International Journal of Asian Social Science
ISSN(e): 2224-4441/ISSN(p): 2226-5139
journal homepage: http://www.aessweb.com/journals/5007

EXAMINING THE IMPACT OF COMPETITIVE STRATEGIES ON CORPORATE INNOVATION: AN EMPIRICAL STUDY IN AUTOMOBILE INDUSTRY

Asieh Fathali[1]

[1]*Faculty of Management, University of Tehran, Kish Campus, Kish, Iran*

ABSTRACT

This study is devoted to the empirical assessment of the impact of competitive strategies on corporate innovation in the automobile industry of Iran. The study involves a questionnaire-based survey of managers from two major automobile manufacturers (SAIPA and Iran Khodro) in Iran. A total of 286 useable questionnaires were received from managers from the two manufacturers. These were subjected to a series of correlational and regression analyses. The measures of the independent (competitive strategies) and dependent (corporate innovation) variables are based on literature. The results reveal that competitive strategies of Porter had a positive and significant influence on corporate innovation. With strong statistical significance, three competitive strategies- cost leadership, differentiation, and focus- provide an explanation for variations in corporate innovation dimensions including innovation in product, innovation in process, and administrative innovation. Although the literature has long pointed out the importance of competitive strategies as a determinant of innovation, strategists have not focused on the impact of each strategy on the dimensions of innovation. Thus, this study makes a contribution towards filling this gap.

Keywords: Corporate innovation, Competitive strategies, Automobile industry, Structural equation modeling, Iran.

Contribution/ Originality

This study is one of very few studies which have investigated the structural relationships among cpmpetetive strategies (differentiation, cost leadership, and focus) and corporate innovations (product, process and radical) in a unique industry such as automobile industry. It pushesh forward the body of knowledge in the area of corporate innovation by linking innovation and strategy in a comprehensive model.

DOI: 10.18488/journal.1/2016.6.2/1.2.135.145
ISSN(e): 2224-4441/ISSN(p): 2226-5139

1. INTRODUCTION

The relationship between competition and innovation has long been of interest to economists and motivated numerous studies, both theoretical and empirical, over the past three decades (Schmutzler, 2013). However, the previous empirical studies on the subject confront with the issue that the relationship between competition and innovation is endogenous (Hall and Harhoff, 2012). Interestingly, changes in the structure of an innovation market can sometimes be likened to changes in actual potential competition. For firms that are engaged in R&D, markets for the products they are developing may not presently exist (Gilbert, 2006). Innovation strategies enable organizations to devote their limited resources to initiatives that will have the biggest impact on performance. Porter proposes a two-part process for devising a competitive strategy. The first part involves deciding on company's product-market scope, including the product or service offerings that company will provide and the market segments that company will provide them to. The second part of devising a competitive strategy is related to gaining competitive advantage. According to Porter, there are two general strategies for gaining advantage. The first, and most common, is the same-but-better strategy. Companies using the same-but-better strategy perform the same activities in the same way, but each company tries to do a better job of it. There are two problems with the same-but-better approach. First, it fails to achieve a significantly different competitive position. In the customer's view, everyone looks pretty much the same because they are all doing the same thing. The second problem is that it is hard to maintain a sustainable competitive advantage because it is so easy for everyone to copy everyone else's practices.

The second means of gaining competitive advantage is the different-and-better strategy. In this approach, a company delivers superior value by performing activities differently or by performing different activities altogether. The companies stake out a competitive position that is substantially different from its rival's positions and more sustainable because it is difficult for competitors to copy (Porter, 1985). The question is that how do company determine which innovation initiatives will have the most impact on company's performance? The answer is that let competitive strategy drive innovation strategy.

An investigation of the correlates of the innovation process within the stage model of innovation suggests that individual creativity, and organizational climate, structure, and strategy affect the innovation process. A precise look at the relationships indicates that individual-level variables, such as individual creativity, and organization-level variables that have a direct effect on the behaviors of individuals, such as organizational climate, affect the first stage of the innovation process. On the other hand, organization-level variables such as organizational structure and strategy have an impact on the second stage of the innovation process (Greve, 2003). Hence, the purpose of this paper is to provide a conceptual framework denoting the causal effects of competitive strategies on fostering or hindering innovations in automobile industry. This study contributes to the existing empirical literature on the relationship between competition and innovation by proposing a new structural model based on a unique formulation. The paper is organized as follows. Section 2 develops the theoretical model. In Section 3, we describe the methodology, while the empirical findings are examined in Section 4. Finally, Section 5 concludes.

2. THEORY

2.1. Porter's Generic Competitive Strategies

A company's relative position within its industry identifies whether a company's profitability is above or below the industry average. The fundamental basis of above average profitability in the long run is sustainable competitive advantage. There are two basic types of competitive advantage a company can possess: low cost or differentiation. The two basic types of competitive advantage combined with the scope of activities for which a company seeks to achieve them, lead to three generic strategies for achieving above average performance in an industry: cost leadership (no frills), differentiation (creating uniquely desirable products and services), and focus (offering a specialized service in a niche market) (Porter, 1998). These are indicated in Figure 1 below.

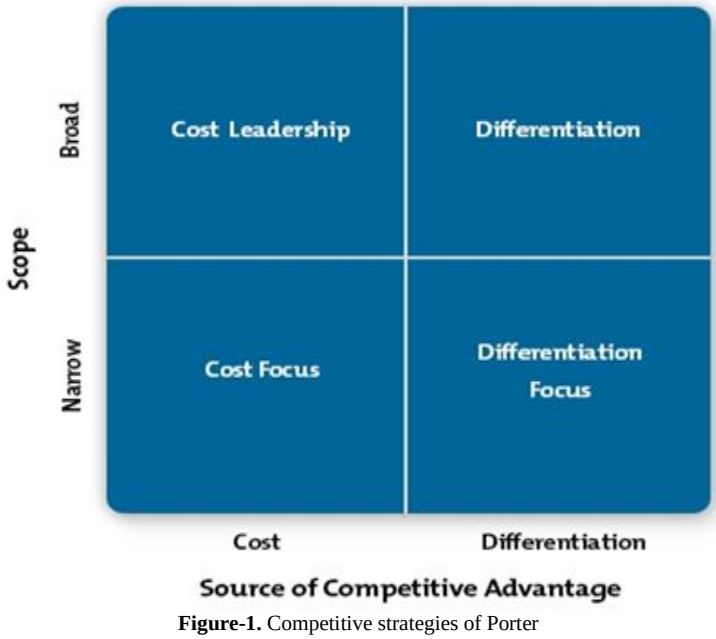

Figure-1. Competitive strategies of Porter

Cost Leadership Strategy-In cost leadership, a company sets out to become the low cost producer in its industry. The sources of cost advantage are varied and depend on the structure of the industry. They may include the pursuit of economies of scale, proprietary technology, preferential access to raw materials and other factors. A low cost producer must find and exploit all sources of cost advantage. If a company can achieve and sustain overall cost leadership, then it will be an above average performer in its industry, provided it can command prices at or near the industry average. Simply being the lowest-cost producers is not good enough, as company leave itself wide open to attack by other low-cost producers who may undercut its prices and therefore block its attempts to increase market share. Therefore, companies need to be confident that they can achieve and maintain the number one position before choosing the cost leadership route. Companies that are successful in achieving cost leadership usually have (Porter, 1998):

- Access to the capital needed to invest in technology that will bring costs down;
- Very efficient logistics;

- A low-cost base (labor, materials, facilities), and a way of sustainably cutting costs below those of other competitors.

Differentiation Strategy- Differentiation involves making products or services different from and more attractive those of competitors. How company does this depends on the exact nature of industry and of the products and services themselves, but will typically involve features, functionality, durability, support and also brand image that customers value. To make a success of a differentiation strategy, organizations need (Porter, 1998):

- Good research, development and innovation;
- The ability to deliver high-quality products or services.

Effective sales and marketing, so that the market understands the benefits offered by the differentiated offerings. Large organizations pursuing a differentiation strategy need to stay agile with their new product development processes.

Focus Strategy- Companies that use focus strategies concentrate on particular niche markets and, by understanding the dynamics of that market and the unique needs of customers within it, develop uniquely low-cost or well-specified products for the market. Because they serve customers in their market uniquely well, they tend to build strong brand loyalty amongst their customers. This makes their particular market segment less attractive to competitors. As with broad market strategies, it is still essential to decide whether company will pursue cost leadership or differentiation once company has selected a focus strategy as its main approach: Focus is not normally enough on its own. But whether company use cost focus or differentiation focus, the key to making a success of a generic focus strategy is to ensure that company is adding something extra as a result of serving only that market niche. It's simply not enough to focus on only one market segment because company is too small to serve a broader market (Porter, 1998).

2.2. Organizational Innovation

Organizational innovation has been broadly defined as the adoption of idea or behavior new to the adopting organization. Since innovation is conceived as a means of changing an organization, either as a response to changes in the external environment or as a preemptive action to affect the environment. Damanpour (1996) considered innovation as encompassing a range of types, including new products or services, new process technologies, new organizational structures or administrative systems, or new plans or programs pertaining to organizational members. A review of the literature indicates that organizational innovation can be divided into two distinctive types: 1) technical or technological innovation; and 2) administrative innovation (Chuang, 2005). However, Chuang (2005) has categorized technical or technological innovation into secondary dimensions: product innovation and process innovation; while administrative innovation remains distinct from the other two. Since organizations adopt innovations continuously over time, it would be more accurate to depict innovations as comprising of multiple facets. Thus, in this study, organizational innovation is viewed as multidimensional, comprising of product innovation, process innovation, and administrative innovation. Product innovation also known as product development, is a systematic work process, drawing upon existing knowledge gained from research and practical experiences directed towards the production of new materials, products and devices,

including prototypes (Hage and Hollingsworth, 2000). Process innovation is defined as developing a new or substantially improved production process through new equipment or reengineering of operational process (Wong and He, 2003). Generally, administrative innovation refers to performance derived from the changes in organizational structure and administrative process, reward and information system, and it encompasses basic work activities within the organization that is directly related to management (Mavondo *et al.*, 2005).

2.3. Hypotheses Development

Strategy is defined as a framework adopted by the organization that directs the choices of the decision makers in order to achieve objectives. Strategy involves plans or methods that will be employed in order to attain a desired state in the future. Strategy making is a part of the decision making process within the organization. All the components of the organization should be aligned with the strategy of the organization. Therefore, innovative activities of the organization should be aligned with the strategies of the organization. However, the relationship between strategy and innovation is not clear in the literature. We expect there will be a positive relationship between the three competitive strategies of porter and the three dimensions of innovation. These functional relationships are illustrated in the schematic diagram of Figure 1. An empirical analysis of these factors can help us explain corporate innovation. Therefore, the following hypotheses are proposed:

H1. Competitive strategies (cost leadership, differentiation, and focus) will be positively related to product innovation.

H2. Competitive strategies (cost leadership, differentiation, and focus) will be positively related to process innovation.

H3. Competitive strategies (cost leadership, differentiation, and focus) will be positively related to administrative innovation.

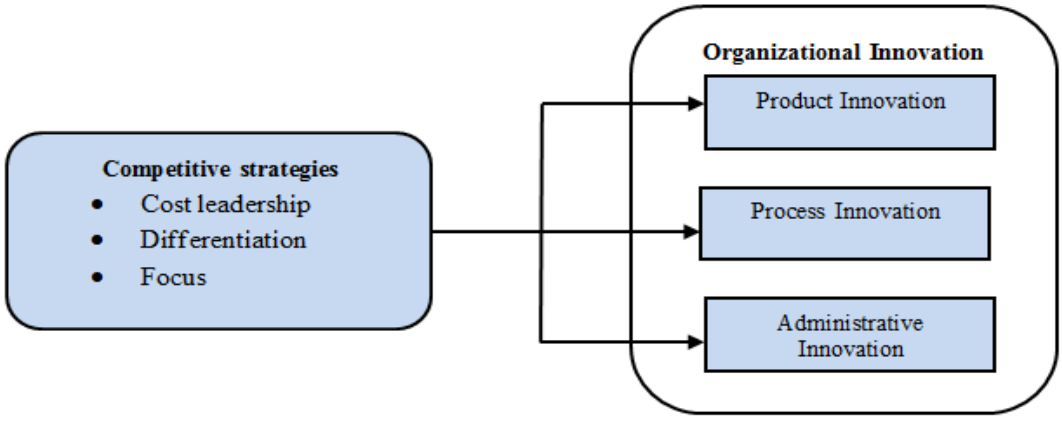

Figure-1. Conceptual model

3. METHODOLOGY

3.1. Sample

The two companies of SAIPA and Iran Khodro are main automobile manufacturer in Iran and are located in Tehran. These companies selected for their background and famous brand in the field

of automobile industry. Data for the study was collected by surveying managers in the companies. Questionnaires, written in Persian, containing items measuring the above dimensions were distributed to 286 managers.

3.2. Procedures

A pilot test was performed to assess how well the survey instrument captured the constructs it was supposed to measure, and to test the internal consistency and reliability of questionnaire items. The first draft of the survey instrument was distributed to 30 randomly selected managers who worked at central offices. A total of 30 questionnaires were collected at the site. The results of the reliability tests for each dimension showed that Cronbach's alpha coefficients were above the minimum value of 0.70 (see Table 1), which is considered acceptable as a good indication of reliability (Hair *et al.*, 1995).

3.3. Analytical Procedures

The analysis of moment structures (AMOS, version 16.0) was used for the factor analysis (measurement model) and for the regression analysis (path model). In past work using AMOS, researchers attempting to model relationships among a large number of variables have found it difficult to fit variables into models because there should be at least five cases for each latent variable tested in the model (Bagozzi and Yi, 1988). Therefore, steps were taken to reduce the number of measurements in the theoretical model being presented. A measurement model was developed and then, with this held, a structural model. Using confirmatory factor analysis (CFA) the factorial validity of the measurement model was assessed. Given adequate validity coefficients of those measures, the number of indicators in the model was reduced by creating a composite scale for each latent variable. Each estimated coefficient is being tested for its statistical significance for the predicted causal relationships. As a test of the measurement and path models a mixture of fit-indices were employed to assess model fit. The ratio of chi-square to degrees of freedom (χ^2 /df) has been computed, with ratios of less than 2.0 indicating a good fit. However, since absolute indices can be adversely affected by sample size, four other relative indices, the goodness-of-fit index (GFI), the adjusted goodness-of-fit index (AGFI), the comparative fit index (CFI), and the Tucker and Lewis index (TLI) were computed to provide a more robust evaluation of model fit. For GFI, AGFI, CFI and TLI, coefficients closer to unity indicate a good fit, with acceptable levels of fit being above 0.90 (Marsh *et al.*, 1988). For root mean square residual (RMR) and root mean square error approximation (RMSEA), evidence of good fit is considered to be values less than 0.05; values from 0.05 to 0.10 are indicative of moderate fit and values greater than 0.10 are taken to be evidence of a poorly fitting model (Browne and Cudeck, 1993).

3.4. Measurement Models

As shown in Figure 1, the categories of variables that we measured on the survey are the competitive strategies and the dimensions of innovation.

Independent variables- The research reported in this study operationalized competitive strategies by using Goktan (2005) instrument: focus, cost-leadership and differentiation (i.e. 12

items). Respondents were asked to rate their perception of social capital on a 7-point scale with 1 being strongly disagree and with 7 being strongly agree. We conducted CFA of the social capital items (i.e. 11 items) in order to check for construct independence. Based on the results of a CFA, the data supported the independence of three factors, namely, focus strategy (four items, $\alpha = 0.89$); differentiation strategy (four items, $\alpha = 0.78$); and cost-leadership strategy (four items, $\alpha = 0.76$).

Dependent variables- Innovation variables made up of the subcategories of product innovation, process innovation and administrative innovation. Following Jiménez-Jimenez *et al.* (2008) we measured the dimensions of product innovation, process innovation and administrative innovation by employing 12 items. Respondents were asked to assess their innovation status on a seven-point response scale: 1 = strongly disagree; 7 = strongly agree. The results of the CFA supported the independence of three factors. The items of these factors were used to create three composite scales: product innovation (four items, $\alpha = 0.81$); process innovation (four items, $\alpha = 0.73$); and administrative innovation (four items, $\alpha = 0.85$). Given adequate validity of above measures, we reduced the number of indicators by creating a composite scale for each latent variable. Means, SDs, and intercorrelations of competitive strategies and innovation variables are shown in Table 1.

Table-1. Means, SDs and correlations of competitive strategy and innovation

Latent variable	Mean[a]	SD (σ)	1	2	3	4	5	6
1. focus strategy	5.28	1.149	0.89[b]					
2.differentiation strategy	5.16	1.178	0.32*	0.78				
3.cost-leadership strategy	4.87	1.326	0.43*	0.26*	0.76			
4. product innovation	5.11	1.226	0.38*	0.58*	0.65*	0.81		
5. process innovation	5.19	1.113	0.41*	0.75*	0.52*	0.41*	0.73	
6.administrative innovation	5.22	1.115	0.27*	0.45*	0.36*	0.50*	0.24*	0.85

Notes: *correlation is significant at the 0.01 level; [a]N=286; [b] coefficient alphas (αs) are located on the diagonal

3.5. Path Modelling

Table 1 reports the means, SDs, and reliability estimates for the analysis. Figure 2 shows results of the best fit structural equations model. The analysis reveals that the structural model of Figure 2 fits the data reasonably well, with $\chi^2 = 56.7$; df = 41; χ^2 /df = 1.38; $\rho = 0.04$; GFI = 0.92; AGFI = 0.91; CFI = 0.93; TLI = 0.90; RMR = 0.034; and RMSEA = 0.051: Standardized path estimates are provided to facilitate comparison of the regression coefficients.

4. RESULTS

4.1. Preliminary Results

Table 1 indicates the means, SDs, and the correlations among all variables included in the analyses. There are several important observations regarding Table 1. First, it can be noted that all sub-scales display acceptable reliabilities, these being of the order above the generally accepted value of 0.70 (Hair *et al.*, 1995). Second, the correlations between the constructs used in this study

are generally lower than their reliability estimates, indicating good discriminant validity for these factors (Hair *et al.*, 1995).

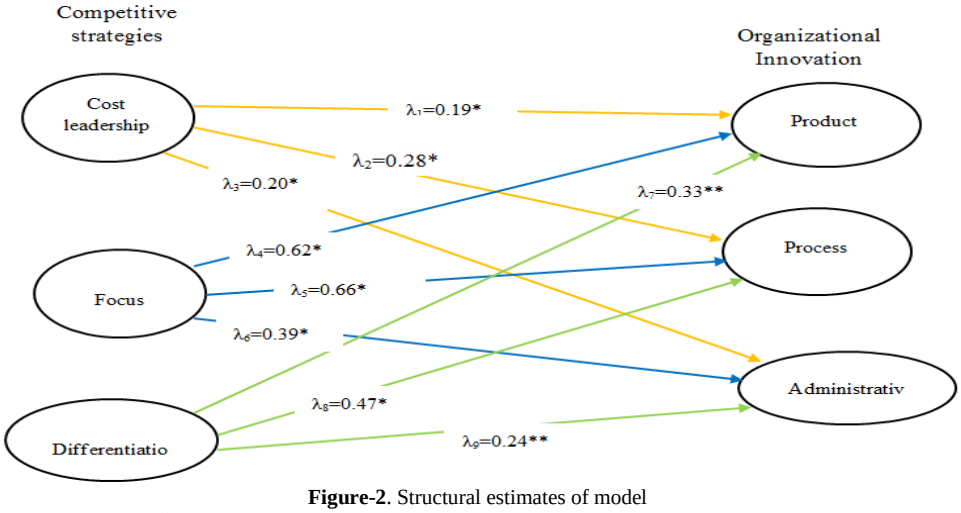

Figure-2. Structural estimates of model

Note: Standardized path coefficient; N= 265, * p< 0.05, ** p< 0.01.
All correlations of exogenous variables were statistical significant at 0.001 level

4.2. Sample Profile

The respondent profile is summarized as Table 2. The largest portion of the sample fell into the age category of 30-40 (53%), followed by above 40 (18%), and below 30 (28%). In terms of educational level, the great majority of the respondents had university degree (64%). The great majority of the respondents were married (77%). In terms of work experience, the majority of respondents (46%) had 10-20 years experience. Finally, Iran khodro (68%), and SAIPA (32%) were the main companies of subjects.

Table-2. Respondent profile

Demographic characteristics	Frequency	Percentage (%)
Age		
Below 30	81	28%
30-40	153	53%
Above 40	52	18%
Educational level		
Primary	46	16%
Secondary	94	33%
University	182	64%
Marital status		
Single	66	23%
Married	220	77%
Work experience		
Less than 10 years	55	19%
10-20 years	131	46%
More than 20 years	100	35%
Company (%)		
Iran Khodro	194	68%
SAIPA	92	32%

4.3. Hypotheses Testing

Figure 2 shows the estimated path coefficients (λ values) obtained from the AMOS analysis and the associated significant levels for each path. As predicted, H1 was largely supported by the data of this study, in that competitive strategies including cost leadership (λ_1= 0.19, p< 0.01), differentiation (λ_2= 0.28, p< 0.05) and focus (λ_3= 0.20, p< 0.01) were positively and significantly related to product innovation. As predicted by H2, there were significant positive relationships between competitive strategies and process innovation. Specifically, competitive strategies including cost leadership (λ_4= 0.62, p< 0.01), differentiation (λ_5= 0.66, p< 0.05) and focus (λ_6= 0.39, p< 0.01) were positively and significantly related to process innovation. As predicted, competitive strategies including cost leadership (λ_7= 0.33, p< 0.01), differentiation (λ_8= 0.47, p< 0.05) and focus (λ_9= 0.24, p< 0.01) were positively and significantly related to administrative innovation

5. DISCUSSION AND IMPLICATIONS

Although replication of all research results is desirable, the current study seems to highlight that there are certain competitive strategies of Porter (1998) framework that might affect the innovation dimensions of manufacturing companies (Hage and Hollingsworth, 2000; Wong and He, 2003; Chuang, 2005; Mavondo *et al.*, 2005) in automobile industry of Iran. This study is important because it helps us to better understand the role of using suitable competitive strategies in improving innovation of the firm. Its empirical evidence supports the growing argument (Greve, 2003; Mavondo *et al.*, 2005) that researchers must account for competitive strategies when explaining variation in innovation. It is in line with Goktan (2005) and Jiménez-Jimenez *et al.* (2008) argument that a suitable competitive strategy is essential for corporate innovation. Its theoretical contribution lies not only in providing a better understanding of the corporate innovation, but also in confirming the relevance of competitive strategies in innovation research. The large body of economic theory and empirical studies on the relationship between competition and innovation fails to provide general support for the Schumpeterian hypothesis that monopoly promotes either investment in R&D or the output of innovation. The theoretical and empirical evidence also does not support a strong conclusion that competition is uniformly a stimulus to innovation. While specific industry characteristics and technological opportunities determine the equilibrium relationship between market structure and innovation, there are circumstances that warrant a presumption that competition promotes innovation. There are also circumstances for which it reasonable to assume that competition does not affect or possibly reduces innovation incentives. While harm to innovation can be an additional reason to challenge mergers, under some circumstances benefits to innovation can also be an efficiency defense to permit mergers that would otherwise result in troublesome increases in market concentration.

5.1. Conclusion

This study sought to increase our understanding of the drivers of corporate innovation from a competitive perspective. Its aim was to empirically assess the effect of competitive strategies on corporate strategies in automobile industry of Iran. The results reveal that competitive strategies do

indeed play a significant role in encouraging innovation to conduct both high-value added and innovative activities. The strong statistically significant relationships between competitive strategies and innovation suggest that improvement of the competitive strategies, namely focus, cost-leadership and differentiation would be effective measures to promote innovation in the company. The robustness of our analysis gave us confidence in the explanatory power of competition theories in understanding corporate innovations to become innovator in the automobile industry.

REFERENCES

Bagozzi, R.R. and Y. Yi, 1988. On the evaluation of structural equations models. Journal of The Academy of Marketing Science, 16(3): 74-94.

Browne, M.W. and R. Cudeck, 1993. Alternative ways of assessing model fit. In Bollen, K.A. and Scott Long, J. (Eds). Testing structural equations models. Newbury Park, CA: Sage.

Chuang, L., 2005. An empirical study of the construction of measuring model for organizational innovation in Taiwanese high-tech enterprises. Journal of American Academy of Business, 9(2): 299-304.

Damanpour, F., 1996. Organizational complexity and innovation: Developing and testing multiple contingency models. Management Science, 42(5): 693-716.

Gilbert, R.L., 2006. Competition and innovation, in competition law and policy. Eds. Wayne Dale Collins. American Bar Association Antitrust Section. Available from http://works.bepress.com/richard_gilbert/12.

Goktan, A.B., 2005. The role of strategy in the innovation process: A stage approach. Unpublished Ph.D Dissertation, University of North Texas.

Greve, H.R., 2003. A behavioral theory of R&D expenditures and innovations: Evidence from shipbuilding. Academy of Management Journal, 46(6): 685-702.

Hage, J. and J.R. Hollingsworth, 2000. A strategy for the analysis of idea innovation networks and institutions. Organizational Studies, 21(5): 971-1004.

Hair, J.F., R.E. Anderson, R.L. Tathan and W.C. Black, 1995. Multivariate data analysis with readings. 4th Edn., Englewood Cliffs, NJ: Prentice-Hall.

Hall, B.H. and D. Harhoff, 2012. Recent research on the economics of patents. Annual Review of Economics, 4(3): 541-565.

Jiménez-Jimenez, D., R. Sanz Valle and M. Hernandez-Espallardo, 2008. Fostering innovation. European Journal of Innovation Management, 11(3): 389 - 412.

Marsh, H.W., B.M. Byrn¢ and R. Shavclson, 1988. A multifaceted academic self-concept: Its hierarchical structure and its relation to academic achievement. Journal of Educational Psychology, 80(3): 366-380.

Mavondo, F.T., J. Chimhanzi and J. Stewart, 2005. Learning orientation and market orientation: Relationship with innovation, human resource practices and performance. European Journal of Marketing, 39(11): 1235-1263.

Porter, M.E., 1985. Competitive advantage. New York: The Free Press. pp: 11-15.

Porter, M.E., 1998. Clusters and the new economics of competition. Harvard Business Review, 76(6): 77-91.

Schmutzler, A., 2013. Competition and investment: A unified approach. International Journal of Industrial Organization, 31(5): 477-487.

Wong, P.K. and Z.L. He, 2003. The moderating effect of a firm‟s internal climate for innovation on the impact of public R&D support programs. International Journal of Entrepreneurship and Innovation Management, 3(5/6): 525–545.