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# *DETERMINANTS OF THE DISPOSITION TO IMITATE OR TO INNOVATE*

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*Keywords: innovation, imitation, proactivity, risk taking, customer and competitors focus, competitiveness.*



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**Abstract**

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The aims of this paper are the following. Firstly, we delimitate the innovation and imitation concepts. Secondly, using Structural equation modeling method, we empirically test the impact of two dimensions of market and entrepreneurial orientations, respectively, on the decision to innovate or to imitate. Thirdly, we relate this decision with the company's performance. Based on a survey of 304 companies, our empirical results support, on one hand, the view that proactivity is the most important determinant of the decision of whether to innovate or imitate. On the other hand, we find that the company's performance is not conditioned by the decision of innovating or imitating, but is rather determined by the company's proactivity and focus on customers.

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# *DETERMINANTS OF THE DISPOSITION TO IMITATE OR TO INNOVATE*

## **1. INTRODUCTION**

There is a wealth of studies that claim to demonstrate the positive effect of innovations on company competitiveness. However, the management literature has forgotten that imitation is an organizational behavior that can also generate sustainable competitive advantages and, apart from very recent exceptions (Lieberman and Asaba, 2006; Zhou, 2006), imitation has only been analyzed from the point of view of a company that wishes to avoid being imitated (Barney, 1991) or of a company that may wish to encourage others to imitate it (McEvily et al., 2000). This situation, together with the lack of consensus on the conceptual delimitation of the terms “innovation” and “imitation”, has led us to raise several research questions, such as: What are the differences between innovating and imitating? What factors determinate the firm’s decision towards imitating or innovating? With the answers to these questions we contribute to the literature giving a clear conceptualization for the terms innovation and imitation. Our second contribution is empirically demonstrating that the different dispositions toward proactivity, risk taking, focus on customers and focus on competitors have a great impact on the decision to innovate or to imitate; and on the firms’ performance. This analysis is performed using environment dynamism, sophistication and firm size as control variables.

Build on the Resources Based view of the firm, obtaining answers to these questions is the aim of this article. Firstly, after a bibliographic review of different conceptualizations utilized for the term innovation, we delimit the concepts of innovation and imitation. Secondly, we identify the factors that influence the firms’ decision to innovate or to imitate. Thirdly, we empirically test how proactivity, risk taking, focus on customers and focus on competitors (dimensions usually analyzed as components of entrepreneurial and market orientation, respectively) influence the firm’s to imitate or to innovate. Fourthly, we empirically analyze how this decision mediates the relation between these four factors and the company’s performance.

## 2. DELIMITATION OF THE TERMS INNOVATION AND IMITATION

The review of the literature demonstrates that the results in the field of innovation have been inconclusive, inconsistent and characterized by limited explanatory power (Zmud, 1982; Wolfe, 1994; Becheikh et al., 2005). One possible explanation for the lack of similarity in the conclusions of researchers is the diverse range concepts, contexts, characteristics, types, stages, etc. used by different authors to study innovation. As a consequence, the current state of the organizational innovation literature offers little guidance to those interested in this concept (Wolfe, 1994). Because of the different value judgments attached to the term, there are many problems in establishing a complete and tight definition of innovation. The only feature common to all the definitions is that innovation implies novelty (Schumpeter, 1961; Damanpour, 1991; Grossman & Helpman, 1991; Mahmood & Rufin, 2005). Regarding the term imitation, there does seem to be a consensus in the literature that to imitate is to copy (Mansfield et al., 1981; Grossman & Helpman, 1991; Mahmood & Rufin, 2005; Lieberman & Asaba, 2006; Zhou, 2006), although the vagueness inherent in this statement does not clarify what is understood or implied by this copying activity or behavior.

As has been stated in the Introduction, the first objective of this article is to delimit conceptually the terms innovation and imitation. The reason for this objective is that there are articles that, in our judgment, speak of imitation when they are really referring to incremental innovations or of innovations when really they are explaining imitation behavior. As an example of the first case, Zhou (2006) speaks of “creative followers” to refer to companies that make incremental innovations based on the radical innovations of others. Regarding authors who utilize the term innovation to refer to imitations, we would include all those who consider that innovation covers “the adoption of an idea that is only new for the organization adopting it” (Damanpour, 1991). Arguments supporting our position are developed next.

We have mentioned that the only common element among all the definitions of innovation is that it implies novelty. However, there is not a consensus in the rest of the parameters that define this term (Wolfe, 1994). For example, some authors consider that innovations should represent a positive benefit, especially in the form of an economic improvement, should be of value to the organization that adopts it (Knight, 1967) and others that consider that innovations should be internally generated (Mahmood & Rufin, 2005); while others do not mention

any of these considerations. There are authors who combine what we consider the two necessary factors, the generation of new ideas and their resulting commercial success, when referring to innovation. Grossman & Helpman (1991) and Mahmood & Rufin (2005) define innovation as a form of technological development that not only expands a firm's existing knowledge set but also the existing world knowledge set, whereas imitation is defined as the form of technological development that expands only the firm's existing knowledge set but not the existing world knowledge set.

The first notable aspect of these definitions is that they state that, whereas innovation expands the knowledge existing in the world, imitation expands only the knowledge existing in the company that adopts something new. This is a key determining factor that differentiates between the two concepts, since only the company that innovates actually **generates the idea**, whereas the rest (imitators) apply knowledge that already exists (Mahmood & Rufin, 2005).

### **3. FACTORS DETERMINING THE DECISION TO INNOVATE**

Research attempting to differentiate innovation from imitation converges on the type of knowledge (internally generated or acquired from outside the firm) used during the process of creating new market offers (e.g., Grossman & Helpman, 1991; Mahmood & Rufin, 2005), on the time in which the new product has been launched (Suarez and Lanzolla, 2007) and on the space covered by the novel item (Garcia and Calantone, 2002; Pérez-Luño et al., 2007). In this section we want to define the factors that influence the firm's decision to innovate or to imitate, taking into account the time and space factors. As it has been mentioned in the previous epigraph the innovator is the first in the world to generate new ideas to obtain success. These statements lead us to consider the proactive behavior of the innovator and the risk taking necessary to undertake this expansion of knowledge. On the other hand, we are going to analyze how depending on the markets forces on which the company is focused, this company will be more oriented toward innovations or imitations.

Proactivity is considered one of the main dimensions of the Entrepreneurial orientation (Miller, 1983; Lumpkin and Dess, 1996) and is referred to companies oriented to action. A proactive attitude or stance is identified with technological leadership and with the desire to be first or a pioneer (Ansoff, 1965), whereas a reactive attitude or stance better describes those companies that are always the second or the imitator (Ansoff, 1965; Porter, 1980; Sharma and Vredenburg, 1998). Expanding knowledge on a worldwide scale needs a proactive attitude, whereas expanding it within an organization (imitation) can be symptom of a mere reaction to the changes that are taking place in the environment of an organization. These assumptions lead us to propose the following hypotheses:

*H1: The higher the levels of proactivity, the higher the disposition to innovate rather than to imitate.*

### 3.2. Risk Taking

The risk factor has been analyzed in the literature from several perspectives (Lumpkin and Dess, 1996; Wiseman and Bromiley, 1996) and it is considered one of the main dimensions of the Entrepreneurial Orientation (Miller, 1983; Lumpkin and Dess, 1996). The degree of risk incurred by the innovator is understood to be much greater than that accepted by the imitator. This is because the innovator confronts a change in the knowledge existing at the global level, and has to be able to assume the commercial risk and the technological risk inherent in true innovation (Zhou, 2006). The case of the imitator is different in that imitation assumes only an expansion of internal or local knowledge of an idea that is already functioning in the market; hence, the technological risk is much less and the commercial risk should be lower when the market of the imitator is similar to that being successfully supplied by the innovator. These assumptions lead us to propose the following hypotheses:

*H2: The higher the levels of risk taking, the higher the disposition to innovate rather than to imitate.*

### 3.3. Customers' and Competitors' Focus

Customer and competitor focus include all the activities involved in acquiring information about the buyers and competitors, respectively, in the target market and disseminating it throughout the business (Narver and Slater, 1990).

Specifically, customer orientation is the sufficient understanding of one's target buyers to be able to create superior value for them continuously. Because a seller creates value for a buyer in two ways: by increasing benefits to the buyer in relation to the buyer's cost and by decreasing the buyer's costs in relation to the buyer's benefits (Narver and Slater, 1990), the seller will be looking for new products to satisfy its clients. That means that this focus will be related to continuous innovations. These lines lead us to propose the following hypotheses:

*H3: The higher the focus on customers, the higher the disposition to innovate rather than to imitate.*

Competitors focus means that a seller understands the short-term strengths and weaknesses and long term capabilities and strategies of the key current and potential competitors (Porter, 1980). This way of facing the market means that, in the company, salespeople will share competitor information and top managers will discuss competitors' strategies. These actions are accomplished with the aim of rapidly respond to competitor's strategies. This focus will be more related to copy what competitors bring out to satisfy customer's needs than to create new products. That is, with this orientations, companies will be much more focus on imitations than on innovations. These assumptions lead us to propose the following hypotheses:

*H4: The higher the focus on competitor, the higher the disposition to imitate rather than to innovate.*

## **4. RELATION BETWEEN THE DECISION TO INNOVATE AND PERFORMANCE**

The review of the literature leads us to believe that innovation is the main source of competitive advantage (Barney, 1991). The development of an innovation is usually projected as a contribution to the performance of a company (Damanpour, 1991). Although there is a debate on the literature claiming that both innovators and imitators can achieve profits with their strategies (Zhou, 2006), in this research, we propose that innovators will be more profitable than imitators. The reason is that we consider that the proactive focus on satisfying customers' needs and the risk assumed with this way of acting is rewarded with higher benefits. These assumptions lead us to propose our last hypotheses:

*H5: The higher the disposition to innovate rather than to imitate, the higher the performance will be.*

### 5.1. Sample

In order to examine the extent to which firms innovate and imitate, we needed a sample of firms that were actually involved in these activities to some extent. We therefore started out with a sampling frame covering the most innovative companies in Spain. The National Statistical Institute of Spain identified five industries of the economy as containing the most innovative firms. These industries were: NACEi 24, Chemical; NACE 32, Radio, TV, and communication equipment; NACE 33, Medical, precision, and optical instruments; NACE 34, Manufacture of motor vehicles, trailers, and semitrailers; and NACE 35, Manufacture of other transport equipment.

We used the SABIii database (the most comprehensive database of company information in Spain) to identify all companies in these sectors. There were a total of 2,942 firms with more than 10 workers in our target sectors. This minimum number of employees guarantees the possibility of knowledge sharing and knowledge creation (Nonaka and Takeuchi, 1995). We telephoned all 2,942 firms. Because the unit of analysis adopted in this study was the department where the innovation activity of the company was carried out, we asked to speak to the Research and Development (R&D) manager. In cases where none existed, we instead spoke to the CEO. In total, 2,854 firms responded (response rate 97%). During the interview, we first ensured that the firm indeed belonged to one of the target sectors as specified in the database and that they had more than 10 employees. If this was the case, we then posed the following question: “Has your company, during the past five years, introduced any new product to the market? It does not matter if the products are new to the world, to your industry, or only new to the company”. A total of 1,784 firms did not belong to the sectors identified, did not have more than 10 employees, or had not introduced any new product in the past five years. These firms were excluded from further enquiry. We asked the remaining 1,070 firms if we could send them our questionnaire via e-mail. Most of the companies agreed to receive the questionnaire by this channel, and we sent it by fax to the few companies that did not have internet access. In total, 304 firms responded to this questionnaire. This corresponds to a response rate of close to 30% of the firms in our target population. An analysis of respondents and non-respondents, via mean difference, showed no differences in industry membership, number of employees, and revenue.

With the exception of the size of the organization, we measured all constructs in the model with multi-item scales (using the seven-point Likert format) to enhance content coverage. We took several steps to ensure data validity and reliability. First, we pre-tested all measures in 25 interviews with R&D managers and asked them to closely review the survey, to ensure the clarity of the questions, and to ascertain whether or not the scales captured the desired information. We then revised any potentially confusing items before submitting the questionnaire. Finally, we used confirmatory factor analysis to ensure discriminant and convergent validity.

## 5.2. Measures

Overall, all constructs in the model with the exception of the organization size were measured using multi-item scales (using seven-point Likert format) for each or our constructs. In general, we used well-validated measures reported in previous researches. When an item had to be modified or developed, we used Churchill's (1991) multiple-step and multi-validation methods. Proactivity, Risk taking, dynamism and sophistication were measured using Covin and Slevin (1989) scales; while competitors and clients focus were measured using Narver and Slater (1990) scales. We measured performance with Deshpandé et al., (1993) items. The organization size variable was determined by the number of employees in the firm. The values of this variable range from 10 to more than 5000 workers. Because of its wide dispersion, a Napierian logarithm of the number of workers in the firm has been used to estimate it, in order to avoid the scale effect that could be produced if we considered the original variable. Lastly, the scale to measure the decision to innovating or imitating was developed by us following core conceptual attributes developed by prior research.

## 5.3. Reliability and Validity

We took several steps to ensure data validity and reliability. First, we pretested the survey with 25 interviews with R&D managers and asked them to closely review the survey. We then revised any potentially confusing items. Then, we sent the questionnaire to the R&D managers of all the companies of our sample. Multiple-item measures were used for most constructs to enhance content coverage. All of our multiple-item constructs achieved Cronbach alphas of 0.69 or higher, indicating strong internal consistency.

The hypotheses were tested using Structural equation modeling method. We followed the two stage procedure recommended by Anderson and Gerbing (1988). In the first stage the measurement model was estimated using

confirmatory factor analysis (CFA) in order to test whether the constructs exhibited sufficient reliability and validity. The second stage identified the structural model that best fit the data and tested the hypothesized relationships between the constructs.

The purpose of CFA was to test the unidimensionality of multi-item constructs and to eliminate unreliable items. Items that loaded on multiple constructs and had too low item-to-construct loadings were deleted. To ensure discriminant validity, a series of CFA was conducted with covariance matrix as inputs (See Table 1).

**Table 1. Squared Correlation Matrix**

	F1	F2	F3	F4	F5	F6	F7	F8	F9
F1	,71								
F2	,02*	,52							
F3	,23*	,24*	,79						
F4	,01	,04*	,16*	,68					
F5	,05*	,02*	,03*	,00	,77				
F6	,03*	,04*	,07*	,02	,42*	,72			
F7	,08*	,00	,01	,01	,01	,01	1		
F8	,00	,05*	,01*	,08*	,00	,00	,00	,44	
F9	,00	,12*	,13*	,13*	,01	,03*	,06*	,23*	,52

Significant at  $P < 0,05$  ( $n=301$ ); AVE is represented in the Principal Diagonal

As it is presented in Table 2, we conducted two structural models to test the hypothesized relationships between the constructs. In the first one, we presented all the possible equations and in Model 2, we only presented those equations that best fixed the data.

**Table 2 Estimated coefficients and model fit indices**

Latent Factors			
Dependents	Independents	Coeff1 <sup>a</sup> (t-value)	Coeff2 <sup>a</sup> (t-value)
<b>Innovation</b>	Proactivity	0.307 ( 5.258)	0.297 ( 5.350)
	Risk Taking	-0.048 (-0.748)	-----
	Market	0.043 ( 0.550)	-----
	Competitors	0.037 ( 0.480)	-----
	Size	-0.086 (-2.254)	-0.084 (-2.194)
	Dynamism	0.065 ( 1.335)	-----
	Sophistication	0.199 ( 2.706)	0.210 ( 2.810)
<b>Performance</b>	Innovation	-0.004 (-0.039)	-----
	Proactivity	0.396 ( 0.748)	0.383 ( 7.066)
	Risk Taking	-0.039 (-0.629)	-----
	Market	0.177 ( 2.017)	0.145 ( 2.221)
	Competitors	-0.034 (-0.417)	-----
	Size	0.190 ( 4.844)	0.189 ( 4.810)
	Dynamism	-0.086 (-1.823)	-----
Sophistication	-0.232 (-3.317)	-0.254 (-3.485)	
<b>Overall fit index</b>	<b>Model 1</b>	<b>Model 2</b>	
$\chi^2$ (df)	291.262	137.221	
Satorra-Bentler $\chi^2$	255.132	131.115	
GFI	0.918	0.941	
AGFI	0.890	0.916	
CFI	0.968	0.976	
Robust CFI	0.969	0.967	
RMSEA (90% CI)	0.042 (0.032,0.052)	0.046 (0.031,0.059)	
Robust RMSEA (90% CI)	0.034 (0.022,0.044)	0.043 (0.028,0.057)	

<sup>a</sup> coeff1= Model 1 parameters; coeff2= model 2 parameters

## 6. RESULTS

As we can see in the Model 2 of Table 2, only proactivity has a significant positive influence on the decision to innovate. This means that from the first four hypotheses, only H1 is supported. The significant control variables for the decision of innovating are both size and environmental sophistication. It is important to remark that size is negative, so the smaller the firm is, the higher will be its disposition to innovate.

The performance is not determined by the decision of innovating or imitating. Then, we do not find support for H5. This is quite interesting because support the arguments that claim that imitating could be as interesting as innovating for competitiveness (Zhou, 2006). Both proactivity and focus on the market have a positive and significant influence on performance. Taking into account the control variables, it is interesting to remark that they are also significant for performance both with the contrary sign than for innovating. That means, more

sophisticated environments lead companies to imitate; and the higher the firm is, the higher will be its performance.

## 7. CONCLUSIONS

Although innovation has generated substantial attention in the literature, few studies have analyzed the determinants of the decision to develop an internal knowledge creation rather than acquiring such knowledge from the market in the form of an imitation. Also, this scarce number of studies is mainly theoretical and we have not found any empirical work analyzing this decision. Furthermore, the few studies that analyze empirically whether to innovate or to imitate have not found any support for their assumptions (Zhou, 2006). This study seeks to fill this void examining the determinants of the decision to innovate including contingency across different dimensions of the environment measured as control variables.

Our first main contribution, consistent with the leader and follower literature, is that we find that the decision of innovating or imitating is not the determinant of the firm's performance. Rather, it is the company's proactivity which best determinate both the decision to innovate and the firm performance. It is very interesting to highlight that listening to customers needs is the second most important factor when determining the organization's performance.

Our second main contribution comes from the analysis of the control variables. While dynamism does not have any effect on either the decision of innovate or imitate, environmental sophistication has a positive effect on the decision to innovate and a negative effect on performance. This could be explained by the following argumentation: while sophistication can motivate firms to innovate, its cost is so important that the final firm's performance can be decreased. Company's size has also a double influence. The smaller the firm is, the more is it desire to innovate. This is well understood if we take into account that some of the industries analyzed in this research, as for example the chemical, are characterized by being compound by many very small laboratories which a great capabilities to combine knowledge and give rise new knowledge or innovations. Again, its sign is the contrary for the dependent variable performance. This is because big firms have the resources and capabilities to absorb all the benefits of the innovation process.

It is important to highlight the importance of being proactive and to listen to the market to be successful. This statement could be useful for those firms that may not have the strength to innovate but are capable to act in a proactive way copying other firms' innovations when they detect an unsatisfied need. It would be interesting to empirically analyze in future researches if those who copy products from competitors from other countries or markets to satisfy their target market are more profitable than those that copy competitors that are already working in their target market.

We have analyzed firms from five different sectors. For future researches, it could be interesting to control the effect of the different sectors. Together with this possibility of future line of research, we have to signal that due to that we have only analyzed five sectors and that we have focused on the Spanish market, we cannot generalize the results.

Lastly, we have to mention that risk taking and competitor focus have not appeared to have a significant effect on either the decision to innovate and performance. Also, customer focus has not appeared important for the decision to innovate. These voids of results should be analyzed deeper.

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## NOTES

<sup>i</sup> NACE is the Classification of Economic Activities in the European Community.

<sup>ii</sup> Sistema de Análisis de Balances ibéricos