that launch their products at a later date will place greater emphasis on such attributes as service and quality, rather than on speed-to-market (Coeurderoy and Durand, 2004):

*H1a.* An early market entry has a positive effect on speed-to-market of new products.

The literature contains many studies on the effects of first-mover advantages on market performance (Langerak *et al.*, 2008). The main factors that these studies cite to explain these advantages are the creation of entry barriers (Kerin *et al.*, 1992) and the positive effects on the cognitive, attitudinal, and behavioral aspects of consumers and retailers (Alpert and Kammiss, 1994). In general, consumers recognize pioneering brands easily once these brands are established; hence, pioneering brands have an advantage over follower brands. Schmalensee (1982) argues that, when consumers are satisfied with a product, they tend to be loyal rather than try other brands. Similarly, Kalyanaram *et al.* (1995) and Szymanski *et al.* (1993) present explicitly the empirical hypothesis that first movers obtain good results in terms of market share. Recent research confirms this relationship (Rodriguez-Pinto *et al.*, 2008). Other studies suggest that follower advantages should not be ignored (Coeurderoy and Durand, 2004; Golder and Tellis, 1993; Shankar *et al.*, 1998). However, most studies emphasize the advantages of moving first, rather than following:

*H1b.* An early market entry has a positive effect on the market performance of new products.

#### 3.2 *Effect of switching costs on the performance of new products*

Shepherd (1979) states that barriers to market entry delay potential competitors' entry. When switching costs are relatively high, firms perceive that entry to the market will be difficult, which means that speed-to-market becomes less important to them (Langerak *et al.*, 2008). When switching costs are relatively high, firms tend to focus more on offering extra features in an attempt to attract consumers away from the competition (Holak and Lehmann, 1990), even if doing so means that the firm needs more time to finish the new product (Lukas and Menon, 2004). Thus, when switching costs are relatively high, firms launch new products more slowly:

*H2a.* Switching costs have a negative effect on speed-to-market of new products.

From a theoretical standpoint, switching costs decreases effort to understand why and to predict when consumers continue to use an existing product (Jones *et al.*, 2002). To

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the extent that consumers perceive costs when switching products, they should continue using the same product. Generally speaking, switching costs are disutilities that consumers would rather not incur. The presence of switching costs reflects the presence of strong ties between the consumers and the provider of the product. These ties, which researchers call the “lock-in effect” (Burnham *et al.*, 2003), insulate consumers from market competition (Bell *et al.*, 2005) and make them less likely to pay attention to competitive products (Heide and Weiss, 1995). An accumulating body of evidence indicates that switching costs have a positive, direct effect on market performance (Anderson and Sullivan, 1993; Bansal *et al.*, 2005):

*H2b.* Switching costs have a positive effect on the market performance of new products.

### *3.3 The moderating role of switching costs*

Launching a pioneering product carries more risks than launching a follower product (Langerak *et al.*, 2008). When consumers encounter pioneering products that fall into an entirely new category, the consumers know little about the pioneering products because of those products’ degree of novelty in terms of potential usefulness and the products’ benefits compared to existing products and features, etc. (Lambert and Slater, 1999). However, when these pioneering products fall into an existing category, consumers can compare the novelty of these new products with previous and existing products in that category. Thus, when consumers perceived high switching costs with respect to similar products in that category, the perception of an unknown negative outcome for adopting a pioneer new product increases (Holak and Lehmann, 1990), and in turn the benefits to firms that launch pioneering products decrease. However, because products that market followers enter the market during the mature stage of a product’s life cycle, consumers are already familiar with this type of product, which means that the products’ benefits offset the switching costs that the consumers perceive. In the mature stages of a product’s life cycle, competition becomes more intense. Prices gradually converge, which reduce switching costs (Heide and Weiss, 1995; Jones *et al.*, 2002), given that the alternatives are in many respects similar (Bansal *et al.*, 2005), in part because innovation takes place at a slower pace. In addition, the switching costs that consumers perceive decrease, due to the lower level of uncertainty that the consumers have about the products that are available (Heide and Weiss, 1995). In short, in the mature markets in which follower enterprises operate, the switching costs that the consumers perceive are lower. Contrary to what researchers usually argue in the literature, the foregoing argument suggests that when consumers are considering buying pioneering products, those consumers are likely to perceive higher switching costs. In this situation, pioneer firms are likely to be reluctant to market new products as quickly as possible, due to resistance on the part of their potential consumers:

*H3a.* The positive effect of an early market entry on speed-to-market of new products is weaker when consumers perceive high versus low switching costs.

*H3b.* The positive effect of an early market entry on market performance of new products is weaker when consumers perceive high versus low switching costs.

### 3.4 Relationships between the dimensions of new product performance

A number of studies suggest the existence of a positive correlation between speed-to-market and superior market performance (Carbonell and Rodríguez, 2006), the reason for this correlation being that the market in general is likely to perceive positively companies that are able to realize short development cycles for new products (Lukas and Menon, 2004). A short time to market also ensures that a new product embodies the most recent technological advances and follows the most recent ideas on what features a product of the kind in question should have, thereby providing the product with an advantage over competing products (Atuahene-Gima, 2003):

*H4.* Speed-to-market have a positive effect on market performance of new products.

Cooper and Kleinschmidt (1994) suggest that a positive relationship exists between launching products quickly and their financial performance. Ali *et al.* (1995) report that faster product development reduces break-even time, while Gupta and Souder (1998) indicate that companies that develop new products quickly also realize higher profits and return on equity than companies that need more time to develop new products:

*H5.* Speed-to-market have a positive effect on financial performance of new products.

In the literature for the period from the publication of the initial results from the Strategic Planning Institute's PIMs Program in the 1970s to the present, controversy exists about findings concerning the positive relationship between market performance and financial performance (Buzzell, 2004). Nevertheless, most relevant studies support the hypothesis that market share has a positive influence on profitability (Hooley *et al.*, 2005):

*H6.* The market performance of new products has a positive effect on the financial performance of new products.

## 4. Method

### 4.1 Data collection and sampling

The authors collected data using a cross-sectional survey in the form of a web-based questionnaire. A consensus exists in the marketing and management literature to the effect that switching costs are prevalent in a wide variety of industrial and consumer-related contexts (Fornell, 1992; Jones *et al.*, 2002). Accordingly, the authors took the initial sampling frame from a database that lists the most innovative Spanish firms in various sectors:

- chemical products (28);
- machinery (35);
- electrical and electronic machinery (36); and
- transport devices (37).

The study included a sample of 1,200 firms from a telephone pre-survey, according to two criteria:

- (1) a new product must be developed and launched within the last few years (Lee and O'Connor, 2003); and



- (2) the product must be on the market for more than 12 months, to ensure that sufficient data is available concerning the performance of the product (Langerak *et al.*, 2008).

The study included construction of a questionnaire and then conducting a pre-test among ten managers and ten academics to improve the clarity of the questionnaire and ensure effective communication with the respondents. A web-based questionnaire was then launched and executives in the sample firms were invited to complete questionnaire. As an incentive for firms to respond, the authors promised to send the firms a free summary of the most relevant findings of the study and a present in appreciation of their participation. Following the launch of the questionnaire, the authors wait two weeks and then telephone non-respondents to ask whether they were in receipt of notification of the launch of the questionnaire and to remind them of the value of their input (Larson and Chow, 2003). In all, 255 people responded to the questionnaire, yielding an effective response rate of 21 percent, which is consistent with that which other authors found when conducting similar research (Sivadas and Dwyer, 2000). Table I presents the population and sample composition by sectors.

Then, tests were conducted to learn differences within and between respondents from the various industries. An analysis of the variance and *post hoc* Tukey multi-comparison tests shows that any differences that exist are not significant. A similar analysis was performed to test for differences in the main variables in relation to the type of market that the new products serve (i.e. 35 percent consumer versus 65 percent industrial). The results of this analysis do not reveal any significant differences. Together, these results suggest that industry-related and market-related bias is not a major limitation of the study. We tested for non-response bias by comparing early (first quartile) with late (fourth quartile) respondents, as recommended by Armstrong and Overton (1977). We conducted power analyses to determine the *p*-values for the statistical analyses that were conducted on the data, using the G\*POWER 3 software (Faul *et al.*, 2007). In all instances, the power values for a medium effect size and Type I error ( $\alpha$ ) of 0.05 exceed Cohen's (1988) recommended criterion of 0.80. Hence, an  $\alpha$  value of 0.05 is appropriate for judging the statistical significance of this analysis.

In order to assess the quality of the responses, a question was included in the questionnaire that asked the respondents to indicate their degree of knowledge about the new product, the new product development process, and launching activities. The question was scored using a ten-point Likert scale (1 = "very limited knowledge", 10 = "very substantial knowledge") (Atuahene-Gima, 2005; Langerak *et al.*, 2008). The mean

**Table I.**  
Sample  
representativeness

SIC code and sectors	Population	Percentage of population	Respondents	Percentage of respondents	Response rate (percent)
28. Chemical products	270	22.50	60	23.53	22.22
35. Machinery	300	25.00	62	24.31	20.67
36. Electronic equipment	480	40.00	98	38.43	20.42
37. Transport devices	150	12.50	35	13.73	23.33
Total	1,200	100.00	255	100.00	21.25

responses were 8.46, 7.08 and 6.71, respectively, which indicates that the respondents were sufficiently knowledgeable regarding the area of investigation. Together, these results suggest that industry bias, non-response bias, and respondents' knowledge of the new product do not pose any significant threat to the validity of the study.

#### 4.2 Common method variance

Common method variance is a potentially serious threat to the validity of studies in behavioral research, especially with single-informant surveys. Two procedures help to examine empirically the possibility that any common method bias that the data analysis reveals threatens the interpretation of the results:

- (1) the Harman one-factor test; and
- (2) the confirmatory factor-analytic approach to Harman's one-factor test.

The emergence of a single factor from the factor analysis or the accounting for the majority of the covariance between the measures by one general factor constitutes evidence of common method bias. Harman's one-factor test produced seven factors, with the first factor accounting for 21.1 percent of the total variance that the test explains (the total variance that the test explains = 70 percent). However, this test is weak. A confirmatory factor analysis (CFA) approach to the Harman one-factor results in a more sophisticated test (Podsakoff *et al.*, 2003). A worse fit of the one-factor model than for the measurement model suggests that common method variance does not pose a serious threat to validity. The authors conduct a CFA, which yields a  $\chi^2 = 2,351.6$  with 252 degrees of freedom (compared with  $\chi^2 = 422.6$  with 224 degrees of freedom for the measurement model). The fit is considerably worse for the one-dimensional model than for the measurement model, which suggests that common method bias is not a serious threat to validity.

#### 4.3 Measures

The scales were derived from previous studies (Table II). The construct "order of entry" consists of four categories:

- (1) "late entrant";
- (2) "early follower";
- (3) "one of the pioneers"; and
- (4) "pioneer".

This way of measuring is similar to that which research that uses the STR2 and STR4 databases of the Strategic Planning Institute uses (Miller *et al.*, 1989; Robinson and Chiang, 2002). The authors borrow three items from Kohli (1999) to formulate the construct "switching costs":

- (1) the need for considerable advance planning to buy the product;
- (2) the need for preparation time to use the product; and
- (3) the effort consumers that have to make in order to adopt a product.

Kohli's (1999) approach is also consistent with other studies on switching costs that use consumer evaluations (Bansal *et al.*, 2005; Pae and Hyun, 2002). "New product

Variables	Scale	Mean	SD
Order of entry <sup>a</sup>	Our firm is one of the last to introduce the product onto the market		
	Our firm is an early follower of the pioneers	2.72	1.02
	Our firm is one of the first to commercialize the product		
	Our firm is the pioneer in commercializing this product		
Switching costs <sup>b</sup>	Consumers need considerable advance planning to buy the product	4.62	2.75
	Consumers need a lot of preparation time to use the product	3.73	2.45
	The effort that consumers devote to adopting the product makes changing to a similar product less likely	3.33	2.42
Speed to market <sup>c</sup>	Launches on time	6.81	1.99
	Speed of the development process	6.70	1.93
Market performance <sup>c</sup>	Market share	6.90	1.69
	Competitive advantage	7.08	1.74
Financial performance <sup>c</sup>	Net income	7.38	1.66
	Return on investment	7.33	1.83
Competitive intensity <sup>b</sup>	Promotional wars occur frequently	5.57	2.70
	Price competition is very high	7.17	2.51
	Product offerings are very similar among firms	6.53	2.32
	Competitors' reactions are very frequent	6.85	2.22
Market potential <sup>b</sup>	Potential consumers have a strong need for this type of product	7.37	1.95
	This market is potentially very profitable	6.98	2.05
	The market for these types of products is growing rapidly	6.72	2.16
Market turbulence <sup>b</sup>	Consumer preferences change very frequently	5.08	2.30
	Our clients look for new products very often	5.77	2.47
	The needs of our consumers are very different from those of traditional consumers	4.89	2.45
Technological turbulence <sup>b</sup>	Technology in this sector is changing rapidly	6.57	2.41
	Technological changes are a great opportunity in this sector	7.26	2.31
	The historical record shows a high number of recent advanced technological products	6.47	2.28
	The historical record shows a recent increase in technological development in this sector	6.70	2.38

**Table II.**  
Measures

**Notes:** <sup>a</sup>Scale ranges from 1 to 4 (1 = late entrant to 4 = market pioneer). <sup>b</sup>Ten-point Likert scale (1 = strongly disagree to 10 = strongly agree). <sup>c</sup>Ten point Likert scales (1 = very low to 10 = very high)

performance" is a multi-dimensional construct that reflects both operational effectiveness (speed to market) and marketplace outcomes (market and financial performance) (Hooley *et al.*, 2005; Huang *et al.*, 2004; Langerak *et al.*, 2008; Tatikonda and Montoya-Weiss, 2001). In a way similar to which other studies use, the authors measure speed to market using two items that bear a relation to launch time and development speed. The authors also measure market performance using two indicators:

- (1) market share; and
- (2) competitive advantage.

In the case of financial performance, the authors ask the respondents to evaluate net revenues and return on investment. The authors use subjective performance scales because the literature indicates that a broad correlation exists between subjective and objective performance measures (Song *et al.*, 2005). Four different measures serve as control variables:

- (1) competitive intensity;
- (2) market potential;
- (3) market turbulence; and
- (4) technological turbulence.

The authors decide to include these variables on the basis of their potential to influence the performance of new products (Henard and Szymanski, 2001; Slater and Narver, 1994). The authors derive these scales from previous research (Menguc and Auh, 2006; Slater and Narver, 1994).

#### *4.4 Measure validation*

The reliability and convergent and discriminant validity of the scales were investigated by performing a confirmatory factor analysis using AMOS 16. As can be seen in Table III, the results of the factor model suggest a good fit of the specification for the authors' measure of the independent and dependent variables ( $\chi^2 = 422.6$ ,  $df = 224$ ,  $CFI = 0.94$ ,  $IFI = 0.94$ ,  $RMSEA = 0.05$ ). All the loadings for the items on their respective constructs are large and significant (smallest  $t$ -value = 7.62), which indicates convergent validity for all the measures (Bagozzi and Yi, 1988). The Bagozzi and Yi (1988) composite reliability index and the Fornell and Larcker (1981) average variance extracted index confirm the reliability of the multi-item scales. Two different procedures, the use of which the literature recommends, provide evidence of discriminant validity between the dimensions. Firstly, the 95 percent confidence interval around the correlation estimate between two latent variables never includes the value 1 (Anderson and Gerbing, 1988). Secondly, comparing the square root of the AVE (diagonal in Table III) with the correlations between constructs (i.e. off-diagonal elements) reveals that the square root of the AVE for each component is greater than the correlation between components (Fornell and Larcker, 1981). These findings provide evidence of discriminant validity among the components and the constructs and strong evidence of the scales' reliability.

## **5. Results**

Path analysis (AMOS 16) was used to test the model in Figure 1. Path analysis rather than structural equation modeling was used due to the small sample size in relation to the complexity of the model (Kline, 2005). The model parameters were estimated using the maximum-likelihood (ML) method and the assumption of multivariate normality using Mardia's multivariate kurtosis statistic. The large value of Mardia's statistic (27.95) indicates the presence of non-normality. In the absence of multivariate normality, Yung and Bentler (1996) recommend using a bootstrap procedure to derive

**Table III.**  
Descriptive and  
measurement statistics

	Mean	SD	CR	AVE	1	2	3	4	5	6	7	8	9
1. Order of entry	2.72	1.02	N/A	N/A	N/A								
2. Switching costs	3.89	2.16	0.82	0.60	-0.05**	0.77							
3. Speed to market	6.75	1.78	0.78	0.64	0.27**	-0.12	0.80						
4. Market performance	6.99	1.30	0.80	0.50	0.23**	0.04	0.37**	0.70					
5. Financial performance	7.36	1.63	0.86	0.76	0.18*	0.09	.22**	0.53**	0.87				
6. Competitive intensity	6.53	1.85	0.77	0.50	-0.23**	-0.01	0.16*	-0.04	0.05	0.70			
7. Technological turbulence	6.77	2.04	0.90	0.71	-0.02	0.27**	0.07	0.20**	0.18*	0.07	0.84		
8. Market turbulence	5.23	2.05	0.82	0.60	0.04	0.20**	0.19**	0.11	0.16**	0.21**	0.35**	0.78	
9. Market potential	7.02	1.61	0.70	0.48	0.13*	0.11	0.13*	0.28**	0.43**	-0.02	0.38**	0.25**	0.70

**Notes:** Mean, the average score for all items included in this measure; SD, standard deviation; CR, composite reliability; AVE, average variance extracted; N/A, not applicable. The numbers on the diagonal are the square root of the AVE. Off-diagonal elements are correlations between constructs

confidence intervals around the parameter estimates. For this purpose, we used a procedure to generate 2,000 samples of observations randomly from the original dataset with replacement. Following Gatignon *et al.* (1990), we checked whether or not the estimator of the parameters was sensitive to the addition or deletion of the interaction terms. The stability of the coefficient estimates was analyzed by estimating a main-effect-only model. The coefficients' signs and magnitudes remained the same. Therefore, the authors report the results of the complete model with interactions. Table IV shows the path estimates and confidence intervals. The initial model is fully saturated model, a typical case of path analysis. However, several paths in the initial model are non-significant. That being the case, we re-estimated the model by dropping the insignificant paths one at a time, to reach a more parsimonious model. The ensuing model produces a good fit to the data ( $\chi^2 = 8.5$ ,  $df = 12$ ,  $p = 0.75$ , CFI = 1.00, IFI = 1.00, RMSEA = 0.00).

### 5.1 Main effects

The results support *H1a* and *H1b*, which posit that order of entry has a positive direct effect on speed to market and market performance, respectively ( $b = 0.30$ ,  $p < 0.01$ ;  $b = 0.16$ ,  $p < 0.01$ ). The results also support *H2a*, which posits that switching costs have a negative effect on speed to market ( $b = -0.14$ ,  $p < 0.05$ ). However, the results indicate that no relationship exists between switching costs and market performance. The results thus warrant the rejection of *H2b*. With respect to the hypotheses about the relationship between performance dimensions, the results support *H4* ( $b = 0.28$ ,  $p < 0.01$ ) and *H6* ( $b = 0.45$ ,  $p < 0.01$ ), but not *H5*.

### 5.2 Interaction effects

The interaction effect between switching costs and order of entry on speed to market is significant and negative ( $b = -0.15$ ,  $p < 0.05$ ), providing support for *H3a*. The authors estimate the nature of this interaction using the Aiken and West (1991) procedure, which tests for the significance of regression-coefficient estimates for the independent variable at one standard deviation below and above the mean of the switching costs moderator. At a low level of switching costs, the Aiken and West (1991) procedure reveals a strong relationship between order of entry and speed to market ( $b = 0.45$ ,  $p < 0.01$ ). The procedure reveals a moderate relationship at a high level of switching costs ( $b = 0.16$ ,  $p < 0.05$ ) (Figure 2).

The results support *H3b*, which posits a negative interaction effect between order of entry and switching costs on market performance ( $b = -0.11$ ,  $p < 0.05$ ). Use of the Aiken and West (1991) procedure reveals a strong positive relationship between order of entry and market performance ( $0.27$ ,  $p < 0.01$ ) at a low level of switching costs. At a high level of switching costs, the relationship between order of entry and market performance is not significant (Figure 3).

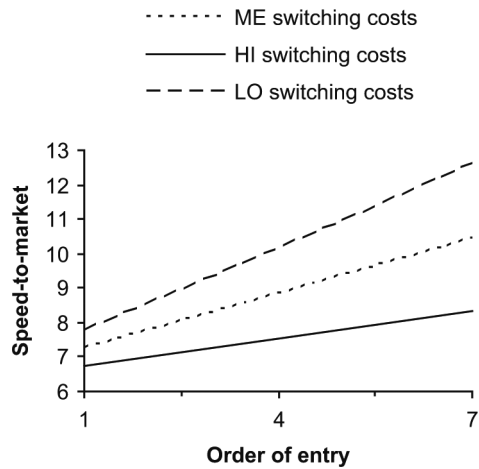
### 5.3 Mediation effects

The literature offers several methods that researchers may use to test mediation effects. MacKinnon *et al.* (2002) evaluate 14 methods in terms of their statistical power and find that the method that researchers commonly use to test mediation, which Baron and Kenny (1986) recommend, has the lowest statistical power of the 14 methods they examine. To develop more accurate estimates of the standard error of indirect

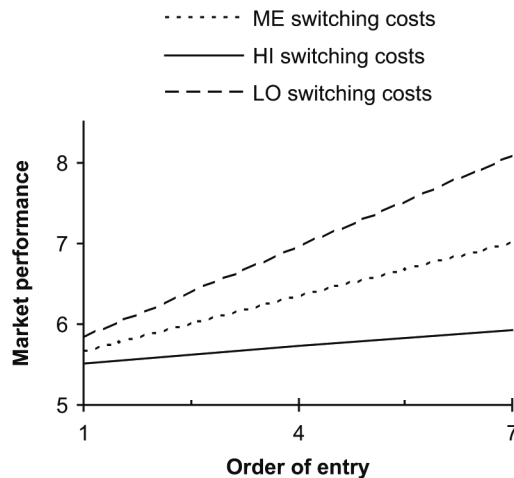
**Table IV.**  
Path analysis:  
standardized parameter  
estimates

	Hypothesized model	Revised model	
<i>Main effects</i>			
Order of entry → Speed to market	0.30	0.30	H1a supported
Order of entry → Market performance	0.14	0.16	H1b supported
Switching costs → Speed to market	-0.14	-0.14	H2a supported
Switching costs → Market performance	0.05	-	H2b not supported
Speed to market → Market performance	0.24	0.28	H4 supported
Speed to market → Financial performance	0.01	-	H5 non supported
Market performance → Financial performance	0.45	0.45	H6 supported
<i>Interaction effects</i>			
Order of entry × Switching costs → Speed to market	-0.15	-0.15	H3a supported
Order of entry × Switching costs → Market performance	-0.10	-0.11	H3b supported
<i>Control relationships</i>			
Competitive intensity → Speed to market	0.21	0.21	
Market potential → Speed to market	0.08	-	
Market uncertainty → Speed to market	0.15	0.17	
Technological uncertainty → Speed to market	0.02	-	
Competitive intensity → Market performance	-0.04	-	
Market potential → Market performance	0.12	0.12	
Market uncertainty → Market performance	0.03	-	
Technological uncertainty → Market performance	0.09	0.11	
Competitive intensity → Financial performance	0.08	-	
Market potential → Financial performance	0.31	0.30	
Market uncertainty → Financial performance	0.06	-	
Technological uncertainty → Financial performance	-0.06	-	
R <sup>2</sup> speed to market	0.18	-	
R <sup>2</sup> market performance	0.21	-	
R <sup>2</sup> financial performance	0.35	-	

**Notes:** Confidence intervals are given in parentheses. One-tailed tests were used for the hypotheses because directional predictions were offered.  
\**p* < 0.05, \*\**p* < 0.01



**Figure 2.** Effect of order of entry on speed to market under high, intermediate, and low levels of switching costs



**Figure 3.** Effect of order of entry on market performance under high, intermediate, and low levels switching costs

effects, Shrout and Bolger (2002) suggest a bootstrap procedure, which the authors use in this study (randomly generating 2,000 subsamples) to test the significance of indirect effects.

The results of this study show that order of entry has a significant indirect effect on financial performance ( $b = 0.11$ , confidence interval  $[0.06, 0.17]$ ,  $p < 0.01$ ), via speed to market and market performance. In addition, switching costs have a significant indirect effect on market performance ( $b = -0.04$ , confidence interval  $[-0.07, -0.01]$ ,  $p < 0.05$ ). Finally, speed to market has an indirect effect on financial performance ( $b = 0.13$ , confidence interval  $[0.07, 0.19]$ ,  $p < 0.01$ ).



## 6. Discussion and managerial implications

The results from contrasting the model warrant the following claims:

- the advantages that academics associate with an early entry in the market are real;
- switching costs do not improve the performance of a product; and
- the switching costs that consumers perceive with respect to pioneering products are relatively high compared to follower products.

In addition, this study adds to the scarce literature and body of knowledge on SMEs. SME-related literature reveals that these firms face many shortcomings, including a strong short-term orientation and difficulties when it comes to delegating innovative tasks. Therefore, the results of this study may help these firms balance their resources and improve their business performance.

Our results are consistent with recent empirical research, for example Rosenbusch *et al.* (2010). SME managers who focus exclusively on creating innovative offerings miss important dimensions that are essential for realizing the value that innovation can provide to their firms. Specifically, SMEs should take into account the role that switching costs might have in information technology resources (Chen and Hitt, 2007) or how to reduce the negative effect of switching costs (Maicas *et al.* 2009). To sum up, these findings underline the importance for SMEs to manage the innovation process diligently (Hart *et al.*, 2003).

The results of this study indicate that when a firm has an opportunity to enter a market ahead of the competition, the firm has an incentive to speed up the development of new products. The advantages that researchers commonly attribute to pioneering products, together with the positive effects on a firm's image, serve as a stimulus to meeting the launch schedule. These key competitive advantage I highly relevant for SMEs because it will be helpful to establish a standard in the market and block future competitors entries in the market. In addition, pioneering products perform the best in the market, which one may attribute to the possibility of creating entry barriers to new competitors and the positive effects on the cognitive, affective, and behavioral aspects of consumers. As an indirect effect of the speed-to-market and market performance, an early entry produces the best financial performance. These financial performance measures will be very helpful for SMEs as financial performance measures are among the most important for this type of firm.

Switching costs have a negative effect on speed to market and it is more critical for SMEs. As a consequence, firms that compete in markets where consumers experience high switching costs are reluctant to enter those markets. SMEs experience many barriers (technical, financial, etc.) when entering a new market and switching cost is another barrier these firms need to face. Therefore, SMEs might be reluctant to enter these markets as the turnover from them will be reduce due to the negative effect on speed to market. The fear of firms regarding the slow adoption of new products by consumers normally results in the firm not meeting the launching schedule. Better market performance does not compensate for this negative effect of switching costs on the speed to market. This speed to market objective is very important for SMEs because of their limited resources and their objective of achieving the break-even point as soon as possible.

However, contrary to what researchers sometimes claim, switching costs do not lead to higher levels of consumer retention. A possible reason for this state of affairs is that, although the various switching costs may act as barriers and encourages retention, they can also lead to frustration and a sense of entrapment in cases where consumers are dissatisfied. In such instances, consumers are likely to vent their dissatisfaction externally, in the form of negative word of mouth (Lam *et al.*, 2004). As a consequence, firms that use this type of policy may be unable to attract new consumers (Bansal *et al.*, 2005). As a consequence, SMEs should not focus their competitive advantage only on past gains but instead on looking into new improvements or products that can satisfied consumers in these markets.

In addition, switching costs constitute a form of dependence that may prompt consumers to deliberately pursue dependence-balancing strategies (Pae and Hyun, 2002), for instance by remaining open to alternatives or exploring new suppliers (Heide and Weiss, 1995). In short, the sustainability of the advantage based on the switching costs is open to question, given that the rationality of the consumers and the firm's reputation may remove the initial advantage.

With regard to the interaction between order of entry and switching costs, the results of this study indicate that the positive effect of the pioneering strategy is not related to switching costs. On the contrary, the costs that the consumers of pioneering products experience reduce the advantages of the firm that launches them to a greater extent than the costs that the consumers of follower products face. Most studies do not take into account the fact that the consumers of pioneering products also face switching costs between the different generations and types of product. These studies might be assuming that all pioneers launch their products to meet a need that products that are currently on the market are not meeting, which implies that consumers will not need to switch at all. However, in reality, in most cases, consumers do switch, even when a product can be categorized as a pioneering product.

Using the results of this study as a basis, the authors recommend that SMEs opt for an early market entry when switching costs are not high, because this strategy has a positive effect on the result of the products launched onto the market. When switching costs are high, this recommendation does not apply, because in this case the effort needed to overcome the change counterbalances the intrinsic advantages of the pioneering firms and the economic results are similar to those that following firms achieve. The results of the study indicate that using switching costs as a strategy for retaining consumers is not viable and instead SMEs should reinforce their new product offerings to the market to improve customer retention.

## 7. Limitations and future research guidelines

This study has certain limitations. The study uses subjective measures that use the perceptions of managers as a basis. Despite the extensive use of such retrospective perceptual data in research on strategy, especially in research on new products, the authors cannot rule out the possibility that using subjective measures is biasing the results of the study. Consequently, the authors advise readers to use caution when interpreting the findings. Furthermore, although a sample of firms in a varied set of industries allows for the generalization of the results beyond the idiosyncratic nature of individual industries, studies at the level of a single industry would be useful for validating the results.

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Secondly, in the study, one key informant provides the data for each company. Aviolo *et al.* (1991) note that studies that use a single-source methodology may suffer from bias in the form of artificially high inter-correlations that an overall, positive or negative, response bias may cause. However, they also observe, that simply assuming that single-source data are less valid than multi-source data is overly simplistic. Without minimizing the importance of common method bias, the different data analyses that the authors of the present study conduct support the relative absence of such a bias. However, future research should address the single-source issue, because existing studies draw attention to the diversity of goals and perceptions that the R&D, manufacturing, and marketing functions have regarding what drives the performance of new products (Song *et al.*, 2005).

Clearly, researchers can learn much more by expanding and refining the relationships that the current authors investigate here. Firstly, including broader switching cost typologies (Burnham *et al.*, 2003) to generate additional insights would be interesting. For example, cost of searching out, evaluating and learning about new product might have a different impact on market performance than the psychological costs because they generate a different sensation of frustration. Using a global measure provides little guidance for managing the switching costs that consumers perceive, and forces respondents to combine multi-dimensional ratings in their minds.

Secondly, this study only examines the moderating effects of one barrier to market entry, i.e. switching costs. Future research should explore how other barriers affect the relationship between order of entry and the performance of new products. For example, cost advantages of incumbents or capital requirements might be a more powerful barrier to market entry of competitors than switching costs. A joint study of pioneers' advantages will help in making a more precise recommendation about the correct strategy for firms.

A third way of developing the model that the present authors propose is to differentiate between short-term and long-term results. Probably, pioneering companies see switching costs reflected in a most negative manner in short-term rather than long-term results. Besides, with time, once market position is consolidated, the relation can become positive and follower companies are those who have to break the inertia of consumers and overcome the switching costs generated by pioneering products on the market.

In addition, it would be interesting to gain a deeper insight into the existence of a gap between innovation inputs and innovation outputs. Hence, more research is needed to explain how much of the resources dedicated to innovation are squandered and how SMEs should manage the innovation process (Rosenbusch *et al.*, 2010). Moreover, cross-national studies should be conducted to compare the strength of the framework and assess its generalizability across varying business systems and organizational forms. Thus, the extension of this study to other local, national or European areas would allow to obtain further results and confirm the ones from this study (Massa and Testa, 2008).

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