ROLE OF COMPETITIVE INTELLIGENCE IN THE RELATIONSHIPS OF ENTREPRENEURIAL ORIENTATION AND START-UP BEHAVIOR: MODERATING ROLE OF ENTREPRENEURIAL NETWORK

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ABSTRACT

This study refines the relationship between the elements of entrepreneurial orientation and start-up behavior by considering competitive intelligence and moderating roles of entrepreneurial network. Start-up behavior of owner/managers becomes growing interest for Small and medium enterprises (SMEs) in order to cope with underlying and emergent challenges. Entrepreneurial orientation (Innovativeness, risk-taking, and pro-activeness) and competitive intelligence is the key to the success of start-up behavior. The current research explored a gap in order to examine the moderating role of entrepreneurial network on the relationship between competitive intelligence and start-up behavior in small and medium enterprises. The study was conducted over survey of owner/managers of SMEs in Pakistan. The correlation, regression and moderated hierarchical regression approach reveals several interesting results. First, found the mediating role of competitive intelligence between three elements of entrepreneurial orientation and start-up behavior. Second, entrepreneurial network significantly moderate on the relationships between competitive intelligence and start-up behavior.

Keyword: *Entrepreneurial Orientation, Entrepreneurial network, Competitive intelligence*

INTRODUCTION

In today's conducive emerging trends and global competitive environment, create opportunities for the development of entrepreneurship (Bayarcelik & Ozsahin, 2014; Fogel, 2001). The outcomes of entrepreneurship activities are considered as active force for organizational emergence (Shane & Delmar, 2004). Entrepreneurship scholars focused on the point that organizational emergence is a result of new start-ups (Newbert, 2005). Prior researchers focus their attention extensively to the antecedents of venture formation and start-up activities (Kam-Sing Wong, 2014). For instance, researchers have primary stance to correlated entrepreneur start-up behavior with antecedents such as entrepreneurial knowledge (Clercq & Arenius, 2006), entrepreneurial intention (Kibler, Kautonen, & Fink, 2014), and entrepreneurial behavior (Li & DaCosta, 2015). The primary objective of article is to find out: How does entrepreneurial orientation elements affect propensity of owner/managers of SMEs to become an entrepreneur? Our proposed

model for role of entrepreneurial orientation is centered on the concept of innovativeness, risk-taking, and pro-activeness.

However, the relationship of entrepreneurial orientation elements and start-up behavior in not linear: there are various variables that play their mediating and moderating role to establish that relationship. The current study is attempted to fill this research gap and provide proposed model in order to examine the relationships between entrepreneurial orientation, competitive intelligence activities, and start-up behavior after considering the moderating role of entrepreneurial network in context of SMEs in emerging economies. Entrepreneurship is a combination of risk-taking, innovativeness, and pro-activeness (Kreiser, Marino & Weaver, 2013). When these dimensions of entrepreneurship geared in order to meet the challenges shaped by competitive environment are collectively term as entrepreneurial orientation (Kandemir & Acur, 2012). The innovativeness dimension of entrepreneurial orientation "depicts new ideas, experimentation, novelty and creative process in a firm to cope with new technological advancement and overcome problems which has been occurred due to obsolesce of the new ideas'' (Lumpkin & Dess, 1996). The result of study conducted by Ledwith and O'Dwyer (2008) confirmed that innovative firms enjoyed product advantage in response of introducing the new product ahead of competitors.

However, advantage of new product or process is contingent upon manager's willingness to make use of risky and large resource commitments (Miller & Friesen, 1978). Risk-taking dimension of entrepreneurial orientation exists in concurrence with innovation (Stam & Elfring, 2008). Innovativeness and risk-taking are highly associated with pro-activeness because innovation and risk-taking dimensions of entrepreneurial orientation require intention to cause change through promotion of new process (Kandemir & Acur, 2012). Proactive organization is chance seeking and forward looking (Talke, Salomo, & Kock, 2011). Pro-activeness dimension of entrepreneurial orientation is related to gain advantages over the competitors through anticipation of future needs which results in new product development (Rauch, Wiklund, Lumpkin, & Frese, 2009). The entrepreneurial organizations act proactively and capture opportunities faster than their competitors through utilization of competitor' information (Trong, 2015). Entrepreneurial orientation e.g. innovativeness and pro-activeness affect competitive intelligence (Qiu. 2008). The competitive intelligence is process through which entrepreneurs accumulate information about competitor activities (Wright, Eid, & Fleisher, 2009).

Trong Tuan (2013) documented that competitive intelligence refers to a capability of an organization to interpret and overcome the value and competency gaps between itself and its competitors. Calof and Wright (2008) view the competitive intelligence as a process of

evaluating behaviors and competencies of its potential and current competitors in order to achieve competitiveness. Phokha and Nonsrimuang (2013) argued that entrepreneurial orientation is resource permitting to perform better and faster than competitors. Clercq, Dimov and Thongpapanl (2013) documented that three dimensions of entrepreneurial orientation help to look forward, adopt ideas and experience new opportunities ahead of its competitors. The entrepreneurial orientation with innovativeness, risk-taking, and proactiveness dimensions shape conducive culture essential for process of competitive intelligence (Gnizy, & Shoham, 2014). The process of competitive intelligence provides useful information about external entities such as current and potential competitors which is used for the execution of specific action (McGonagle & Vella, 2004). Competitive intelligence provides information to the entrepreneur during all phases i.e. idea creation, recognition of opportunity, start-up, and growth of entrepreneurship (Baum & Bird, 2010). Competitive intelligence is necessary not only for the success and survival but also have a major contribution to shape start-up activities (McGonagle and Vella 2004). In line with these arguments we formulate the following hypotheses:

H1a*:* The impact of innovativeness on start-up behavior will be mediated by competitive intelligence at SMEs in emerging economies.
H1b: The impact of risk-taking on start-up behavior will be mediated by competitive intelligence at SMEs in emerging economies.
H1c*:* The impact of pro-activeness on start-up behavior will be mediated by competitive intelligence at SMEs in emerging economies.

The entrepreneurship literature indicates that entrepreneurial start-up behavior not only depends on entrepreneurial orientation and competitive intelligence but also depends on entrepreneurial network activities. Mostly, entrepreneurial network refers to relationships of employees, customers, suppliers, friend, family, and social media (Kaplan & Haenlein, 2010). According to Witt, Schroeter and Merz (2008) the term entrepreneurial network denotes to the personal network, which are based on information contacts and exchange relationships among entrepreneurs for the purpose of developing their venture. Networks establish connection among the various characters like family members, businesses partners, customers and suppliers (Jack, Moult, Anderson, & Dodd, 2010). The member of the network has greater opportunities to acquire knowledge from the other members as well as entrance to external legitimacy (Kogut, 1988). The entrepreneurial orientation represents an entrepreneur capability to collect the information about the strategies of competitors from their networks (Lee, Lee, & Pennings, 2001).

According to Teece (1986) networks are important for the process of entrepreneurship with strong entrepreneurial orientations since they provide easy access to the resources

and valuable information that are necessary for the decision of starting new venture. Entrepreneur receives valuable information and emotional support from their personal network which aid in the process of start-up activities. Networks of entrepreneurs are crucial for the start-up of new ventures as these networks may stimulate exposure to a variety of approaches, ideas and perspectives initially contribute in the development of start-up behavior (Hargadon, 2002). Networks of entrepreneurs promote innovative activities which are considered as basic initiative towards the formation of new venture (Cruickshank & Rolland, 2006). The personal network allows entrepreneurs to secure resources which are not available in markets as well as get resources at cheaper rate as compared to markets (Witt, Schroeter, & Merz, 2008). Personal information networks of entrepreneurs for resource and information acquisition purposes receive major importance in new venture (Deakins, Ishaq, Smallbone, Whittam, & Wyper, 2007). In line with the above discussion in current study we formulate the following hypotheses:

H2: The greater the entrepreneurial network activities, the greater the positive association among competitive intelligence and entrepreneur start-up behavior.

RESEARCH DESIGN

Fig.1 presents the proposed research model for the current study with most significant objective i.e. to find out the role of entrepreneurial orientation and competitive intelligence in the formation of start-up behavior and moderating role of entrepreneurial network, we have used six variables i.e. Innovativeness, risk-taking, proactiveness, competitive intelligence, entrepreneurial network, and start-up behavior. Figure 1 capture the relationship between all variables in the proposed research model.

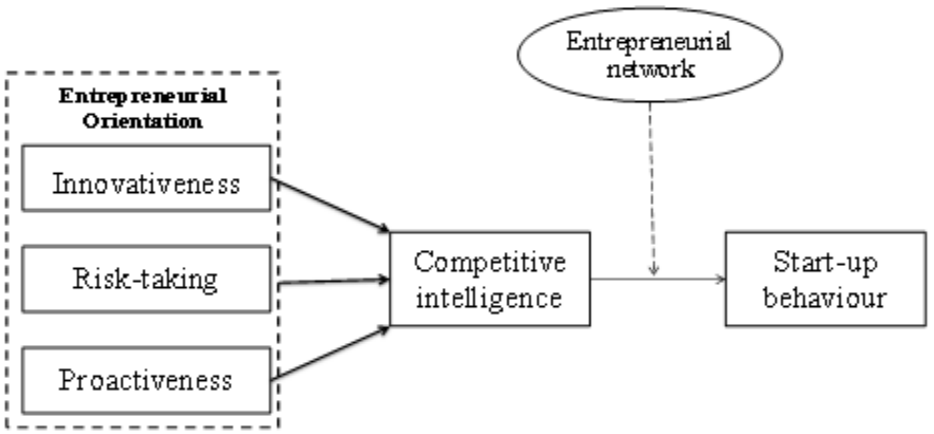

Figure 1. Theoretical framework

Research Design

To achieve the purpose of the study data was collected through questionnaire. Data were collected from owners/managers of the SMEs. Data were collected during the period of 18 February 2014 to 17 June 2015 using two rounds. Initially more than 500 respondents were contacted using their email addresses available in the databases e.g. SMEDA (Small and medium enterprise development authority), business dictionary and Pakistan chamber of commerce and Industry (FPCCI) databases. Out of 500, 83 questionnaires were undelivered due to various reasons i.e. email address were blocked, overloaded and incorrect email address. After sending four reminders (e-mail) excluding the ones who had already submitted the response, only 197 questionnaires were received back, 11 respondents mailed incomplete questionnaire, finally the responses of 186 respondents were completed through email during the period of 5-months. In the second round, due to low response rate of first step it was decided to contact the respondents by personal visits during the period of August 2014 to June 2015. One hundred and thirty-six useable responses were collected through personal visits. Total 333 responses were completed through personal visits and emails. The sample of 333 out of which 322 useable responses were used for the purpose of analysis.

Measures

In the current study Likert scale was used through which respondents indicated their perceptions on five-point items scale 1= 'strongly disagree' to 5='strongly agree. We collected data on Innovativeness, risk-taking, proactiveness, competitive intelligence, entrepreneurial network, and start-up behavior at the individual level. The ten items scale on entrepreneurial network was adapted from the scale developed and formulated by Witt (2004). Elements of entrepreneurial orientation was measured through seven items 3 for innovativeness, 2 items measure risk-taking and 2 items for proactiveness from Miller and Friensen (1982). Competitive intelligence was measured with five-item scale adapted from the measures developed and formulated by Beal (2000). Entrepreneur's start-up behavior was measured with three-item on scale adapted from the measures developed and formulated by Ajzen (1991).

Reliability of the constructs was tested with Cronbach's alpha coefficients (Table-1 contains the coefficients of Cronbach's alpha for all construct). Cronbach's alpha coefficients of six constructs range from .72 to .91, which exceed the .70 suggested by Nunnally (1978) for the internal consistency of measures. In the current study, we have used the technique of confirmatory factor analysis (CFA) to measure the model fitness. Three fit indices including goodness-of-fit-index (GFI), comparative fit index (CFI) and root mean square error of approximation (RMSEA) have been used in order to test the construct validity and evaluate the overall model fit. The values of GFI, CFI, and

RMSEA reasonably met the standard norms. The GFI and CFI values should be 0.90 or higher (Hu & Bentler, 1999) and were 0.95 and 0.92 respectively and RMSEA value was 0.048, while recommendation score is 0.05 or less (Brown & Cudeck, 1993).

Table 1 Descriptive and reliability statistics

Construct	Item	Loadings	Mean	SD	α	AVE
Innovativeness	INN1	0.7479	3.55	0.69	0.82	0.642
	INN2	0.8534	3.85	0.62		
	INN3	0.8487	3.89	1.03		
Risk-Taking	RT1	0.7670	2.91	1.04	0.91	0.772
	RT2	0.6493	3.10	1.14		
Pro-activeness	PRO1	0.7301	3.32	0.97	0.72	0.631
	PRO 2	0.6631	3.45	0.77		
Competitive intelligence	CI1	0.6741	3.65	1.04	0.84	0.662
	CI 2	0.8437	3.60	0.94		
	CI 3	0.8646	3.34	1.06		
	CI 4	0.8502	3.38	1.03		
	CI5	0.7838	3.78	0.69		
Entrepreneurial network	EN1	0.8305	3.72	1.08	0.84	0.781
	EN2	0.8558	3.62	0.94		
	EN3	0.8322	3.33	1.01		
	EN4	0.8400	3.34	0.93		
	EN5	0.8764	3.98	0.68		
	EN6	0.8574	3.59	0.99		
	EN7	0.8464	3.43	0.94		
	EN8	0.6845	3.53	0.80		
	EN9	0.7450	3.47	0.97		
	EN10	0.7719	3.33	0.94		
Start-up behavior	SUB1	0.8509	3.39	0.94	0.87	0.653
	SUB2	0.7797	3.41	1.03		
	SUB3	0.7858	3.49	0.92		

RESULTS AND DISCUSSION

Table 1 shows the correlations and descriptive statistics of the variables used in this study. The coefficients of correlations confirm the positive and significant relationships

between independent, mediator, moderator, and dependent variables. The results shown in Table 1 confirmed relationship between innovativeness and competitive intelligence (r = 0.31; p< 0.01), Risk-taking and competitive intelligence (r = 0.29; p< 0.01), pro-activeness and competitive intelligence (r = 0.27; p< 0.01), competitive intelligence and start-up behavior (r = 0.25; p<0.00), competitive intelligence and entrepreneurial network (r = 0.46; p< 0.01), entrepreneurial network and start-up behavior (r = 0.33; p< 0.00).

Table 2 Correlation, mean and standard deviation among variables

Variables	Mean	SD	1	2	3	4	5	6
Innovativeness	3.36	0.72	1					
Risk-Taking	3.72	0.50	.13**	1				
Pro-activeness	3.66	0.67	.003	.15*	1			
Competitive intelligence	3.50	0.86	.31**	.29**	.27**	1		
Entrepreneurial network	3.67	0.75	.40**	.29**	.31**	.46**	1	
Start-up behavior	3.37	0.87	.54**	.11**	.14**	.25**	.33**	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Causal steps approach

Causal steps approach known as Baron and Kenny method was used to test the study hypotheses and confirm the mediation effect of competitive intelligence between entrepreneurial orientation elements and start-up behavior. Table 3 and 4 demonstrate the results of causal steps approach.

Hypothesis 1a proposed that competitive intelligence mediates between innovativeness and start-up behavior. Simple regressions were used to confirm the four conditions for mediation specified by Baron and Kenny (1986). The first condition was met because table-3 shown that innovativeness was related directly and positively to competitive intelligence (β = 0.31, t = 8.28, p < 0.00). The second condition was also met because competitive intelligence was directly and positively related to start-up behavior (β = 0.54, t = 16.15, p < 0.00). As to the third requirement, competitive intelligence was related directly and positively to start-up behavior (β = 0.59, t = 13.37, p < 0.00). On the basis of these results of simple regressions confirms three steps. The fourth criterion was satisfied on the basis of the results of multiple regressions shown in table-4, because when competitive intelligence was included as the mediator, the direct effect of innovativeness on start-up behavior was insignificant (β = 0.23, t = 0.42, p = 0.66). On the basis of these results we accept study hypothesis 1a.

Table 3 Regression, competitive intelligence (mediator) & start-up behavior (dependent)

Independent factors	**Competitive intelligence**					**Start-up behavior**				
	R^2	S.E	β	t-Val	Sig.	R^2	S.E	β	t-Val	Sig.
Innovativeness	0.10	0.046	0.31	8.28	0.00	0.30	0.033	0.54	16.15	0.00
Risk-taking	0.29	0.066	0.29	7.70	0.00	0.10	0.043	0.32	6.16	0.00
Pro-activeness	0.25	0.063	0.27	7.04	0.00	0.41	0.055	0.64	15.20	0.00
Competitive-intelligence (**Mediator**)	--	--	--	--	--	0.33	0.054	0.59	13.37	0.00

Note: The regressions are performed separately between one independent variable, competitive intelligence (mediator) and start-up behavior (dependent variable):

Hypothesis 1b proposed that competitive intelligence mediates between risk-taking and start-up behavior. We test the entire remaining hypotheses by following the same procedure as used for hypothesis 1. The first condition was met because Table 3 shows that risk-taking was related directly and positively with competitive intelligence ($\beta = 0.29$, $t = 7.70$, $p < 0.00$). The second condition was also met because risk-taking was directly and positively related with start-up behavior ($\beta = 0.32$, $t = 6.16$, $p < 0.00$). As to the third requirement, competitive intelligence was related directly and positively to start-up behavior ($\beta = 0.59$, $t = 13.37$, $p < 0.00$). On basis of these results of simple regressions confirms three steps. The fourth criterion was satisfied on the basis of the results of multiple regressions shown in table-4, when competitive intelligence was included as the mediator, the direct effect of risk-taking was insignificant ($\beta = 0.09$, $t = 2.03$, $p = 0.07$). On the basis of these results we accept study hypothesis 1b.

Table 4 Multiple regression results for Start-up behavior

Model	Factor	R^2	F	S.Error	β	t-value	Sig.
1	Innovativeness	0.34	86.26	0.094	0.23	0.42	0.66
	Competitive intelligence			0.065	0.56	10.47	0.00
2	Risk-Taking	0.37	92.26	0.040	0.09	2.03	0.07
	Competitive intelligence			0.057	0.52	11.41	0.00
3	Pro-activeness	0.32	83.41	0.055	0.05	0.66	0.54
	Competitive intelligence			0.063	0.55	10.58	0.00

Hypothesis 1c formulated for mediating role of competitive intelligence in the association between pro-activeness and start-up behavior. The first condition was met because table-3 shown that pro-activeness was related directly to competitive intelligence ($\beta = 0.27$, $t =$

7.04, p < 0.00). The second condition was also met because proactiveness was directly and positively related to start-up behavior (β = 0.64, t = 15.20, p < 0.00). As to the third requirement, competitive intelligence was related directly and positively to start-up behavior (β = 0.59, t = 13.37, p < 0.00). On basis of these results of simple regressions confirms three steps. The fourth criterion was met on the basis of the results of multiple regressions shown in table-4, because when competitive intelligence was included as the mediator, the direct effect of pro-activeness was insignificant (β = 0.05, t = 0.66, p = 0.54) however reduced. On the basis of these results we accept study hypothesis 1c.

Moderating effect

To examine the moderating role of entrepreneurial network, we used hierarchical regression. The results of regression presented in Table-5. Model 1 in Table-5 shows the coefficient of base model while model 2 captures the moderating effects of entrepreneurial network on the relationship between competitive intelligence and start-up behavior. The coefficient of the interaction term CI X EN presented in Table-5 indicate that entrepreneurial network positively impact the relationship between competitive intelligence and start-up behavior (β = .23, *p*< .01). As suggested by Aiken and West (1991) we also conducted slope analysis and plotted the interaction at low and high levels of entrepreneurial network (see figure 2). The results of slope analysis revealed that competitive intelligence increases start-up behavior when entrepreneurial network activities are high. On the basis of these results study hypothesis 2 i.e. the greater the entrepreneurial network activities, the greater the positive relationship between competitive intelligence and start-up behavior was accepted.

Table 5 Regression results of moderating effects of entrepreneurial network

	Model 1	**Model 2**	**Model 3**
Start-up behavior			
Competitive intelligence	.39**	.12**	.18**
Entrepreneurial network		.49**	.53**
CI X EN			.23*
R^2	.16	.35	.37
Adjusted R^2	.14	.33	.35
ΔR^2	---	.19	.02
Δ F	.130	.197	17.05*
N	372	372	372

Note: * p < .05, ** p < .01, *** p < .001

CONCLUSION

This theory-driven research confirms all the research hypotheses. There is a positive relationship between innovativeness, risk-taking, pro-activeness and competitive intelligence. Where, innovativeness, risk-taking, pro-activeness leads to competitive intelligence and start-up behavior. On the other hand, the relationship between competitive intelligence and start-up behavior becomes stronger when network activities are higher. The current study significantly contributes to the entrepreneurship and small business literature through incorporating indirect relationship between innovativeness, risk-taking, pro-activeness and start-up behavior, as well as the moderating effect of entrepreneurial network on the association among competitive intelligence and start-up behavior. The most important contribution is that we have developed a model and empirically examined the elements of entrepreneurial orientation and competitive intelligence that influences entrepreneurs' start-up activities. Previous studies mainly focus on the direct relationships of entrepreneurial orientation and entrepreneurial-related activities. This study proposed a model with a primary emphasis to fill the gap between indirect relationship of entrepreneurial orientation elements – competitive intelligence and a new context, start-up activities.

The relationship between the elements of entrepreneurial orientation and competitive intelligence also denotes that the forces inside the organization such as risk-taking, pro-activeness, and innovativeness are used to access and analyze the information about external entities such as competitors that would be helpful for the start-up behavior. Therefore, study in hand has unique contribution as compared to other studies in the field of entrepreneurial orientation that has inclined to focus on the influence of forces internal to the organization on the forces external to the organization. Finally, we have analyzed the moderating roles of entrepreneurial network on the relationship between competitive intelligence and start-up behavior. The results of this research support the argument that the effects of competitive intelligence on start-up behavior become stronger provided that entrepreneurs play a part in network activities. The greater entrepreneurial network activities the greater the positive association among entrepreneurial orientation, competitive intelligence and start-up behavior.

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