

The Moderating Role of Environmental Turbulence on the Relationship between Market Orientation and Firm Innovativeness

Mukhtar Baba¹ Ibrahim Audu² Khairun Nisa Mohd Arshad³

¹ Lecturer, Department of Accounting and Business Administration, Federal University Kashere, Nigeria

Email: mukhtarbabamuhd@yahoo.com

² Lecturer, Department of Accounting and Business Administration, Federal University Kashere, Nigeria

³Economic Outreach, Operation Department, Yayasan Pahang Malaysia
anis29@yahoo.com

Abstract

It is generally agreed that innovation is critical to firm competitive advantage. This study evaluate the moderating role of environmental turbulence on the relationship between market orientation and SMEs innovativeness in Kano Nigeria. Accordingly, a sample of 320 SMEs aged between 5 to 20 years from four different sectors participated in the study. Moreover, Structural Equation Modelling (using Smart PLS) approach was applied to assess the measurement model and the relationships between the constructs. Consequently, the findings shows that both market orientation and environmental turbulence have positive effect on SMEs ability to innovate. Similarly, the result demonstrates that during turbulent environment, effective market orientation predict SMEs innovativeness. The research expand the innovation literature by confirming the influence of market orientation on SMEs innovativeness in a developing nation (Nigeria). Moreover, this finding will help managers of SMEs on how to improve their firms' ability to innovate by considering market orientation in their respective organizations.

Keywords: Market orientation, Environmental turbulence Firm innovativeness, SMEs

1.0 Introduction

In today's uncertain business environment, for firm to succeed must achieve competitive advantage over its competitors. In addition, firms are encouraged to adapt to its environmental needs so as to achieve and sustain competitive advantage (Alguezaui & Filier, 2010). Innovation is considered as one of the essential elements through which firms achieve competitive advantage. Thus, each firm is required to survive by making some internal changes that will lead to firm innovative capabilities and also help firms respond to any external environmental changes. Similarly, several studies proves that market orientation inspire innovation activities (e.g. Narver & Slater, 1995). Therefore, firms should emphasizes on market orientation in their management practice. To date numerous studies have been conducted on the relationship between market orientation and firm innovativeness (Dibrell, et al., 2011; Gelhard, kortman & Leker 2014; Ihinmoyan & Akinyele, 2011; Kibbeling, der Bij, & Weele, 2013). However the findings appeared to be mixed. Moreover, studies regarding this relationship under

different environmental situations is also limited. Thus, little empirical studies have been conducted on the moderating role of environmental turbulence on the relationship between market orientation and SMEs innovativeness.

Similarly, most of the studies of innovation focuses on large firms rather than SMEs. However, small and medium enterprises are regarded a powerful engine for nation's economic development. Accordingly, in most developed and developing nations, SMEs becomes essential source of employment generation (Rahnama, Mousavian & Eshghi 2011; Mahmood & Hanafi 2013), and innovation (Uwalomwa & Ranti 2009) which in turn stimulates capacity building and diffusion of skills. In line with this the present study will investigate the moderating role of environmental turbulence on the relationship between market orientation and SMEs innovativeness.

2 Hypotheses Development

2.1 Market Orientation and Firm Innovativeness

The role of market orientation for improving firms' competency cannot be overemphasized. These competencies appeared to be tremendously valuable, exceptional, and cannot be easily copied, with stress on placing the customer in the centre of firm plan and operation (Polat & Mutlu, 2012). In the same way, innovativeness implies a firm being proactive by exploring new opportunities rather than merely exploiting current strengths (Menguc & Auh, 2006) and, therefore, it is viewed as essential to an innovative effort capable beyond the expectations of customers. To be more specific, an innovative oriented firm always valued change, and inspired employees to take risk as well as creativity, thereby making them (employee) less threatened

when developing new idea. Therefore, some authors (e.g. Han et al. 1998; Hurley & Hult 1998) argued that market orientation and innovation orientation should complement each other. Moreover, according to Narver et al. (2004) market orientation, whether responsive or proactive, should be the foundation for a business's innovation efforts.

Equally important, the basis for this relationship is connected to each one of three components of market orientation. For example, market oriented firm is close to customer base which enable them to meet changing demand (Jawoski & Kohli 1993). Likewise, monitoring the action of competitors enable market oriented firms to copy proactively those action deemed important for meeting customer demand (Laforet, 2008). Lastly, inter-functional coordination broadcast knowledge obtain from outside customers and competitors between employees and departments within the firm (Tajeddin et al., 2006). Consequently, these activities of three components of market orientation will prepare the company with the knowledge required to facilitate innovation (Grinstien, 2008).

Accordingly, relationship between market orientation and firm innovativeness were empirically tested. However, the findings of these empirical studies appeared to be mixed. Among the studies that found positive relationship includes: Dibrell, et al., (2011) where they conducted a study 229 food processing industry. To measure market orientation, they adopt Naver and Slater scale. After collecting data, their finding shows positive linkage between market orientation and firm innovativeness.

This relationship was tested again by the same authors Dibrell et al., (2011) but with

larger sample of 284 owners or “chief executive officers of food processing industry. Again their finding confirm the preceding finding by demonstrating positive effect of market orientation on firm innovativeness. In addition, the authors found managerial attitude towards natural environment positively moderate this relationship. Another market orientation innovativeness relationship was investigated by Lee and Tsai (2005). The authors evaluated this relationship with the effort of business operation mode. This data was collected using survey questionnaire in which 700 “manufacturing and service firms in Taiwan were participated in the sample. Their finding shows a strong relationship between market orientation (intelligence generation, intelligence dissemination and responsiveness) is positively related to firm innovativeness. In addition, business operation mode appeared to enhance this relationship. Based on the above discussion, this study proposed the following hypothesis:

H1: Market orientation is positively related to SMEs innovativeness

2.2 Environmental Turbulence as a Moderator

To date, numerous studies have been conducted on environmental turbulence and its dimension as either dependent, independent or moderating variable. Some of these include; Uz Kurt et al., (2012) who conducted a study among 156 SMEs in Turkey. Environment turbulence were used as independent variable predicting firm innovativeness. The result of their study disclose that market and or demand turbulence and technological turbulence have a positive consequence on the innovativeness of SMEs.

Moreover, AL- Nuiami, Idris, AL-Ferokh and Abu Joma (2014) examine the

relationship between environmental turbulence as measured by “Environmental Dynamism, Environmental Complexity and Environmental Predictability and firm innovative performance. Using a sample of 135 Hotel managers the authors found that environmental turbulence positively influence firm innovative performance. In the same way, Kam-Sing Wong (2014) examine the extent in which environmental turbulence contribute towards firm entrepreneurial orientation which in turn lead to new product success. Data was collected using sample of 244 China-based electronics manufacturers. Consequently his finding depicts that environmental turbulence positively influence all the dimensions of entrepreneurial orientation (Innovativeness, risk-taking and proactiveness). Thus environmental turbulence influence behaviors of the firms towards entrepreneurial orientation.

However, regarding the product innovativeness it is believes to be high during turbulent situation. This was proved by Calantone, Garcia and Droge (2003) who studied four different industries. Their finding shows that during technological turbulence the route from innovativeness to strategic planning and from risk-taking to new product development is very speed. Thus, turbulence environment predict innovativeness as well as new product development. Similarly this result was later confirmed by Denneels and Sethi, (2011) who used the sample of 145 U.S firms. The finding of the study reveal that the relationship of willingness to cannibalize with explorative products is stronger under customer turbulence. While in In contrast, the relationship of future-oriented market scanning with explorative products appeared to be is weak during customer as well as competitive turbulence and stronger under technological turbulence.

Therefore environmental turbulence help organization regarding explorative product. Moreover, in a conceptual paper regarding environmental uncertainty and its relation to firm innovativeness, Jahanshahi, Zhang and Brem (2014) emphasized on the contrasting role of uncertainty in facilitating and preventing the establishment of innovativeness within the firm.

Furthermore, the more the rate of environmental changes and difficulties the better for the firms to be responsive regarding these changes (Gaur, Vasudevan & Gaur, 2011). Importantly, the essential role of market orientation increases during such situation because a firm that adopt market orientation strategy understand its “external environment” as a result the need from external environment can be easily respond (Subramaniam & Gopalakrishna, 2001).

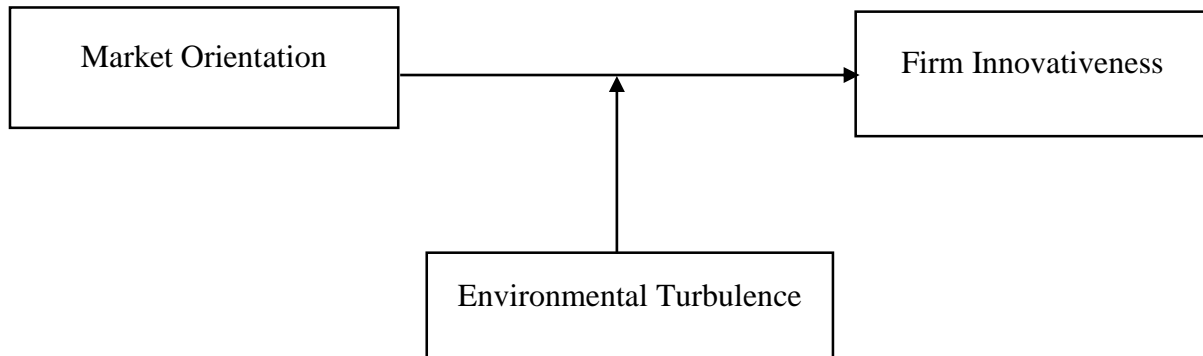
In addition, during a lower rate of competitive intensity, organization can succeed without been extremely embracing market orientation (Kohli & Jawoski, 1990). This is because, in a low competitive environment, customers’ choice is limited to what is available in the market place (Gaur, Vasudevan & Gaur, 2011). In

contrast, during strong competitive settings, customers have numerous options, and therefore will throw away any product and services that do not meet their prospects. Consequently, in order to successfully react to threats on the market, some authors (e.g. Jawoski & Kohli, 1993) argued that firm must go beyond the “level of competitor orientation” by including high “level of customer orientation” as well as inter-functional coordination. Therefore, when the rate of competitive intensity is high, of several dimensions of market orientation significantly influence firm’s manufacturing performance.

Furthermore a greater market orientation help firms deal with technological turbulence (Gaur et al., 2011). Although scholars (e.g. Jawoski & Kohli, 1993), argued that, organization facing technological turbulence can survive without high rate of MO. In addition, during situations of technological uncertainty, management can become myopically focused on the technology with concerns associated with managing the risks and uncertainties that arise (Slater & Narver, 1994). Moreover, recently some authors (e.g. Song & Parry, 2009) proposed that market orientation will be lower under high rate of technological turbulence. Based on the above empirical review, the present study proposed the following hypothesis:

H2: Environmental turbulence moderate the relationship between market orientation and firm innovativeness.

Research Framework



3 Method

3.1 Measures

Firm innovativeness is operationalized as the firms’ openness mind and willingness to accept new idea that becomes part of firm’s culture to conduct business. Accordingly, firm innovativeness was measured using five items adopted from Lee and Tsai (2005) which were initially developed by Hurley and Hult, (1998).Market orientation scale was adopted from Narver and Slater (1990) and lastly the scale of environmental turbulence was adopted from Lichtenthaler (2009).

3.2 Sample and Data Collection

The data collection process took place within Small and Medium Enterprises (SMEs) located in Kano state Northwest Nigeria. Consequently, 320 owner/manager of SMEs partaken in the study. Respondents were given a self-administered questionnaires to evaluate the level of human capital and innovativeness in their respective organizations. Personal visits and telephone contacts help researchers retrieve 253 (79%) questionnaires which filled up by owner/manager of SMEs. These SMEs comprises of 190 from manufacturing, 23 from agricultural sector, and 40 from service

industries. Moreover, these sectors were represented by several areas.

4 Result

4.1 Measurement Model

We used composite reliability to assess internal consistency reliability of the constructs (Hair *et al.*, 2011). Following Hair *et al.*, (2011)’s rule of thumb of cut off of 0.7 and above, we retained 5 items each for market orientation and environmental turbulence while 4 items were retained for firm innovativeness (Figure 1). In addition, the result of indicator reliability of each latent construct was greater than the minimum of 0.7 (Hair *et al.*, 2011).

Similarly, convergent validity was assess using Average Variance Extracted (AVE). Accordingly, the result demonstrate sufficient convergent validity as the AVE of each construct exceed 0.5 (Hair *et al.*, 2011). (Figure 1). Lastly discriminant validity was assess using Heterotrait-Monotrait (HTMT) ratio of correlation (Henseler, Ringle and Sartedt, 2015). Therefore, the findings (Table 1) exhibits that the discriminant validity has been established as the values of the correlations

among the constructs are less than 0.85 (Henseler *et al.*, 2015).

Table I
Hetrottrait-Monotrait (HTMT) Ratio Criterion of Discriminant Validity

	FIN	MKO	EVT
Firm Innovativeness			
Market Orientation	.19		
Environmental Turbulence	.83	.13	

4.2 Structural Model

In preceding section the measurement model has been discussed, therefore, this section evaluates the structural model of this study. The main evaluating criteria for structural model are R-square (R²) measure, predictive relevance (Q²) effect size (f²), and the level of significance of the path

coefficient (Hair *et al.*, 2011). Moreover, this study employed a standard bootstrapping process whereby creating a huge samples i.e. 5,000 (Hair *et al.*, 2011; Hair et al., 2014), and 253 cases to evaluate significance of the path coefficients. In Table II, below the R² value of endogenous latent variable is presented.

Table II
Variance Explained in the Endogenous Latent Variables

Latent Variable	Variance Explained (R ²)
Firm Innovativeness	47%

The result depicts that the present research model explain about 47% of the total variance in firm innovativeness. This advocates that market and environmental turbulence jointly explained 47% of the variance in firm innovativeness. Thus, this result demonstrates an acceptable R² value

which considered as moderate (Hair *et al.*, 2011). Moreover, f-square (f²) can be assess to see whether the influence of a particular independent latent variable on dependent latent variable is essential. Therefore, Table III presents the assessment of effect size (f²) of this model.

Table III
Effect Sizes (f-Square) of the Latent Variables Based on Cohen’s (1988) Recommendation

	f-square (f ²)	Effect size
Market Orientation-> Firm Innovativeness	.10	Small
Environmental Turbulence-> Firm Innovativeness	.32	Moderate

As presented in Table III above, the effect size of market orientation and environmental turbulence on firm innovativeness are .10 and .32 respectively. Thus, consisted with the rule of thumb Cohen’s (1988), the effect size of these

exogenous latent variables on firm innovativeness can be regarded as small and moderate individually. Similarly, the assessment of predictive relevance is presented in Table IV and the result shown that endogenous latent construct’s Q² is

greater than zero, thus indicating predictive relevance of the model has been achieved (Chin, 1998; Henseler *et al.*, 2009).

Lastly, the following causal paths stated in the hypothesized model were found to be

statistically significant (Table V): from market orientation to firm innovativeness ($\beta=0.16$ $t=2.80$ $P<.003$), environmental turbulence to firm innovativeness ($\beta= 0.34$ $t= 5.11$ $P<.001$); environmental turbulence as a moderator ($\beta=0.44$ $t= 2.10$ $P<.02$).

Table IV
Structural Model Assessment

Path	Original Sample	Std. Deviation	T-Statistics	Sig.
Market Orientation->firm innovativeness	0.16	0.05	2.80	0.03*
Environmental turbulence->firm innovativeness	0.34	0.06	5.11	0.00*
Market Orientation->Environmental Turbulence->Firm Innovativeness	0.44	0.21	2.10	0.02**

Note: * significant at 1% level ** significant at 10% level

5 Discussion

Our findings showed that market orientation is positively related to SMEs innovativeness. This indicates that organizations with high market orientation tend to achieve innovative capabilities and certainly innovative performance and competitive advantage. This result supports the earlier findings (e.g Jaworski & Kohli, 1993) who argued that market orientation is basically linked with creating something new or unique in response to market conditions. This study also consistent with many studies (Lee and Tsai, 2005; Tajeddin et al., 2006) who found a positive influence of market orientation on firm innovativeness. Similarly, regarding the link between environmental turbulence and firm innovativeness, our finding shows that during turbulent environment innovativeness found to be high. In other word, the more the rate of environmental changes and difficulties the better for the firms to be responsive regarding these changes (Gaur, Vasudevan & Gaur, 2011). This result is consistent with previous findings (e.g Subramaniam &

Gopalakrishna, 2001; Jahanshahi, Zhang and Brem 2014). Lastly, our finding revealed that environmental turbulence moderate the relationship between market orientation and SMEs innovativeness. This suggest that during turbulent market orientation lead to innovativeness. Specifically, this result shows that in turbulent markets where customers are continuously looking for new product as well as service experiences a greater use of market orientation consequently be a source of outsmarting superior businesses. This result support the previous findings (e.g. Didonet, Simmons, Díaz-Villavicencio, & Palmer, 2012).

6 Conclusion and Implication

It is generally agreed that innovation is a critical factor in firms’ performance and survival as a result of the growth of the competitive and uncertain environment (Wheelwright and Clark, 1992). Therefore it is essential to understand firm’s condition that influence innovative capabilities. Consequently, researchers consider market orientation as one of the essential elements

that lead to firm innovativeness. However, empirical studies regarding this link specifically on SMEs is limited. In addition, studies regarding this relationship under different environmental situations is also limited. Consequently, the relationship between the constructs was analysed. Accordingly, the finding revealed a positive influence of market orientation and environmental turbulence on SMEs innovativeness. Likewise, the findings shows that during turbulent, market orientation predict innovativeness. Thus this study contribute to the innovation literature by confirming that market orientation and environmental turbulence influence SMEs innovativeness. The findings of this research provide valuable information that could be used to make enhancements in organizational practices. Thus, when seeking to increase firm innovative capabilities, practitioners should take into account the improvement of market orientation in their respective organizations.

References

- [1]. Alguezaui, S., & Filieri, R. (2010). Investigating the role of social capital in innovation: sparse versus dense network. *Journal of knowledge management*, 14(6), 891-909.
- [2]. Al-Nuami, M., Idris, W. M. S., & Moh'd AL-Ferokh, F. A. (2014). An empirical study of the moderator effect of entrepreneurial orientation on the relationship between environmental turbulence and innovation performance in five-star hotels in Jordan. *International Journal of Business Administration*, 5(2), 111.
- [3]. Calantone, R., Garcia, R., & Dröge, C. (2003). The effects of environmental turbulence on new product development strategy planning. *Journal of Product Innovation Management*, 20(2), 90-103.
- [4]. Chin, W. W. (1998). The partial least squares approach to structural equation modeling. *Modern methods for business research*, 295(2), 295-336.
- [5]. Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*. New Jersey: Lawrence Erlbaum Associates, Inc. Publishers.
- [6]. Danneels, E., & Sethi, R. (2011). New product exploration under environmental turbulence. *Organization Science*, 22(4), 1026-1039.
- [7]. Dibrell, C., Craig, J., & Hansen, E. (2011). Natural environment, market orientation, and firm innovativeness: an organizational life cycle perspective. *Journal of Small Business Management*, 49(3), 467-489.
- [8]. Didonet, S., Simmons, G., Díaz-Villavicencio, G., & Palmer, M. (2012). The relationship between small business market orientation and environmental uncertainty. *Marketing Intelligence & Planning*, 30(7), 757-779.
- [9]. Gaur, S. S., Vasudevan, H., & Gaur, A. S. (2011). Market orientation and manufacturing performance of Indian SMEs: Moderating role of firm resources and environmental factors. *European Journal of Marketing*, 45(7/8), 1172-1193.
- [10]. Gelhard, C., Kortmann, S., & Leker, J. (2014, January). A Contemporary View on Market Orientation and Innovativeness: The Mediating Role of Customer Co-Creation. In *ISPIM Conference Proceedings* (p. 1). The International Society for Professional Innovation Management (ISPIM).
- [11]. Grinstein, A. (2008). The effect of market orientation and its components on innovation consequences: a meta-analysis. *Journal of the Academy of Marketing Science*, 36(2), 166-173.
- [12]. Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a

silver bullet. *Journal of Marketing theory and Practice*, 19(2), 139-152.

[13]. Han, J. K., Kim, N., & Srivastava, R. K. (1998). Market orientation and organizational performance: is innovation a missing link?. *The Journal of marketing*, 30-45.

[14]. Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115-135.

[15]. Hurley, R. F., & Hult, G. T. M. (1998). Innovation, market orientation, and organizational learning: an integration and empirical examination. *The Journal of Marketing*, 42-54.

[16]. Ihinmoyan, T., & Akinyele, S. T. (2011). Relationship between market orientation, firm innovativeness and innovative performance. *Journal of Contemporary Management Research*, 5(2), 42.

[17]. Jahanshahi, A. A., Zhang, S. X., & Brem, A. (2014, January). Perceived Environmental Uncertainty and Firm Innovativeness. In *ISPIM Conference Proceedings* (p. 1). The International Society for Professional Innovation Management (ISPIM).

[18]. Jaworski, B. J., & Kohli, A. K. (1993). Market orientation: antecedents and consequences. *The Journal of marketing*, 53-70.

[19]. Kam-Sing Wong, S. (2014). Impacts of environmental turbulence on entrepreneurial orientation and new product success. *European Journal of Innovation Management*, 17(2), 229-249.

[20]. Kibbeling, M., der Bij, H., & Weele, A. (2013). Market orientation and innovativeness in supply chains: Supplier's impact on customer satisfaction. *Journal of Product Innovation Management*, 30(3), 500-515. Laforet, S. (2008). Size, strategic, and market orientation affects on

innovation. *Journal of business Research*, 61(7), 753-764.

[21]. Kohli, A. K., & Jaworski, B. J. (1990). Market orientation: the construct, research propositions, and managerial implications. *The Journal of Marketing*, 1-18.

[22]. Lee, T. S., & Tsai, H. J. (2005). The effects of business operation mode on market orientation, learning orientation and innovativeness. *Industrial Management & Data Systems*, 105(3), 325-348.

[23]. Lichtenthaler, U. (2009). Absorptive capacity, environmental turbulence, and the complementarity of organizational learning processes. *Academy of management journal*, 52(4), 822-846.

[24]. Mahmood, R., & Hanafi, N. (2013). Entrepreneurial orientation and business performance of women-owned small and medium enterprises in malaysia: competitive advantage as a mediator. *International Journal of Business and Social Science*, 4(1).

[25]. Menguc, B., & Auh, S. (2006). Creating a firm-level dynamic capability through capitalizing on market orientation and innovativeness. *Journal of the academy of marketing science*, 34(1), 63-73.

[26]. Narver, J. C., Slater, S. F., & MacLachlan, D. L. (2004). Responsive and proactive market orientation and new-product success. *Journal of product innovation management*, 21(5), 334-347.

[27]. Polat, I., & Mutlu, H. M. (2012). The impacts of market orientation, entrepreneurial orientation, environmental uncertainty and internationalization speed on firm performance. *European Researcher*, (27), 1248-1254.

[28]. Rahnama, A., Mousavian, S. J., Eshghi, D., & Alaei, A. (2011). The Role of Industrial Incentives in Development of Small and Medium Industries.



International Journal of Business Administration, 2(4), 25.

[29]. Slater, S. F., & Narver, J. C. (1995). Market orientation and the learning organization. *The Journal of Marketing*, 63-74.

[30]. Song, M., & Parry, M. E. (2009). The desired level of market orientation and business unit performance. *Journal of the Academy of Marketing Science*, 37(2), 144-160.

[31]. Subramanian, R., & Gopalakrishna, P. (2001). The market orientation–performance relationship in the context of a developing economy: An empirical analysis. *Journal of Business Research*, 53(1), 1-13.

[32]. Uwalomwa, U., & Ranti, O. O. (2009). Adoption of Information and Communication Technology among small and medium scale enterprises in Nigeria. *African Journal of Business and Economic Research*, 4(2_3), 73-84. Uz Kurt, C., Kumar, R., Kimzan, H. S., & Sert, H. (2012).