Innovation and Firm Performance: Evidence from Malaysian Small and Medium Enterprises

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Abstract

Acknowledging the existence of a large proportion of small and medium enterprises (SMEs) and their remarkable contribution to an economy, this sector's competitiveness and development must be sustained. At the firm level, intense competition under the global economic framework requires this sector reconsider their competitive position vis-à-vis their rivals, amongst others, through innovation. Therefore, innovation has become a centre stage in many empirical studies, especially to examine its relationship with firm performance. Little attention, however, was given to the possible impact of various dimensions of innovation on firm performance. Enriching the literature, this paper evaluates the impact of various innovation dimensions on the performance of SMEs. A total of 284 samples were collected from SMEs in the food and beverage, textiles and clothing and wood-based sub-industries. The data were analysed using a hierarchical regression analysis. The findings confirmed the hypotheses that product innovation and process innovation influenced firm performance significantly, where the impact of the former was stronger than the latter. Besides consolidating the existing theory on the importance of innovation for explaining a variation in firm performance, the findings also inform SMEs and policy makers that innovation is a critical factor in today's entrepreneurial activities. Further studies should look into how SMEs could calculate cost-benefit ratio of innovation and how they could opt for internal or external sources of innovation before actual innovation is undertaken.

Keywords: innovation, firm performance, SMEs, Malaysia

Introduction

Malaysia as many other economies is dominated by a large proportion of small and medium enterprises (SMEs). In the manufacturing sector alone, SMEs constituted 96.6 per cent (37,866) of the total number of establishment, contributed 35.0 per cent (RM192 billion) to total manufacturing output, and involved mostly in textiles and apparel (23.2 percent), metal and non-metallic mineral products (16.7 percent) and food and beverages (15.0 per cent) (Mohd. Aris, 2007). Due to the large contribution of the sector to the economy (Jutla *et al*., 2002; Singh *et al*., 2010), competitiveness and development of SMEs must be sustained over time. Intense competition under the global economic framework requires SMEs to reconsider their competitive position vis-à-vis their local and foreign rivals. Porter (1980) reminded that competitive strategies differentiating a particular firm from its competitors would determine its survival in business. To D'Cruz and Rugman (1992), a firm would be more competitive if it is able to design, produce, and market products or services superior to those offered by its rivals. All these market changes and needs reveal why it is almost impossible to find any industrial player, who refuses to innovate (Hurley and Hult, 1998). This also reminds the firms that innovation is no more a luxury, but a necessity (Kaplan and Waren, 2007).

Due to the growing importance of innovation to human beings in general and entrepreneurship in particular, many empirical studies were conducted to examine the relationship between this strategic factor and firm performance (for examples, Guimaraes and Langley, 1994; Lin and Chen, 2007; Trienekens *et al*., 2008; Bakar and Ahmad, 2010; Peng *et al*., 2011; Chong *et al.,* 2011). However, the previous studies inclined to focus on one or two dimensions of innovation, such as product innovation (Alegre *et al*., 2006; Espallardo and Ballester, 2009; Zhang and Duan, 2010; Bakar and Ahmad, 2010), product and process innovation (Georgellis *et al*., 2000; Ar and Baki, 2011; Prajogo *et al*., 2007; Medina and Rufin, 2009) and market innovation (Johne, 1999). For the sake of knowledge development, this paper evaluates the impact of various dimensions of innovation on the performance of SMEs. The findings in this paper would be useful for theoretical discussion as well as for policy formulation and entrepreneurial development.

Literature Review

Innovation

The early concept of innovation in economic development and entrepreneurship was popularized by Joseph Schumpeter, a German economist. Innovation, in his view, comprises the elements of creativity, research and development (R&D), new processes, new products or services and advance in technologies (Lumpkin and Dess, 2001). To Kuratko and Hodgetts (2004), innovation is the creation of new wealth or the alteration and enhancement of existing resources to create new wealth. Innovation is also seen as a process of idea creation, a development of an invention and ultimately the introduction of a new product, process or service to the market (Thornhill, 2006). At present, this concept is applied in every facet of social lives and activities. This makes the innovation concept become more multidimensional and intricate.

Beaver (2002) believes that innovation is an essential element for economic progress of a country and competitiveness of an industry. Innovation plays an important role not only for large firms, but also for SMEs (Jong and Vermeulen, 2006; Anderson, 2009). Sandvik (2003) argues that innovation is one of the most important competitive weapons and generally seen as a firm's core value capability. Innovation is also considered as an effective way to improve firm's productivity due to the resource constraint issue facing a firm (Lumpkin and Dess, 1996). Bakar and Ahmad (2010) add that the capability in product and business innovation is crucial for a firm to exploit new opportunities and to gain competitive advantage.

Firm Performance

Outsiders normally evaluate a firm's ability based on its performance (Bonn, 2000). This implies why performance is like a mirror to a firm. The level of goal accomplishment generally defines a firm's performance (Achrol and Etzel, 2003). Firm performance is the outcomes achieved in meeting internal and external goals of a firm (Lin *et al.,* 2008). As a multidimensional construct, performance has several names, including growth (Dobbs and Hamilton, 2006; Wolff and Pett, 2006), survival, success and competitiveness. The concept of firm growth was introduced in the early 1930s known as the "Law of Proportionate Effect" (sometimes called Gibrat's rule of proportionate growth). The Law of Proportionate Effect is frequently used as a benchmark for many studies to determine business growth. Gibrat's (1931) explains a firm's growth rate does not depend on the size of a firm.

Traditionally, a variation in firm performance is associated with industrial structure (Frazier and Howell, 1983). The neo-classical economic theory perceives a firm's growth as a process of attaining the minimum point of average cost. In other words, the process of a firm's growth is similar to the process of profit optimisation (Trau, 1996). In 1959, Penrose developed a resource-based-view theory (Garnsey, 1988), where a firm's performance is dependent upon the resources and capabilities it has as a source of

sustainable competitive advantages in the market (Wernerfelt, 1984; Peteraf, 1993; Mahoney, 1995). Garnsey (1988) argues that firms must access, mobilize and deploy resources before they can grow. Adoption of various strategies by firms also determines firm performance. Different firm uses different strategies of performance (Collins and Porras, 2000); hence, a firm's performance is concentrated in its strategy (Short *et al*., 2007).

Depending on organizational goals, different methods are adopted by different firms to measure their performance. This performance indicator can be measured in financial and non-financial terms (Darroch, 2005; Bagorogoza and Waal, 2010; Bakar and Ahmad, 2010). Most firms, however, prefer to adopt financial indicators to measure their performance (Grant *et al*., 1988; Hoskinson, 1990). Return on assets (ROA) (Zahra, 2008), average annual occupancy rate, net profit after tax and return on investment (ROI) (Tavitiyaman *et al.*, 2012) are the commonly used financial or accounting indicators by firms. Some other common measures are profitability, productivity, growth, stakeholder satisfaction, market share and competitive position (Garrigos-Simon and Marques, 2004; Marques *et al*., 2005; Bagorogoza and Waal, 2010). However, financial elements are not the only indicator for measuring firm performance. It needs to combine with non-financial measurement in order to adapt to the changes of internal and external environments (Krager and Parnell, 1996). Supporting this opinion, Rubio and Aragon (2009) divided business performance into four dimensions, that is internal process, open system, rational goal and human relations, where each dimension is measured by any changes in its own variables.

Innovation and Firm Performance

The importance of innovation is described by Roberts and Amit (2003) as a means leading to a competitive advantage and superior profitability. As revealed in many studies, innovation and firm performance have a positive relationship (for examples Zahra and Das, 1993; Capon *et al*., 1990; Calantone *et al*., 1995; Han *et al*., 1998). Innovation would appear in product, process, market, factor and organisation (Kao, 1989), but the first three dimensions are more familiar in the innovation literature (see Johne and Davies, 2000; Otero-Neira *et al*., 2009).

Product Innovation

Product innovation can be defined as the creation of a new product from new materials (totally new product) or the alteration of existing products to meet customer satisfaction (improved version of existing products) (Gopalakrishnan and Damanpour, 1997; Langley *et al*., 2005). It also refers to the introduction of new products or services in order to create new markets or customers, or satisfy current markets or customers (Wang and Ahmed, 2004; Wan *et al*., 2005). Myers and Marquis (1969) contend that product innovation can be made by exploiting new ideas. Product innovation provides a variety of choice for products (Craig and Hart, 1992).

Product innovation is one of the important sources of competitive advantage to the firm (Camison and Lopez, 2010). With innovation, quality of products could be enhanced, which in turn it contributes to firm performance and ultimately to a firm's competitive advantage (Garvin, 1987; Forker *et al.* 1996). According to Hult *et al*. (2004), product innovation offers a potential protection to a firm from market threats and competitors. Bayus *et al*. (2003) proved that product innovation had positive and significant link with organizational performance. Using a total number of 744 Spanish-firm samples, Espallardo and Ballester (2009) confirmed a positive impact of innovation on firm performance. Similarly, Alegre *et al.* (2006) found that both product innovation dimensions (efficacy and efficiency) were strongly and positively related to firm performance. The introduction of novel product is positively associated with firm performance was also confirmed by Varis and Littunen (2010). Therefore, the first hypothesis is stated as:

Hypothesis 1: Product innovation is positively associated with firm performance.

Process Innovation

In general, process innovation is the process of reengineering and improving internal operation of business process (Cumming, 1998). This process involves many aspects of a firm's functions, including technical design, R&D, manufacturing, management and commercial activities (Freeman, 1982). To Oke *et al*. (2007), process innovation concerns with the creation of or improvement in techniques and the development in process or system. For instance, innovation in technology, skill, techniques, system and procedure, which is used in the process of transforming input into output (Zhuang *et al*., 1999). In a production activity, process innovation can be referred to as new or improved techniques, tools, devices, and knowledge in making a product (Gopalakrishnan and Damanpour, 1997; Langley et al., 2005; Wan *et al*., 2005; Oke et al., 2007).

Crucial to the manufacturing industry, process innovation should be emphasized by a firm as its primary distinctive competence for competitive advantage (Nemetz and Fry, 1988). More specifically, such an innovation is positively associated with firm growth (Morone and Testa, 2008). Consistent with this argument, Varis and Littunen's (2010) study on SMEs in Finland found that process innovation is positively related with firm performance. Using new technology as a proxy for process innovation, Anderson (2009) found a significant relationship between new technology and firm performance. Recent evidence by Ar and Baki (2011) reconfirmed the positive and significant influence of product and process innovation on firm performance. As such,

Hypothesis 2: Process innovation is positively associated with firm performance.

Market Innovation

According to Johne (1999), market innovation deals with the market mix and market selection in order to meet a customer's buying preference. Continual market innovation needs to be done by a firm because state-of-the-art marketing tools, particularly through the Internet, make it possible for other competitors to reach potential customers across the globe at a light speed. Rodriguez-Cano *et al*. (2004) assert that market innovation plays a crucial role in fulfilling market needs and responding to market opportunities. In this respect, any market innovation has to be directed at meeting customers' demand and satisfaction (Appiah-Adu and Satyendra, 1998).

The importance of market innovation to firm performance, albeit limited, is discussed in the literature, too. Sandvik (2003) discovered that market innovation has a positive effect on sales growth of a firm. To Johne and Davies (2000), market innovation would augment sales through the increasing demand for products, which in turn yields additional profit to innovative firms. Similarly, Otero-Neira *et al*. (2009) found strong evidence that market innovation positively influenced business performance. Adding to this finding, Varis and Littunen (2010) using an estimated model confirmed a highly significant relationship between a market-related innovative activity and firm performance. This leads to the following hypothesis:

Hypothesis 3: Market innovation is positively associated with firm performance.

Research Methods

Data Source

Primary data used in this study were collected from SMEs in the food and beverage, textiles and clothing, and wood-based sub-industries. A strict rule was applied for collecting the data, amongst others, the

selected firms must be: SMEs (with not more than 150 full-time employees); in operation for at least three years; and run by the owner or manager. A pilot survey was done with the help of a predetermined questionnaire. It was conducted in the same industries on 20 non-sample key informants (the owner or manager of the firms), who had sufficient knowledge and experience in the issues under investigation. This exercise was carried out to check time duration taking a respondent to complete the questionnaire and to validate items used for each construct. This strategy would reduce response bias and measurement error (Kumar *et al.* 1993) in the sample.

Upon satisfactory with the responses on the field and preliminary reliability tests (with Cronbach's alpha of more than 0.70 for each construct under the study), an actual survey using a self-administered questionnaire was carried out by the researchers with the assistance of six trained enumerators. The questionnaire was completed by the respondents in 15-20 minutes time. In the case where the respondents were extremely busy entertaining their customers during the first visit, the questionnaire had been left for several days before it was collected in the next visit.

A total of 284 SMEs all over the country (except Sarawak) participated in the study. Some characteristics of the sample respondents and SMEs are shown in Table 1. It shows that a majority of the respondents were male (58.8 per cent). The highest level of education for most of the respondents was secondary school. However, about 24 per cent of the respondents had tertiary education, indicating that entrepreneurship turned out to be an increasing choice among Malaysians. With respect to legal registration of the business, a majority of the business was sole proprietorship and private limited. In terms of sample distribution by sub-industry, 42.3 per cent were from food and beverage, 32.4 per cent from textile and clothing and 25.3 per cent from wood-based.

Table 1: Some characteristics of the sample

Variables	**Frequency**	**Percent**
Gender	284	100.0
Male	167	58.8
Female	117	41.2
Education	284	100.0
Non-schooling	8	2.8
Primary school	33	11.6
Secondary school	169	59.5
Tertiary education	68	23.9
Others	6	2.1
Legal Registration	270	100.0
Sole Proprietorship	160	59.3
Partnership	21	7.8
Private Limited	87	32.2
Others	2	0.7
Industry	284	100.0
Food and Beverage	120	42.3
Textile and Clothing	92	32.4
Wood-based	72	25.3

Source: Based on the sample survey.

Measures

Independent variables

Innovation as an independent variable in this study was divided into product innovation, process innovation and market innovation. Product innovation included three items, namely the introduction of new product, technological newness in product, and product differentiation. Process innovation comprised three items, that is R&D orientation, the application of new technology and new combination of materials in production. Market innovation consisted of three items, i.e. the application of online transaction, innovative marketing and promotion, and the ability to find new markets. All these items were adapted from Otero-Neira *et al.* (2009), and Lan and Wu (2010).

The respondents were asked, "In the last three years, to what extent has your firm emphasised each item of innovation". Their responses were based on a given 7-point scale, ranging from '1= hardly emphasised' to '7=strongly emphasised'. The degree of their emphasis on innovation was then averaged by calculating the mean score across the number of items for each innovation dimension (see Segev, 1987). Prior to this process, exploratory factor analysis with Varimax rotation had been used to identify the latent independent constructs, i.e. the three innovation dimensions. One component was found to be extracted from each construct identification process. A quick check on reliability of each innovation dimension produced Cronbach's (1951) Alpha of more than 0.70, indicating the reliability of the instrument for further use. A one-way analysis of variance (ANOVA) was run to test if there was any difference in innovation dimensions across the three sub-industries ($\rho < 0.05$). The results showed no significant differences in all innovation dimensions between the sub-industries. Therefore, the analysis of innovation by sub-industries was ignored. In other words, total sample and not sub-samples was adopted in this study.

Dependent variables

In the absence of objective performance measures, self-assessment of firm performance by the respondents themselves is more relevant (Love *et al.*, 2002). Performance indicators in this study were returns on sale, returns on asset, profitability, market share, sales revenue, labour productivity and employment. These multidimensional performance measures are relevant, especially when objective performance measures are unreachable (see, Kellermanns *et al.*, 2010). For each item, the respondents were asked to compare their growth performance against their competitors in the same industry for the last three years on a 7-point scale ranging from "1=very low" to "7=very high". Such assessment method is regarded reliable benchmarks (Delaney and Huselid, 1996) and taken care of for possible influence of the industry factor. This overall performance measure was summed up and then averaged to obtain a performance index for meaningful interpretation. The Varimax Rotation method and the reliability test revealed high loadings of the seven items (0.61 to 0.86) on the overall performance construct with Cronbach's alpha of 0.93, meaning that the items were the strong representative of the performance construct.

Control variables

Some control variables which commonly appear in the business performance literature were included in the model. They were the level of owner's education (Nichter and Goldmark, 2009; Fairlie and Robb, 2007; Mengistae, 2006), owner's business experience (Mengistae, 2006; Alowaihan, 2004), firm age (Birley and Westhead, 1990) and firm size (Ozgulbas *et al.*, 2006); Orser, *et al.*, 2000). Owner's education, owner's business experience, and firm age were measured by the number of years of education, experience and business operation, respectively. Firm size was measured by the number of full-time employees.

Results and Discussion

As shown in Table 2, the respondents, on average, had 12-year education (mean, 12.05), but longer business experience (mean, 13.96 years). Most of the firms were in the industry for more than ten years (mean age, 12.82), but their size was rather small (mean firm size, 11.70). More unfortunately, the emphasis of the SMEs on innovation was rather moderate. The mid-rank value of this study was 4. Judging from the mean values of product innovation (mean, 4.74), process innovation (mean 3.95) and market innovation (mean, 4.44); the SMEs gave more emphasis on product innovation and less on the other two dimensions of innovation. Probably due to moderate level of innovation, the overall performance of the SMEs (mean, 4.19) was moderate, too.

The correlation statistics in Table 2 show that the association between the independent variables is low to modest, indicating the absence of multicollinearity problems and thus allowing for a regression analysis. The multicollinearity problems were also cross-checked with the Tolerance and VIF. The tolerance values of the independent variables ranged between 0.594 and 0.984, which are not less than 0.10. In the meantime, the VIF values of the independent variables ranged between 1.016 and 3.147, which are well below the cut-off 10. All this suggests that the multicollinearity assumption is not violated and the regression results are not distorted by this problem (see Pallant, 2007).

Table 2: Mean, standard deviation and correlations of the variables

Variables	Mean	SD	1.	2.	3.	4.	5.	6.	7.
1. Education (years)	12.05	2.23	-						
2. Business experience (years)	13.96	4.52	0.05*	-					
3. Firm age (years)	12.82	3.53	-0.04	0.64**	-				
4. Firm size (employees)	11.70	2.43	0.16**	0.02	0.05	-			
5. Product Innovation	4.74	1.35	-0.15*	-0.08	-0.02	-0.04	-		
6. Process Innovation	3.95	1.47	-0.09	-0.08	-0.05	0.02	0.62**	-	
7. Market Innovation	4.44	1.93	-0.13*	-0.05	-0.01	0.02	0.51**	0.60**	-
8. Overall firm performance	4.19	0.82	-0.08	-0.14*	-0.05	0.12	0.45**	0.45**	0.38**

** Correlation is significant at the 0.01 level.

* Correlation is significant at the 0.05 level.

Source: Based on the sample survey.

The hierarchical regression analysis was applied to estimate the impact of innovation on firm performance. As displayed in Table 3, four models were estimated in order to see how much changes would occur when one particular variable after another included in the empirical model. Separating the model estimations would help us to see the contribution of each factor more clearly through the improvement of the explanatory power of the model (the *R*-square). The *R*-square change (ΔR^2) improved significantly in Model 2 and Model 3, when product innovation and process innovation were included into the models, indicating the importance of these two innovation dimensions to firm performance. In contrast, the inclusion of market innovation in Model 4 did not improve the *R*-square significantly in comparison with Model 3. This indicates that market innovation does not contribute much to the variation in firm performance.

Table 3: Results of the hierarchical regression analysis

Independent Variables	Model			
	1	2	3	4
1. Education (years)	-0.023	-0.007	-0.008	-0.007
2. Business experience (years)	-0.016*	-0.011	-0.012	-0.012
3. Firm age (years)	0.004	0.002	0.003	0.003
4. Firm size (no. of employees)	0.005*	0.006**	0.005*	0.005**
5. Product Innovation	-	0.268***	0.150**	0.123**
6. Process Innovation	-	-	0.130**	0.111**
7. Market Innovation	-	-	-	0.050
Constant	4.433***	3.027***	3.076***	3.047***
R^2	0.042	0.231	0.249	0.257
Adjusted R^2	0.028	0.217	0.232	0.238
ΔR^2	0.042	0.190***	0.017**	0.008
F	2.956*	16.316***	14.900***	13.301***

Note: Dependent variable, SME's overall performance.
* $p<0.05$, ** $p<0.01$, and *** $p<0.001$ are significant at the 0.05, 0.01 and 0.001 level respectively.
Source: Based on the sample survey.

Since Model 4 estimated all the variables under the study, this model is given due attention. Results in Model 4 show that firm size was the only control variable influencing firm performance positively and significantly (β=0.005, $p < 0.01$). This finding is sensible since larger firms are better able to: employ more competent employees, obtain more efficient production facilities (Sandesara, 1966), exploit economies of scale and economies of scope, and formalise procedures; where all this makes their operations more efficient, leading to their superior performance relative to smaller firms (Penrose, 1959).

Quite the opposite, the other three control variables - education, business experience and firm age - did not significantly affect firm performance. Alowaihan (2004) argues that high education does not guarantee an entrepreneur to have technical and business management skills; thus, education had insignificant impact on firm performance. Dyke and Fisher (1992) reminded that the types and sources of business experience would determine the strength and direction of the relationship between this factor and firm performance. It will be significantly positive if the experience gained by an entrepreneur is similar and suited to the present business. In contrast, there will be no significant relationship between the two constructs if the experience acquired is dissimilar and unsuited to the present business. This may also be the case when the experience does not enhance the existing competency and expertise of an entrepreneur related to the need of present business (Reuber *et al*. 1990). With regards to firm age, more than half (52.0 per cent) of the firms in this study were rather new (up to ten years old), which may explain why the variation in this factor did not significantly change firm performance. This justification is consistent with another study on Spanish SMEs (Moreno dan Casillas, 2007).

In line with Hypothesis 1 and Hypothesis 2, product innovation and process innovation impacted firm performance positively and significantly with $\beta = 0.123$ ($p < 0.01$) and $\beta = 0.111$($p < 0.01$) respectively. Interestingly, the relatively stronger impact of product innovation compared to process innovation on firm performance is in agreement with a study elsewhere (Ar and Baki, 2011). In contrast, the impact of market innovation on firm performance was not significant and not supportive of Hypothesis 3. A question remains here why the increased market innovation among innovative firms was not translated into superior firm performance. Some scholars caution that the environmental factors may dilute the impact of market innovation on firm performance (Gatignon and Xuereb, 1997; Carbonell and Rodriguez, 2006). This means that market innovation does not guarantee the innovative firms to reap benefit from their innovative actions, when there are rapid changes in business environment they operate. The adoption

of e-commerce and e-marketing, for example, would give little impact on a firm's performance in the market, when the other firms (particularly larger firms) behave similarly.

Theoretically, the findings in this paper consolidate the existing belief that innovation in product and process impact firm performance positively and significantly. Empirically, this suggests that SMEs in Malaysia, particularly in the food and beverage, textiles and clothing and wood-based sub-industries would also benefit from such innovation. Practically, the findings remind SMEs and policy makers about the importance of innovation in product and process to a firm. Despite the moderate level of innovation among the sampled SMEs, it empirically proved that such innovation contributed superior performance to those who were more innovative.

The globalisation process has indeed forced many firms to be competitive in the global marketplace (Temperley *et al*., 2004). For firms to remain competitive, they need innovative strategies for enhancing their competitiveness in the market (Morris *et al*., 2008). The necessary recipe for coping with this phenomenon is continuous innovation (Long, 2006; Anderson, 2009; Darroch and McNaughton, 2002). In business, consumer behavior determines a firm's success in the marketplace. In this regard, consumer preferences, perception and satisfaction must be carefully studied and analysed. A large amount of information must be processed by a firm so that any uncertainty in the decision-making process about innovation could be minimised (Lievens and Moanert, 2000). The real challenge for a firm is to influence the perceptions, needs and wants of the market, so that its products are seen superior in value in the eyes of its existing and potential consumers. Thus, product innovation in the form of the introduction of new product, technological newness in product, and product differentiation gives superior value and more impact on performance indicators of a firm compared to process innovation.

Despite the positive impact of innovation, it comes with certain amount of costs. Innovation is considered useful only when the benefits acquired are more than the cost borne by the firms. In reality, innovation development requires high capital, skills (Darroch and McNaughton, 2002; Long, 2006) and risk (Simpson *et al.*, 2006). Irrespective of the unit of analysis (firm, industry or country), innovation can be done only when resources (especially capital) are sufficient for doing R&D (Kemp *et al*., 2003). Worse still, innovation normally attracts a host of imitators. As a result of this race, it may gobble up the profits that the first mover raises, and finally many resource-constrained SMEs may have to withdraw from the market. This reminds the SMEs that indiscriminate imitating behavior may lead to failure in the end. As a way out, only by undertaking continuous innovation can a firm improve its performance and survive in the market (Hsueh and Tu, 2004).

Conclusion

This paper evaluates the impact of innovation on firm performance. For this purpose, a total of 284 samples were collected from SMEs in the food and beverage, textiles and clothing and wood-based sub-industries. The data were analysed using a hierarchical regression analysis. The findings confirmed the hypotheses that product innovation and process innovation influenced firm performance significantly, where the impact of the former was stronger than the latter. Besides consolidating the existing theory on the importance of innovation for explaining a variation in firm performance, the findings also inform SMEs and policy makers that innovation is a critical factor in today's entrepreneurial activities.

In theory, it cannot be denied that innovation would enhance firm performance. Practically, those who did innovation experience better performance. This is good for firms under the present competitive environment. However, real impact of this strategic move should be really assessed by the firms whether their action is worthwhile or not, which is beyond the scope of this paper. Those who do not emphasize innovation as yet have to consider the cost-benefit ratio of innovation first. Due to high costs of innovation in terms of R&D expenditure and personnel and resource constraints facing SMEs, this move incurs a high risk to the firms. At the same time, little emphasis on innovation also brings a high risk,

given the turbulent environment of global competition today. Thus, SMEs have to really spend their time and money on gathering enough information about the market demand and trend for their products, competitors and sources of innovation before any decision can be made. This decision making process for undertaking innovation should be the focus of future research.

This paper do not distinguish between internal (in-house) and external (exogenous) sources of innovation. Future studies should examine the impact of these different sources of innovation which may affect SMEs differently. This issue is interesting to be studied because it is unknown whether the SMEs under investigation used their own internal or external resources to do innovation in product and process. It other words, how product and process innovation is done in the SMEs should be examined, so that other SMEs could factor in the knowledge in their decision making process of innovation. Both sources of innovation have their own advantages and disadvantages and may give possible outcomes differently.

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