

ENTREPRENEURIAL TRAITS AND FIRM SERENDIPITY-SEEKING ON SMES' PERFORMANCE: THE EFFECT OF FIRM SIZE

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This study aims to uncover the impact of individual- and firm-level factors, measured by personality traits of the owner-managers and firm serendipity-seeking in explaining SMEs performance and the moderating impact of firm size. The results of the study show that firm-level factors are more important in explaining SMEs performance. Firm size is also found to moderate the effect of need for achievement and endogenous serendipity-seeking of the SMEs but the results do not conclude whether individual- or firm-level factors are more relevant to predict the performance of SMEs with different size. The findings could provide an alternative direction of study to the inconsistent results in studying effect of personality traits and SMEs' performance.

Keywords: Personality traits; serendipity-seeking; small and medium enterprises; firm performance; firm size and moderating effect.

INTRODUCTION

Small and medium enterprises (SMEs) are important for most economies in the world. According to the industrial pyramid, micro, small, and medium enterprises make up the largest portion of business establishments (Tarmidi, 2005; Régnier, 2006; Ong *et al.*, 2009). SMEs contribute significantly to employment and gross domestic products (GDP). In Japan and China, SMEs contribute more than 50 percent of the country's GDP (National

SME Development Council, 2008), while in Japan, Taiwan, Korea, Germany, and China, SMEs contribute more than 70 percent of the employment opportunity (National SME Development Council, 2007). Furthermore, the experience of Taiwan during 1997 Asian economic crisis proves that SMEs can help to encounter economic crisis (Chu, n.d.). Besides, SMEs are crucial in promoting social welfare such as balancing wealth gap among different ethnics (Suyderhoud, 1999), reducing poverty, and redistributing wealth in rural area (Chan, 2005).

In view of the importance of SMEs, many studies have directed to uncover the success factors of SMEs. The studies can broadly be categorised into focusing on individual- and firm-level unit of analysis. A common approach in individual level of analysis is to examine the trait-based factors of the individual owner-managers (e.g. Entrialgo *et al.*, 2000; Rauch and Frese, 2000; Lee and Tsang, 2001; Jaafar and Abdul-Aziz, 2005, Ong and Hishamuddin, 2008) while studies at firm-level of analysis mainly focus on characteristics of the firm mainly represent by corporate entrepreneurship stream of study (e.g. Yang *et al.*, 2007; Borch *et al.*, 1999; Covin and Miles, 1999; Vozikis *et al.*, 1999; Zahra *et al.*, 2000; Teng, 2006). To better understand the success factors for SMEs, identifying the right level of analysis is crucial. The size of the firm, as mentioned by Rauch and Frese (2000) could be important determinant for the right level of analysis to examine the SMEs performance, but little is known about its actual effect. Lee and Tsang's (2001) study focuses solely on individual-level factors in examining the factors affecting venture growth of SMEs in Singapore while Rauch and Frese's (2000) arguments are not tested empirically.

This study aims to examine the effect of individual- and firm-level factors on SMEs performance and the moderating effect of firm size on the impact of the individual- and firm-level factors on SMEs performance. Following the approach of previous studies (Entrialgo *et al.*, 2000; Rauch and Frese, 2000; Lee and Tsang, 2001; Jaafar and Abdul-Aziz, 2005; Ong and Hishamuddin, 2008), personality traits of the SMEs owner-managers is used as individual-level factor to explain the SMEs performance. In term of the firm-level factor, this study conceptualise the idea of “luck”, mentioned by Ma (2002) into “firm serendipity-seeking”. The idea of firm-serendipity seeking could be more relevant to SMEs compared to the concept of corporate entrepreneurship as corporate entrepreneurship focuses on more systematic-type of management (Sambrook and Roberts, 2005) that could not be relevant to the context of small-size enterprises.

LITERATURE REVIEW

This study focuses on examining the SMEs performance from the perspective of personality traits and firm serendipity-seeking. This section starts with the review of firm performance followed by personality traits and firm serendipity seeking, representing individual- and firm-level of analysis.

Firm Performance

Firm performance is measured by overall performance, financial performance, firm's growth, and customer retention, subjectively compare with close competitors, industrial average, and competitors with similar size. This is adopted from previous studies where financial performance, growth, and customer retention were found to be common measure for firm well being (e.g. Dyke *et al.*, 1992; Hashim and Wafa, 2003; Powell and Dent-Micallef, 1997; Tippins and Sohi, 2003). Furthermore, subjective measure for firm performance especially in SMEs is well supported. In fact, it is a better measure than the objective data. This is because SMEs are mostly privately held thus obtaining the objective data for SMEs is not viable (Tippins and Sohi, 2003). Even the financial data is available, question might still be raised on the reliability of the data (Powell and Dent-Micallef, 1997; Spanos and Lioukas, 2001). In the cross industry comparison, different in performance standard in different industry reduce the credibility of the objective measure (Allen and Helms, 2006). Even in the case of comparison within a specific industry, generalise the finding to another industry might be problematic (Allen and Helms, 2006). In addition to that, Dess *et al.* (1997) and Powell and Dent-Micallef (1997) have validated the credibility of subjective measure with the objective financial data. In general, although self-reported performance is not identical with accounting measurements from financial report, sufficient evidence have been obtained to support and validate the use of self-reported data in analysis (Dess *et al.*, 1997; Powell and Dent-Micallef, 1997).

In this study, firm performance of SMEs is predicted by personality traits of the owner-manager and firm serendipity-seeking.

Personality Traits

One distinctive feature of SMEs is the operation of the firm heavily lies on an individual or a very small management team (Hashim and Wafa, 2003;

Jones, 2003). Studies in resource-based view have recognised the individual entrepreneurs as the strategic resource for the firm's heterogeneity (Dollinger, 1999; Alvarez and Busenitz, 2001; Mathews, 2002; Liu, 2006). The quality of entrepreneurs can be measured through need for achievement (McClelland, 1961) and internal locus of control (Rotter, 1966). These elements of personality traits are highly associated with entrepreneurship and entrepreneurial success (Carland *et al.*, 1984; Rauch and Frese, 2000).

Personality traits were once very popular in entrepreneurship study prior to 1990s but suffered from lack of consistency between theory and empirical findings (Llewellyn and Wilson, 2003). Nevertheless, need for achievement, internal locus of control, and risk-taking propensity have been recognised as highly associate with entrepreneurship (Beugelsdijk, 2007; Korunka *et al.*, 2003; Littunen, 2000; Rauch and Frese, 2000). However, risk-taking propensity is said to be associated more with ownership of the business rather than with entrepreneurial behaviour (Carland *et al.*, 1984). Furthermore, results of the empirical study on risk-taking propensity are highly inconsistent (see for Rauch and Frese, 2000). In view of that, this study focuses on need for achievement and internal locus of control to explain SMEs performance from the perspective of individual owner-manager.

Need for achievement is developed by McClelland in 1961 to measure an individual's behaviour and planning to strive for excellence (Hansemark, 1997). Need for achievement reflects an individual's need to strive hard to attain success. Individuals with a high need for achievement tend to set demanding targets for themselves and are proactive and bold in accomplishing objective (McClelland, 1961; Cromie, 2000; Beugelsdijk, 2007). They tend to have preference over challenging tasks of moderating difficulty, seek feedback on performance, and look for new and better ways to improve their performance (Rauch and Frese, 2000). Previous studies have suggested the need of achievement as a good factor to distinguish entrepreneurs with non-entrepreneurs (Lee, 1997; Rauch and Frese, 2000). In the context of Asians, need for achievement is found to co-exist with the context of collectivism (Ang and Chang, 1999). This supports the fit of need for achievement in Asians' context even though this trait has always been associated with individualism in the West. In this study, the SMEs owner-managers' need for achievement is expected to influence the firms' performance. Thus, the following hypothesis is proposed:

H1: There is a significant impact of need for achievement on firm performance.

Locus of control is developed by Rotter (1966) in his social learning theory to measure the extent to which people feels in charge (Beugelsdijk, 2007) and has influence over the outcome (Kaufmann *et al.*, 1996). Generally, individuals with internal locus of control feel to have control over own life by influencing the outcomes through one's behaviour, permanent characteristics, skills, ability, and effort (Kaufmann *et al.*, 1996; Littunen, 2000; Littunen and Storhammar, 2000; Twenge *et al.*, 2004). On the other hand, individuals believe in external forces, such as actions of others, fate, luck, chance or other factors that are beyond their control to have control over the outcome, is associated with external locus of control (Dollinger, 1999; Kaufmann *et al.*, 1996; Littunen, 2000; Littunen and Storhammar, 2000). The initial construct for locus of control developed by Rotter (1966) varies along the internal-external (I-E) divide (Lange and Tiggemann, 1981; Littunen, 2000). However, concern has later on arisen on the accuracy of locus of control as a universal factor. The development has segregated locus of control into internal and external dimensions (Lange and Tiggemann, 1981; Mirels, 1970; Reid and Ware, 1973) with various different possible relationships among them (Littunen, 2000). This study focuses only on the dimension of internal locus of control. As explained, individuals with internal locus of control are more responsible to their own achievement. Thus, it is expected that the owner-managers with higher level of internal locus of control are expected to be able to achieve greater firms' performance. The following hypothesis is proposed:

H2: There is a significant impact of internal locus of control on firm performance

Serendipity-Seeking

Ma (2002) has theorised the concept of "luck" in achieving firm competitive advantage. Ma (2002, p. 525) defines luck as "a sort of serendipitous happenings, often unfathomable even to its beneficiaries, and unpredictable *a priori*". Nevertheless, the focus in his paper is rather on "manageable" dimensions of luck in which the firms are able to gain from serendipity through their own efforts. In line with the approach, this study uses the term serendipity-seeking to highlight the central role of the firms in exposing themselves to serendipitous through their own actions and efforts.

The concept of luck is not a novel term introduced by Ma (2002) in the field of strategic management. Earlier, Barney (1986) has discussed the role of luck in influencing a firm's performance. Nevertheless, the discussion of

luck narrowly focuses on inferiority of the competitors in estimating the future value of strategic resources in the factor market. On the broader social sciences study, Fine and Deegan (1996) and Foster and Ford (2003) have documented a vast knowledge on serendipity in the field of qualitative research study and knowledge-seeking, respectively. Generally, it can be concluded that serendipity is sort of additional unpredicted gains from human efforts. The serendipity is said to play crucial role in development of human civilisation such as in the case of discovery of American by Columbus, Penicillin by Sir Alex Flaming, and gravity by Newton (Fine and Deegan, 1996). In business field, serendipity is important source to achieve sustained competitive advantage for a firm (Barney, 1986; Ma, 2002).

In Ma's (2002) framework, types of serendipity (or luck) are segregated according to the dimension of serendipitous or proactive on one side and endogenous and exogenous on the other side. Figure 1 shows the framework adopted from Ma's (2002) study. However, since this study interested on proactive-seek serendipity, serendipitous-type of luck in the framework is not of the interest of this study. Nevertheless, as useful weeds are developed from the creative and innovative actions from the firms (Ma, 2002), it matches the concept of serendipity in this study. Thus, this study categorises serendipity solely based on the dimension of endogenous or exogenous. Endogenous serendipity-seeking denotes the efforts within the a firm that create the additional unpredicted gain while exogenous serendipity-seeking measures the derivation of additional unpredicted gain from a firm's efforts in dealing with the external environment.

In order to benefit from the endogenous serendipity, a firm has to encourage innovation and creative works which can possibly create luck for the firm through maintaining flexibility in organisational that allows

		Endogenous	Exogenous
		Useful Weeds	Pure Luck
Serendipitous	Proactive	Skunk Work	Prepared Luck
	Passive		

Figure 1. Framework for Luck. Source: Adopted from Ma (2002, p. 526).

employees for self-initiated actions, experimentations, and improvisation, encouraging the employees to take risk, tolerating mistakes and errors, and rewarding employees for their creativity (Ma, 2002). Furthermore, the firm needs to be proactively alert on these potential lucks and seek opportunity to commercialise them (Ma, 2002). This endogenous serendipity-seeking behaviour is synonymous to the idea of exploration mentioned by Ireland and Webb (2009). On the exogenous serendipity-seeking, a firm is in the advantage to gain from serendipity if the firm posses asymmetric information and unique historical events, stays alert to changes in social cultural trends, technology, customer taste and demand, and government regulatory (Ma, 2002). Besides, a firm can also gain unpredictably as a result of failure of competitors and existence of dream expeditor, according to Ma (2002). The existence of mechanisms within the firms to cultivate the serendipity from internal and external of the firms is expected to bring greater performance to the firms. Thus, the following hypotheses are proposed:

H3: Firm endogenous serendipity-seeking has a significant effect on firm performance.

H4: Firm exogenous serendipity-seeking are expected to have significant impact on firm performance.

Firm Size

Firm size in this study is measured by the number of employees. According to Rauch and Frese (2000), firm size is critical in deciding the suitable level of analysis to be used to predict firm performance. As argued by them, the firm-level factors are more relevant to predict the performance of larger size firms while success of smaller size firms are mainly determined by the individual-level factors of the owner managers. The empirical study on the effect of firm size on individual-level factors on firm venture growth in Lee and Tsang's (2001) study shows that in the case of need for achievement and internal locus of control, their effects on venture growth are stronger in larger size firms compared to the smaller firms. Similar results can be observed in factors such as breadth of communication and educational level (Lee and Tsang, 2001). Nonetheless, in the effect of experience, number of partners and frequency of communication are having stronger effect on venture growth in smaller firms (Lee and Tsang, 2001). Although no conclusive findings on whether the firm size has an effect the suitable level of factors to predict firm performance, this study proposed that firm size has a significant moderating effect on the impact of need for achievement,

internal locus of control, endogenous serendipity-seeking and exogenous serendipity-seeking on firm performance. Thus, the hypothesis is proposed:

H5: Firm size has a significant impact on the effect of need for achievement, internal locus of control, endogenous serendipity-seeking and exogenous serendipity-seeking on firm performance.

RESEARCH METHODS

Development of Research Framework

Previous literature has supported the importance of personality traits of the SMEs owner-managers and firm serendipity-seeking in contributing to the performance of SMEs. In addition to that, Rauch and Frese (2000) and Lee and Tsang (2001) have brought the attention to the importance of firm size in determining the success factors of SMEs. Thus, the research framework, indicated in Figure 2 is proposed. The research framework examines the effect of personality traits and firm serendipity-seeking on SMEs performance and the moderating effect of firm size on the relationship.

Questionnaire Development

The study collects primary data using questionnaire survey. The research instruments for internal locus of control and need for achievement are adapted from established questionnaires as indicated in Table 1. On the other hand, the construct of serendipity-seeking is developed mainly based on the framework for luck in Ma (2002). Endogenous serendipity-seeking

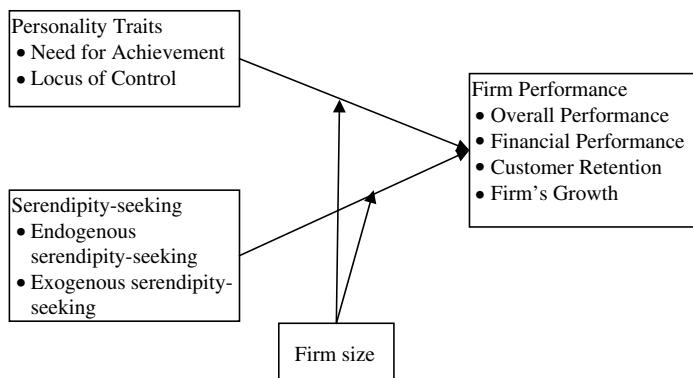


Figure 2. Research Framework.

Table 1. Sources of Questionnaire for the Main Variables in the Study.

Constructs/Concepts	Sources of Questionnaire
Need for Achievement	Green (1973)
Locus of Control	Kaufmann <i>et al.</i> (1996); Levenson (1974, 1981)
Serendipity	Ma (2002)

Source: Developed for the study.

includes the firm internal efforts such as encouraging and rewarding creative efforts, maintaining flexibility in workplace, bold to experiment and searching for opportunity to commercialise the creative idea. These efforts denote the concept of skunk work and useful weeds in Ma's (2002) study. Exogenous serendipity-seeking concerns mainly on the firm's alertness and ability to changes in technology and customer's demand, asymmetric information own by the firm, efforts in explore external opportunities to better utilise the firm's strength and ability to act fast to grab the opportunity. These variables are measured using six-point itemised-rating scale, ranging from "strongly disagree" (point one) to "strongly agree" (point six). The firm performance in the study is operationalised into overall performance, financial performance, customer retention and firm growth. The respondents are required to compare their firm performance in the four categories against industrial average, competitors with similar size and close competitors. The subjective comparison is based on five-point itemised-rating scale, with the lowest point is "much lower" and the highest point is "much higher". Besides that, the firm size is measured through the number of employees in the firm.

The questionnaire was then sent for expert review and pilot study. The experts were made up of doctorate degree holders and candidates in the related field with this study. The feedback from the experts was taken into consideration to enhance the face validity of the questionnaire, especially for the self-developed questionnaire. After confirming the face validity of the questionnaire, the questionnaire was sent for pilot study to examine the reliability of the questionnaire. The results from pilot study revealed sufficient reliability for all the concepts since the Cronbach's Alpha for all the concepts are above 0.70 (Llewellyn and Wilson, 2003).

Sampling Plan and Data Collection Method

The study is targeting all Malaysian's owned, independently-operated SMEs. Non probability sampling method is used since a comprehensive list

of SMEs in Malaysia is not available. Approximately 3252 SMEs were contacted between May 2007 and July 2007. 365 set of usable responses are collected.

DATA ANALYSIS AND FINDINGS

The survey data collected in the study is analysed using SPSS. Descriptive analysis is conducted to study the background of the owner-managers and the SMEs. In addition to that, reliability analysis and mean analysis are conducted to study the inter-item consistency of the variables and the responses of the owner-managers towards the variables in this study. Lastly, multi-stage multiple linear regression analysis is used to examine the impact of need for achievement, locus of control, endogenous serendipity-seeking and exogenous serendipity-seeking on the four categories of firm performance and the moderating effect of firm size on the former relationship. The moderating effect is tested by adding the moderating variable (firm size) and interaction between moderating variable and each independent variable into the initial multiple linear regression analysis for the effect of independent variables on the dependent variable. The significance of moderating effect is indicated by the significance of the interaction between the moderating variable and independent variable in the multiple linear regression analysis (Baron and Kenny, 1986).

Frequency Analysis

Results from frequency analysis of the background of the SMEs owner-managers and the SMEs are indicated in Tables 2 and 3. From the analysis, majority of the SMEs in this study operate in services sector (49.3%) and are small in size according to the definition of SMEs provided by Bank Negara Malaysia (2007). 62.5 percent of the firms have employees between 5 and 10.

Table 3 indicates the background of the owner-managers participate in this study. Majority of them are Malay (46.6%) and Chinese (46.3%), and 71.8 percent of them are male. The age of the owner-managers are fairly well distributed across the age groups with highest number of them in the group of above 45 years old (21.4%). Besides that, the owner-managers are well educated with 75.8 percent of them have tertiary and above level of education, 9.1 percent with professional certification, 51.6 percent with

Table 2. Frequency Analysis for the Background of the SMEs.

Variable	Freq.	Percent
Sector		
Manufacturing	57	15.8
MRS	52	14.4
Retail	67	18.6
Services	178	49.3
Others	7	1.9
Firm's size (Employee)		
5 to 10	227	62.5
11 to 20	58	16.0
21 to 35	29	8.0
36 to 50	15	4.1
51 to 100	15	4.1
101 to 150	19	5.2

Table 3. Frequency Analysis for the Background of the Entrepreneurs.

Variable	Freq.	Percent
Race		
Malay	170	46.6
Chinese	169	46.3
Indian	17	4.7
Others	9	2.5
Gender		
Male	262	71.8
Female	103	28.2
Age		
Less than 25	47	12.9
26 to 30	60	16.4
31 to 35	68	18.6
36 to 40	65	17.8
41 to 45	47	12.9
More than 45	78	21.4
Education Level		
No formal Education	5	1.4
Primary or Secondary	83	22.8
Professional Cert.	33	9.1
Diploma or Degree	188	51.6
Postgraduate Degree	55	15.1

diploma or degree, and 15.1 percent with postgraduate qualification. Only 1.4 percent of the owner-managers are without any formal education.

Reliability Analysis, Correlations Matrix and Mean Analysis

Table 4 shows the correlations matrix among the four independent variables. The results show that all the four independent variables have significant positive correlation. Endogenous serendipity-seeking and exogenous serendipity-seeking are found to have the strongest correlation coefficient among all with correlation coefficient of 0.652 ($p < 0.05$). Thus, there is no problem of high inter-correlations among the independent variables. Besides that, the correlations among the items in each of the independent variables are also tested. The results show moderate to weak positive correlations among the items in all the variables. Thus, there is no problem of high correlations among the items.

The results in Table 5 show the reliability analysis for locus of control, need for achievement, endogenous serendipity-seeking, exogenous serendipity-seeking, firm overall performance, financial performance, customer

Table 4. Correlations Matrix for the Independent Variables.

Variables	Locus of Control	Need for Achievement	Endogenous Serendipity	Exogenous Serendipity
Locus of Control	1.00			
Need for Achievement	0.407**	1.00		
Endogenous Serendipity	0.221**	0.384**	1.00	
Endogenous Serendipity	0.224**	0.393**	0.652**	1.00

Table 5. Reliability and Mean Analysis.

Variable	Mean	Std. Dev.	Cronbach's Alpha
Locus of Control	4.997	0.675	0.709
Need for Achievement	4.834	0.744	0.823
Endogenous serendipity-seeking	4.740	0.796	0.834
Exogenous serendipity-seeking	4.644	0.833	0.841
Overall Performance	3.481	0.762	0.794
Financial Performance	3.363	0.799	0.874
Customer Retention	3.610	0.759	0.868
Firm Growth	3.465	0.770	0.872

retention and firm growth. The Cronbach's alpha of all the variables are above 0.70 indicating the satisfactory level of inter-item consistency of all the variables (Llewellyn and Wilson, 2003). Besides that, Table 5 also shows the results of mean and standard deviation for the variables. The results show that the mean for all the variables are above the mid-point of the scale, that is higher than 3.5 of the six-point scale for locus of control (mean = 4.997; standard deviation = 0.675), need for achievement (mean = 4.834; standard deviation = 0.744), endogenous serendipity-seeking (mean = 4.740; standard deviation = 0.796) and exogenous serendipity-seeking (mean = 4.644; standard deviation = 0.833). The results show that the owner-managers participate in this study score high in the entrepreneurial personality traits and their SMEs are opened to seeking serendipity by encouraging novel creations within the firm and exploring serendipity outside the firm. The mean for firm overall performance (mean = 3.481; standard deviation = 0.762), financial performance (mean = 3.363; standard deviation = 0.799), customer retention (mean = 3.610; standard deviation = 0.759) and firm growth (mean = 3.465; standard deviation = 0.770) are above the mid-point of three in the five-point itemised rating scale employed. This shows that the SMEs participate in the study have relatively good performance, especially in term of customer retention. This finding is expected since SMEs are said to be able to serve their small group of consumers well (Watkin, 1986; O'Donnell *et al.*, 2002; Wicks, 2005).

Multiple Regression Analysis

Table 6 shows the results of multi-stage multiple linear regression analysis for the effect of need for achievement, locus of control, endogenous serendipity-seeking and exogenous serendipity on SMEs performance and also the moderating effect of firm size. To examine the moderating effect, the firm size of the SMEs, measured by the number of employees is recoded to be a dummy variable with the attributes of small size (5 to 10 employees) and medium size (11 to 150 employees). The results in stage 1 indicate only the multiple linear regression analysis for the effect of independent variables on the four categories of dependent variables. Stage 2 results show the additional of impact of firm size and the interaction between firm size and each independent variable on the dependent variables.

The results show that need for achievement, locus of control, endogenous serendipity-seeking and exogenous serendipity-seeking are found to explain 13.6 percent ($F = 12.244; p < 0.05$) of the variance in overall

Table 6. Multi-Stage Multiple Linear Regression Analysis.

	Overall Performance		Financial Performance		Customer Retention		Growth	
	Stage 1		Stage 2		Stage 1		Stage 2	
	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2
R	0.369	0.397	0.329	0.410	0.372	0.404	0.348	0.401
R ²	0.136	0.158	0.108	0.168	0.138	0.164	0.121	0.161
Δ R ²		0.022		0.059		0.025		0.039
F	12.244	6.367	9.431	6.836	12.464	6.650	10.774	6.538
Sig.	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Locus of control	-0.052	-0.057	0.024	0.005	0.025	0.018	-0.070	-0.084
Need for achievement	-0.003	-0.002	0.040	0.030	0.003	-0.001	0.036	0.028
Endogenous serendipity-seeking	0.002	0.006	-0.109	-0.056	-0.076	-0.038	0.023	0.063
Exogenous serendipity-seeking	0.376***	0.358***	0.365	0.322**	0.408***	0.367***	0.328	0.286***
Firm size	0.112*			0.176***	0.132*		0.143***	
Firm size × Locus of control	0.065		-0.025		-0.044		-0.004	
Firm size × Need for achievement	-0.099		-0.130*		-0.040		-0.124*	
Firm size × Endogenous serendipity-seeking	0.035		0.191**		0.116		0.148*	
Firm size × exogenous serendipity-seeking	0.006			-0.043		-0.062		-0.058

Table 7. Post-Hoc Analysis for the Moderating Effect.

	Financial Performance		Firm Growth	
	Small Size	Medium Size	Small Size	Medium Size
R	0.333	0.315	0.352	0.259
R ²	0.111	0.099	0.124	0.067
F	6.342	3.471	7.309	2.272
Sig.	0.000	0.010	0.000	0.065
Locus of control	0.021	0.111	-0.036	0.067
Need for achievement	0.116	-0.072	0.112	-0.023
Endogenous serendipity-seeking	-0.205*	0.063	-0.051	0.057
Exogenous serendipity-seeking	0.361**	0.244*	0.334**	0.198

performance, 10.8 percent ($F = 9.431; p < 0.05$) in financial performance, 13.8 percent ($F = 12.464; p < 0.05$) in customer retention and 12.1 percent ($F = 10.774; p < 0.05$) in firm growth. However, only exogenous serendipity-seeking has significance effect on the four categories of SMEs performance. The results for the test on moderating effect show that firm size is a significance moderator on the effect of need for achievement and endogenous serendipity-seeking on financial performance and firm growth. The post-hoc analysis for the moderating is shown in Table 6.

Based on the post-hoc analysis results in Table 7, it is observed that need for achievement has a positive effect on financial performance and firm growth in small size firms but the effect is negative in medium size firm. However, the effects are not significant. The opposite effect is observed on endogenous serendipity-seeking; where it is found to have negative effect on both financial performance and firm growth for small size firms but the effect is positive for medium size firms. Only its negative effect on financial performance in small size firms is significance (Beta = -0.205; $p < 0.05$).

Discussion

The findings of the study show that firm-level factors could be more relevant compared to the individual-level factors in predicting SMEs performance. Among the individual- and firm-level factors examined in the study, only exogenous serendipity-seeking is found to be significant in determining the SMEs overall performance, financial performance, customer retention and growth. This findings could provide a new direction to the future study in the field of entrepreneurship and SMEs as personality

traits has been found not to be a good predictor for SMEs performance ([Rauch and Frese, 2000](#); [Llewellyn and Wilson, 2003](#) [Jaafar and Abdul-Aziz, 2005](#)).

In addition to that, the moderating effect of firm size can be observed. Firm size is found to moderate the effect of need for achievement and endogenous serendipity-seeking on financial performance and firm growth. It is found that in small size firms, the effect of need for achievement on both financial performance and firm growth is positive while in medium size firms the effect is negative. In contrast to need for achievement, endogenous serendipity-seeking has a negative impact on financial performance and firm growth in small size firms but positive impact in medium size firm. Nevertheless, there is no sufficient evidence to prove that either individual- or firm-level factors is more relevant in predicting the performance of SMEs with different firm size, contradict the arguments of [Rauch and Frese \(2000\)](#).

PRACTICAL IMPLICATIONS

The findings of the study highlight the importance of exogenous serendipity-seeking in achieving greater firm performance. Thus, SMEs should always be alerted on the changes in the market, including the change in technology and consumers' demand. Besides that, SMEs need to be proactively seeking new opportunities in the market and always get ready to capture those opportunities. To do this, SMEs need to build strong business network to expose themselves to the changes in the market, new business opportunities and possibly the asymmetric information that could help them to achieve greater performance.

On the other hand, the findings of the study could be used to advise the SMEs owner-managers to adapt their management style at different stage of firm development. For small size firms, the owner-managers can exercise more aggressive style to achieve more for themselves and their firms. However, as the firm size grow larger, the owner-managers should adopt a more conservative management style, such as engaging in more systematic planning and risk assessment. This could possibly reduce the negative impact on the firm performance. In addition to that, the owner-managers in small size firms should assert greater centralised-control over the employees. This includes ensuring that the manpower within the firms are fully directed to achieve the goals of the organisation. When the firm size is growing larger, the owner-managers can allow greater flexibility and

autonomy to the employees in search for the inventions that could benefit the firms in the long term.

LIMITATIONS OF THE STUDY

This study suffers from several limitations. First, the sampling technique used in the study is a non-probability sampling method. This limits the generalisability of the results to all SMEs. Next, the common method biases might set in this study since the same respondents were evaluating the independent and dependent variables. The covariance between the variables could be due to this common rater effects (Padsakoff *et al.*, 2003). Besides that, the subjective rating of firm performance could also be a source of bias to the data as it is not verified with the actual financial data of the company.

CONCLUSION

SMEs play important roles in social and economic development of a nation. Thus, understanding the success factors of SMEs is crucial in ensuring sustainable development of SMEs. The study examines the success factors from the perspective of individual- and firm-level factors through personality traits and firm serendipity-seeking. The findings show that exogenous serendipity-seeking is crucial in predicting SMEs performance. In addition to that, firm size is found to have critical role to play in influencing the effect of need for achievement and endogenous serendipity-seeking on financial performance and growth of SMEs.

Appendix 1. Scale of Measures for the Main Variables.

Variables	Items
Need for achievement	1. Enjoy doing challenging things 2. Keep working although others have given up 3. Rather doing challenging job 4. Set difficult goals 5. Do not mind to work while other having fun 6. Enjoy working
Internal locus of control	1. Belief ability determine oneself 2. Belief in success due to own skills and abilities 3. Belief in control over own plan 4. Belief in protection over self interest 5. Belief in control over own life
Endogenous luck	1. Encourage creative work 2. Maintain flexibility in work 3. Allows employees to initiate project 4. Rewards employees for creative work 5. Faces mistake with open-mind 6. Searches for chance to commercialise creative ideas
Exogenous luck	1. Have information that not available to others 2. Able to cope with technology changes 3. Analyse change in customer's demand 4. Searches for opportunity to better utilise strength 5. Can get into action immediately

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