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Quantitative Analysis of Managerial Capabilities and Internationalization of Manufacturing SMEs – Empirical Evidence from Developing Countries

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Abstract

In this study, managerial capabilities: management capacity or size; management expertise; and management process were quantitatively analyzed through longitudinal methodology to ascertain their importance as one of the key driving forces or factors of firm's international operations. The objective is to examine whether there is a significant relationship between these factors and the firm's degree of internationalization. The study is based on a sample of 500 low, medium and highly-internationalized non-SMEs and SMEs from five developing countries. The results indicate that there is a significant difference in the managerial capabilities of SMEs and non-SMEs at all levels of internationalization. For example, management capacity (size) of SMEs was significantly less than their non-SMEs counterparts at the moderate and high levels of internationalization. SMEs were significantly less likely to employ a qualified managers (expertise) or uses professional training at the low, moderate and high levels of internationalization when compared to non-SMEs. SMEs were also found to be significantly less likely to develop management process, (international expansion, export and strategic plans, TQM, JIT, QA) when compared to non-SMEs. Overall, the study results suggest that compared to non-SMEs, SMEs grow internationally with less managerial capability.

Keywords: Internationalization, SMEs, Manufacturing, Developing countries, Managerial Capabilities

1. Introduction

It has traditionally been argued that if you want to get on in business across the globe, (internationalization) 'who you are' is more important than 'where you come from.' Recent research have revealed that the successful operations of businesses across diverse markets has much more to do with personal attributes of the managers responsible for these cross border transactions. Hence the main objective of this paper is to investigate what roles do the SMEs managerial capabilities play in their internationalization process? Internationalization (cross-border operations) among small and medium-sized enterprises (SMEs) has remained a topic of considerable contemporary relevance, principally owing to the observed growth effects of cross-border venturing, and the demonstrated capacity of SMEs to drive economic development at national, regional, and global levels (European Commission, 2013). However, several obstacles constrain SMEs' international activities. The literature reports extensive analysis of export barriers (Fernandez-Ortiz & Lombardo, 2009). SMEs in particular suffer from a number of major internal barriers to international development relating to their limited endowment of resources and capabilities to meet the challenges of the global environment. Cerrato and Piva (2010) argued that the debate on barriers or factors affecting the international development of small and medium-sized enterprises (SMEs) is very lively, and research in this field is attracting growing interest (Fernandez-Ortiz and Lombardo, 2009; Sommer, 2010). To ensure a greater understanding of SME internationalization barriers, Osei-Bonsu (2010) identified five barriers as being the most serious impediments to SME international activities. These are: 1) lack of managerial capabilities; 2) shortage of working capital to finance exports; 3) inability to identifying foreign business opportunities; 4) limited information to locate/analyze markets; and 5) inability to contact potential overseas customers. Additionally, management characteristics, endowment of human resources and ownership structure have been identified by scholars as areas of interest for a deeper understanding of the determinants of SME success in international activities.

Hence, as stated above, the primary focus of this paper is to investigate to which extent does the managerial capabilities are essential in the context of SME internationalization process. Managerial capabilities in this paper are defined as: management capacity (size), management expertise (formal Business or Management education or professional Training) and management process (strategic or international expansion plan & management improvement techniques). Developing managerial capabilities is necessary for growth (Boeker & Karichalil, 2012). However, the literature generally suggests that small businesses face unique obstacles and constraints in developing their managerial capabilities for international operations because they have fewer resources and experience as compared to their larger counterparts (non-SMEs). Even though, management characteristics or managerial capabilities has been identified by Osei-Bonsu (2010) as one of the barriers to SMEs international activities, the extent to which it affects the dynamics and intensity of their internationalization has not been investigated. As a result, this paper addresses this knowledge gap by investigating the effect of managerial capabilities (capacity, expertise and processes) of SMEs as they grow internationally. In doing so, managerial capabilities of SMEs and non-SMEs were compared in their internationalization operations. This is because

non-SMEs typically have far more financial and tangible resources than SMEs, and this makes international business more often challenging for smaller firms.

This study is particularly relevant for policy-making in developing countries, where small and medium-sized businesses are dominant and play a vital role in their economic and industrial development.

The remainder of this paper is organized as follows. Section 2 present literature review and hypotheses constructed for this study. The review covered areas such as SMEs internationalization barriers and managerial orientation as a driving force of SME internationalization. Section 3 briefly discusses the methodologies and measurement of the quantitative variables (operationalization) as well as analysis method employed in this study. Section 4 present the data analysis and findings, while section 5 present a conclusion and policy implications of this study.

2. Literature Review and Hypotheses Development

Internationalization of firms relates to the process of increasing involvement in international activities (Welch & Luostarinen, 1988; Coviello & McAuley, 1999; Fletcher, 2001; Holmlund et al., 2007). On the other hand, the internationalization of firms refers to the degree of firm's sales income or operations which obtains from foreign markets (Elango & Pattnaik, 2007). The success of firms in entering new foreign markets depends to its relationships in the current domestic and international markets. Firms can move from domestic to foreign markets by relationships and communication with business partners abroad, which helps to expand new partners and new markets (Johanson & Mattsson, 1988). The literature suggest that managerial capabilities is one of the key driving forces of firm's internationalization process (Osei-Bonsu, 2013) and involves how a firm aligns its managerial process, practices and activities towards new market (Lumpkins & Dess, 1996). This is relevant to the innovation-related (IR) model and resource-based view. It involves strategic or growth intentions and top management's actions (strategic fit), such as propensity to take risk, propensity to internationalize, levels of innovation and ability to recognize opportunities (Autio et al., 2000). It embraces aggressive behavior towards competitors, the choice to act autonomously and proactively to marketplaces (Lumpkin & Dess, 1996). This orientation explains the willingness to take risks in pursuing firm's goals, adopt the latest technology and adapt to changes in the business environment (Miles et al., 1993). Prashanthan (2004) argued that high level of managerial orientation assists the firm's growth and expansion, resulting in a better firm performance. Dynamic capabilities, such as assets, process and structures also have an effect on international performance by allowing the firm to sense and seize new international opportunities (Jantunen et al., 2005).

Osei-Bonsu (2010) found that the difficulties arising from limited managerial knowledge base emerged as a top barrier to SME internationalization. A study of American and Canadian firms by Dyer (2009), for example, found that managerial risk perceptions and lack of knowledge about international markets were major reasons for not engaging in international trade. Limitations in managers‟ internationalization knowledge similarly emerged as a leading obstacle to export initiation among the Russian and South African

SMEs studied by Autio (2008). Differences in managerial perceptions among American and Indian engineering firms were also found by Smith *et al.* (2006) to account for the observed variations in exporting activity. Further research among Korean and Spanish SMEs similarly highlighted the salience of experiential/international market knowledge in explaining the internationalization process of SMEs. Other studies that alluded to the intensity of managers‟ perceptual/psychological barriers to internationalization include (Crick, 2007; and Vivekanandan & Rajendran, 2006).

Building on the resource-based view, a number of studies have explained the influence of certain resources on the internationalization of SMEs (Bloodgood et al., 2006; Westhead et al., 2001; Dhanaraj & Beamish, 2003). Management skills and experience are crucial factors for internationalization (Ibeh, 2003). In particular, the characteristics of management assume a central role (Sapienza et al., 2006); managerial competencies are fundamental in order to reap the opportunities for development abroad, manage processes and relationships in new contexts, and create routines that facilitate the undertaking of international operations (Westhead et al., 2001). However, not only the entrepreneur and the management team, but also SMEs' human resources play an important role in affecting the internationalization process. The lack of qualified personnel has been found to be a relevant internal resource barrier to exporting (Rabino, 1980; Tseng & Yu, 1991). SMEs generally experience a lack of export specialists and difficulties in hiring specialized human resources (Ortiz et al., 2008). The POM model (Chetty, 1999) also includes the influential factors such as firm resources (competencies, firm characteristics, and managerial capabilities). The gradual behavior-based (Uppsala and Innovation-related) model views internationalization as a learning process that involves interplay between knowledge development and increasing foreign market commitments (Johanson & Vahlne, 1990). First, the innovation-related model (Bilkey & Tesar, 1977; Cavusgil, 1980), apply at the level of managerial attitudes. Second, the Uppsala model applies at the level of the operation of the firm at the managerial level in terms of their knowledge and learning so as to commit to a particular market. The stage approach enables managers to learn about foreign markets opportunities and develop the tacit knowledge that is necessary to operate abroad. Although the stages model provides a criterion for selecting among countries (Johanson & Wiedersheim-Paul, 1975), the explanatory power of the model resides primarily at the level of the sequence of managerial activities in the specific operation in the host country, rather than at the level of the overall operations of the firm.

Cerrato and Piva (2010) concluded that ownership structure, particularly in terms of the identity of the owner, has also been found to act as driver of an SME's strategy, including internationalization, as ownership type may affect both the degree of risk aversion and the set of resources and capabilities the SME can leverage (George et al., 2005; Fernandez & Nieto, 2006). Moreover, relevant contributions, in terms of capabilities and expertise, can be provided by board members. In SMEs, boards are often considered to have no role other than the formal one determined by the law (Huse, 2007). However, given the lack of resources that traditionally characterizes SMEs, boards may have an even more important role in smaller than in larger firms (Johannisson & Huse, 2000). In these firms, appointing professionals onto the board may result in an enforcement of the 'advisory tasks' of boards, which can prove critical when an SME is pursuing international expansion.

As international markets become increasingly integrated and interdependent, virtually all firms, irrespective of size, industry or country of origin, are required to develop a strategic response to international competition. SMEs need to become increasingly aware of the importance of internationalization as a possible pattern of growth which can improve their profitability and chances of survival (Morgan & Katsikeas, 1997). Global competition is also a threat. Since SMEs are no longer protected from foreign competition, they have to go international in order to remain competitive in their local markets. Exporting is generally the first stage of the process of internationalization (Johanson & Vahlne 1977), and is the most common foreign market entry mode among SMEs, given the lower business risk and resource commitment compared to joint ventures and foreign direct investments. However, a number of export barriers constrain SMEs' entry into and operation in foreign markets. Export barriers can be defined as all those attitudinal, structural, operational, and other constraints that hinder a firm's export activity (Leonidou, 1995; Suarez-Ortega, 2003). International business studies have identified a variety of barriers and proposed several classifications (e.g. Miesenbock, 1988; Leonidou, 2000). Katsikeas and Morgan (1994) identified four groups of barriers: external, operational, internal and informational barriers. Zou and Stan (1998) divided export barriers into internal factors (export strategy, managers' perceptions and attitudes, the firm's characteristics and competences) and external factors (industry characteristics, and foreign and domestic market characteristics). Similarly, Leonidou (2004) moves from the basic distinction between internal barriers associated with organizational resources/capabilities and the company's export strategy, and external barriers related to the home and host environment within which the firm operates.

Small firms are generally considered to be constrained in their international activities because they have fewer resources and experience compared to their larger counterparts. Under the definition of corporate resource constraints, Leonidou (2000) groups four barriers that indicate lack of managerial, human, and financial resources, which block or hinder the firm from initiating or increasing its export activity: unfamiliarity with conducting foreign business, inadequate/untrained export personnel, prohibitive business risks/costs abroad, and shortage of working capital to finance overseas operations.

From the above literature discussions it is evident that the ability of SMEs to internationalize is dependent upon their managerial ability and other human resources to configure and create globally relevant capabilities, which are therefore considered to influence both the decision to go international as well as their willingness to exploit those capabilities to aid performance at the international marketplace.

2.1 Hypotheses development

Managerial capabilities in this paper are defined as: management capacity (team size), management expertise and management process.

2.1.1 Management capacity

Management capacity in this paper refers to human resources available for managerial tasks. King et al. (2001, p.5) argued, "as the business grows and becomes more complex, the demand for role specialization and the number of required managerial layers increases, as does the complexity of the managerial roles". Issues such as selecting, entering and servicing

foreign markets, and to monitor the global marketplace, require significant managerial time. International expansion "increases the environmental complexity faced by small firms which, in turn, increases the information processing demands placed on them" (Reuber & Fischer, 1997, p. 30). This issue is compounded when managers are required to spend time travelling overseas in order to service customers or promote the firm at trade shows. Based on a review of thirty-two empirical studies on export barriers, Leonidou (2004) found that the lack of managerial time had a moderate impact on the ability of firms to grow internationally. Therefore it is critical that small businesses increase the size of their management teams to handle the complexities and workload brought about by international expansion. Compared to non–SMEs, however, SMEs often lack the financial resources required for international growth (Fernandez & Nieto, 2005) and may not be in a position to increase the size of their management teams. Also, because SMEs are more risk-averse, they may be unwilling to commit the financial resources to employ additional managers until the benefits of international growth have materialized (Gallo et al., 2004). This observation is examined using the following hypothesis:

H1: There is a statistically significant difference in the management team size of SMEs and non–SMEs according to their degree of internationalization

2.1.2 Management Expertise

Not only it is important to have a sufficient number of managers to manage international expansion effectively, it is also critical that they possess the requisite skills. International market discovery search has consistently shown a link between expertise of a firm's management team and successful international expansion. Bilkey (1978) argues "the quality of management is probably the single greatest determinant of a firm's export success" (p. 43). Leonidou, Katsikeas, and Piercy (1998) reviewed of the export literature published between 1960 and 1995 depicted that the education, professional experience, and foreign language proficiency of the management team were all strongly associated with successful international expansion. In his review, Leonidou (2004) noted that managers of SMEs face a steep learning curve when it comes to understanding what resources need to be acquired or reconfigured in order to venture from their domestic base. Additionally, issues such as customer attitudes, business practices, distribution channels, language differences, marketing strategies and exporting documentation and procedures will often require employing outside expertise and or the training of the current management team. Compared to non – SMEs, SMEs are less likely to provide their management team with regular formal training (Johanson & Mattsson, 2008). This observation is examined using the following hypothesis:

H2: There is a statistically significant difference in the propensity for SMEs and non-SMEs to appoint an expert to the management team and also to receive training according to their degree of internationalization

2.1.3 Management processes

Exporting firms are known to have superior management practices when compared to non – exporting firms (Luostarinen, 2003). In addition to having the managerial capacity and

expertise, it is also important that firms utilize planning and control techniques that assist in monitoring and controlling performance as they grow and exploit opportunities internationally. Formal strategic planning has consistently shown to be essential for successful international growth (Zou & Stan, 1998; Aaby & Slater, 1988). Because of dynamic nature of the international marketplace, planning is essential so that a firm can evaluate and reconfigure its resources in order to respond to the opportunities and threat that may emerge. Gallo et al. (2004) emphasized the need for a firm to understand how its intended international exploitation and growth strategies could have implications for other aspects of the business such as the need to upgrade its production technologies. As a consequence, successful international expansion requires both the development of plans for the international marketplace as well as plans for the business as a whole. However, preliminary analysis of the data collected revealed that developing countries SMEs are less likely to engage in informal strategic planning when compared to their non–SMEs counterparts. This may explain why SMEs are more likely to commence exporting as a result of unsolicited orders as opposed to the execution of a planned international growth strategy (Okoroafo, 1999). Hence, this observation is examined using the following hypothesis:

H3: There is a statistically significant difference in the propensity for SMEs and Non–SMEs to develop an international expansion or strategic plan according to their degree of internationalization.

Previous research has reported that compared to non – exporters, successful exporters are more likely to rely on formal control systems (management control techniques) for monitoring performance (Aaby & Slater, 1988). They have greater financial management strength (Cavusgil & Naor, 1987), and more elaborate control system in place (Schlegelmilch, 1986). Kilpalani and MacIntosh (1980) found that effective control systems are essential for expansion into the international marketplace. While these studies confirm the link between control systems and international growth, the construct used for control systems have not been explicitly outlined.

3. Methodology

Marschan-Piekkari and Welch (2004); Peterson (2004) argued that researchers need to move beyond positivism and employ a richer, a more in-depth research approach (via critical realism paradigm), qualitative and quantitative methodologies, if they are to advance research into firm internationalization. Based on this assertion and the arguments put forward by Thomas (2004); Tashakkori & Teddlie (2003); and Ticehurst et al. (2000), a quantitative methodology that provides rigorous statistical evidence to satisfy the objective reality and helped capture the correlation between certain quantitative variables that influence the firms internationalization is adopted in this paper.

SME is defined in this paper as a firm with more than ten (10) but less than two hundred (200) employees. Longitudinal data was collected from seven hundred and twenty (720) registered manufacturing firms (SMEs and non-SMEs) from India, Ghana, Mexico, Venezuela and Malaysia for three consecutive years; 2010, 2011 and 2012. These countries were chosen because of their steady growth of economic activities and the keen willingness of firms in

these countries to embark on international business operations. The sample firms consist of three hundred and sixty (360) SMEs; and three hundred and sixty (360) non-SMEs. The mixture of these two categories of sample was necessary to compare and contrast the propensity of the managerial capabilities and the degree of internationalization of SMEs and non-SMEs through the testing of the three (3) constructed hypotheses (H1 – H3).

The quantitative data was analysed by initially testing whether the metric variables used were normally distributed. Two tests were used: the Kolmogorov–Smirnov test and the Shapiro–Wilks test. These tests indicated that all of the metric variables were non–normally distributed. As a result, chi-square and Mann-Whitney non-parametric statistical techniques were used, because they do not require the normality assumption to be met. Logistic regression analysis was also used because it is robust when using non-normal data and categorical variables (Hair et al., 2003).

3.1 Measurement and Construct of Quantitative Variables (Operationalization)

Since export intensity and other variables were not normally distributed, and in order to tests the hypotheses, the dependent variable **"internationalization"** required to be converted into a categorical variable to be measured, that is, into the degree of internationalization. Hence, in this study the degree of internationalization is measured as an export sales dollars as a percentage of total sales dollars. The other quantitative variables are measured as indicated in the Table 1 below.

Table 1. Measurement of quantitative variables

Degree of internationalization (export intensity)	Export sales dollars as a percentage of total sales dollars
Low internationalize (non-exporting firms)	Firms that did not engage in exporting during the financial period (export sales dollars = 0) were classified as domestic firms. This variable was generated for each of the three years included in this study
Moderate internationalize (below-median export intensity)	The median export intensity (export sales dollars / total sales dollars) was calculated using only those firms that were exporting in each year respectively. Exporting firms with export intensity less than the median export intensity of all firms were classified as having a moderate degree of internationalization. This variable was generated for each of the three years included in this study.
High internationalize (above-median export intensity)	The median export intensity (export sales dollars / total sales dollars) was calculated using only those firms that were exporting in each year respectively. Exporting firms with export intensity greater than the median export intensity of all firms were classified as having a high degree of internationalization. This variable was generated for each of the three years included in this study.

Small and Medium-sized	Firms, which employed at least ten (10) and not more than two hundred (200) employees, are classified as (SMEs), whereas those above this threshold were classified as non-SMEs.
Managerial capabilities	Were defined as firm's: (a) Management Capacity, (b) Management Expertise and (c) Management Processes
Management Capacity	Is measured as the total number of full time managers employed by the firm.
Management Expertise	Is measured as whether employees has received business or management education or professional training during the year
Management Processes	Is measured as whether the firm had a documented formal strategic, business, export market, and international expansion plan.

3.2 Control Variables

The relationship between dependent and independent variables were examined while controlling for other influences. This paper document that, a firm's growth intention, networking activities, innovation and managerial capabilities can influence the degree of internationalization. Previous research by Zahra (2001) has used firm size as a proxy for the amount of resources available for internationalization. The stage model of internationalization also argues that knowledge and experience are associated with internationalization (Johanson & Vahlne, 1977). Johanson (2000) concluded that older firms are more likely to accumulate greater knowledge and experience than the newer firms, hence, in this paper it is important to control for the influence of firm age. Therefore, the relationship between the degree of internationalization and the SME were examined while controlling for growth intentions, networking activities, innovativeness, the age, and the size of the firm. Like in other studies, for example, Brush & Chaganti, (1999), firm age and firm size were used as control variables when examining the relationship between internationalization and financial performance. The control variables are measured as indicated in the Table 2 below.

Table 2. Measurement of control variables

Growth intentions	To assess a firm's growth orientation, the survey asked firms whether they intended to increase production during the following three years. Firms that indicated their intention to increase production over the next three years were coded "1" while firms that did not were coded "0". Because growth intentions influence behavior in the following year and beyond, growth intentions in the year being analyzed was based on the firm's growth orientation response in the preceding year. For example, when analyzing the data for the 2009/2010 financial year, firms with growth intensions were those that indicated growth intentions in the 2008/2009 financial year's strategic plan.
Network relationship	To ascertain whether a firm had engaged in networking activities, a question was asked whether the firm had engaged in any formal networking with other firms. Firms that had engaged in formal networking were coded "1" while firms that did not were coded "0"
Innovation	Consistent with McMahon (2011), the extent of innovation activities (innovation commitment) was calculated by expressing the expenditure on research and development as a percentage of total sales in each of the three years of the survey
Firm size	Consistent with previous SME internationalization research (Dhanaraj & Beamish, 2003; Zahra, 2001; Mittelstaedt et al., 2003), total number of employees was used to measure firm size.
Firm age	The number of years the firm has been in continues operations. In this study there are more than 5.

4. Data Analysis & Results

The purpose of this section is to analyse, present and discuss the results obtained from the examination of the three hypotheses formulated. As discussed earlier, this study utilized a longitudinal database of manufacturing SMEs from five developing countries as it enabled the examination of the existence and persistence of relationships between variables of interest over time. Hence, the results are reported for multiple years (Years 1, 2 and 3) as opposed to a single year. In this section, the descriptive statistics of the metric variables are presented. Again, the differences between SMEs and non-SMEs regarding their growth intentions and networking propensity with other firms are examine and presented as well as the managerial capabilities of SMEs and non-SMEs according to their degree of internationalization (H1, H2, and H3).

Of the total of 720 questionnaires sent, 600 replies were received; however, only five hundred (500) representing almost 70 percent were used for the analysis. Thirty-five (35) replies were only partially completed and were discarded for the purposes of analysis. Ten (10) respondents had removed the questionnaire coding and consequently their industry sector of operations could not be incorporated in the analysis. The problem with any quantitative approach is that labels must be applied to the target sample in order to categorise them into recognizable groups, which can then be subjected to analysis. Twenty (20) respondents indicated they were no longer in business, reflecting the difficulty in sampling from the lists of participating countries (Company's Registration Authorities) in that they can never really be absolutely current. In fact, in all the countries involved in this study, the business directory was compiled two years before the survey was carried out. However, they were the most up to date lists available at that time. Twenty-seven (27) respondents commented that they did not see any value in completing the questionnaire since they received no governmental support or advice in exporting their products, though the study was not undertaken, funded or supervised by the governments of the participating countries. Eight (8) respondents claimed that they were highly sceptical of the operational value of this type of research on their firm's development and growth, and therefore saw no benefit in responding to the survey.

4.1 Descriptive statistics of the metric variables

Table 3 shows that the median degree of internationalization in Year 1; Year 2; and Year 3 is 0.06 and the mean of 6.03 in Year 3; 6.17 in Year 2; and 6.19 in Year 1. Over the three-year period, the mean size of the firms remained relatively constant at around thirty-three (33) employees, and the firm size ranged from 10 to 200 employees in Year 1, 2, and 3. In all three years, the mean level of innovation commitment was 1.45 in Year 1, and 0.99 and 0.95 in Years 2 and 3 respectively.

Table 3. Descriptive statistics of the metric variables

	Year 1		Year 2		Year 3	
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Degree of Internationalization (Export intensity) - (% of total sales)	6.19	0.6	6.17	0.6	6.03	0.6
Range	0 → 100		0 → 100		0 → 100	
Firm Age (Years)	8.45	7	8.55	7	8.94	8
Range	5 → 15		5 → 15		5 → 15	
Firm Size (No. of employees)	33.45	23	32.89	23	32.78	23
Range	10 → 200		10 → 200		10 → 200	
Innovation Commitment (% of total sales)	1.45	0	0.99	0	0.95	0
Range	0 → 5		0 → 5		0 → 5	

4.2 Examining the difference between SMEs and non-SMEs

To examine the differences between SMEs and non-SMEs, the innovation commitment, networking activities, growth intentions, age and size of SMEs and non-SMEs were compared and contrasted. Additionally, the difference in growth pathways of SMEs and non-SMEs were also examined. The relative frequency distributions of the dichotomous variables revealed that the proportion of SMEs engaged in networking with other firms was less (6.5 percent in Year 1; 8.1 percent in Year 2; and 9.3 percent in Year 3, as compared with 78.8 percent in Year 1; 77.1 percent in Year 2; and 74.4 percent in Year 3 of non-SMEs. A chi-square test showed that the difference in the proportion of SMEs and non-SMEs networking was highly significant ($p < 0.01$) in all three years, suggesting that SMEs are less likely to network with other firms. Table 4 examine the differences between SMEs and non-SMEs regarding their growth intentions and networking propensity with other firms.

Table 4. Differences between SMEs and non-SMEs on Control Variables

	Year 1		Year 2		Year 3	
	SMEs.	**Non-SMEs**	**SMEs.**	**Non-SMEs**	**SMEs.**	**Non-SMEs**
Networking with other firms			8.1%			
Yes	6.5%		77.1%		9.3%	
% of SMEs; % of non- SMEs	78.8%				77.4%	
			91.9%			
	93.5%		28.9%		90.7%	
% of SMEs; % of non- SMEs	21.2%			8.501	22.6%	
No		11.91				9.001
Chi-square statistics		1	1			1
df		0.001				0.004
Sig (2 tailed)			0.004			
Growth intentions						
Yes	75.4%		83.0%		93.9%	
% of SMEs; % of non- SMEs	20.5%		13.7%		13.5%	
	24.6%		17.0%		6.1%	
No % of SMEs; % of non- SMEs	79.5%		86.3%		86.5%	
Chi-square statistics		5.091		0.601		1.101
df		1		1		1
Sig (2 tailed)		0.041				0.258
			0.307			
Growth pathway	6.4%		4.6%		5.8%	
Yes % of SMEs; % of non- SMEs	79.8%		75.8%		78.8%	
	94.1%		95.3%			
No % of SMEs; % of non- SMEs	21.2%		24.2%		4.2%	23.8%
Chi-square statistics		69.01		59.132		37.21
df		1		1		1
Sig (2 tailed)		0.000		0.000		0.000

The proportion of non-SMEs with growth intentions was less (20.5 percent in year 1; and 13.7 percent in year 2 as compared with 75.4 percent in year 1; 83.0 percent in year 2; and

93.9 percent in year 3 for SMEs. A chi-square test showed that the difference in growth intentions between SMEs and non-SMEs was only significant ($p < 0.05$) in one of the three years (Year 1). Overall, this suggests that there is no marked difference in the growth intentions of SMEs and non-SMEs. A comparison of growth pathways of SMEs and non-SMEs revealed that over the three years, a greater proportion of SMEs (94.1 percent in Year 1; 95.3 percent in Year 2; and 94.2 percent in Year 3) was characterised as low growth pathways, compared with non-SMEs characterized as moderate growth firms. A chi-square test highlighted that the difference in growth pathways between SMEs and non-SMEs was highly significant ($p < 0.01$) in all three years, suggesting that compared to non-SMEs, SMEs are more likely to exhibit low growth pathways.

Analysis of mean values of the metric variables – innovation commitment, firm age and firm size revealed that in each of the three years, the innovation commitment of SMEs was lower (1.07 in Year 1; 0.73 in Year 2; and 0.91 in Year 3) as compared to non-SMEs; 1.86 in Year 1; 1.94 in Year 2; and 1.68 in Year 3). A Mann-Whitney test indicated that the difference in innovation commitment between SMEs and non-SMEs was highly significant ($p < 0.01$) in Year 1, but not significant in Year 2 and Year 3 ($p > 0.10$). Overall, this suggests that there is no marked difference in the innovation commitment of SMEs and non-SMEs. The median age of non-SMEs was greater (10 in Year 2; and 11 in Year 3) as compared to SMEs. However, the Mann-Whitney test revealed that the difference in age between SMEs and non-SMEs was not significant ($p > 0.10$) in any of the three years. SMEs were smaller in size (38 employees in Year 1; 41 employees in Year 2; and 45.5 employees in Year 3) as compared to non-SMEs with (130 employees in Year 1; 135 employees in Year 2; and 146 employees in Year 3). A Mann-Whitney test highlighted that the difference in size between SMEs and non-SMEs was highly significant ($p < 0.01$) in all three years. This suggests that SMEs are likely to be smaller in size than their non-SME counterparts as they internationalize.

4.3 Managerial capabilities of SMEs and non-SMEs contrasted

The main objectives of H1, H2, and H3 were to compare and contrast the managerial capabilities (managerial capacity, managerial expertise and managerial processes) of SMEs and non-SMEs as they internationalize.

Managerial capacity

H1 was to compare the size of the management teams of SMEs and non-SMEs as they internationalize.

H1: There is a statistically significant difference in the management team size of SMEs and non–SMEs according to their degree of internationalization

Table 5 displays the mean number of full-time managers (management size) employed by SMEs and non-SMEs according to their degree of internationalization in each year. The Kruskal-Wallis statistic indicated that the difference between the management size and the degree of internationalization was statistically significant for both SMEs and non-SMEs in all three years. Regarding non-SMEs, there was a clear positive association between the

management size and the degree of internationalization in two of the years (Years 1 and 3). However, no such relationship existed with SMEs in any year. Comparing SMEs and non-SMEs at each level of internationalization, the Table below clearly shows that the management size of SMEs was smaller compared to non-SMEs at all three levels and this difference became more pronounced and statistically significant (Mann-Whitney statistics) at the moderate and high levels of internationalization. Overall, this suggests that the management size of SMEs are likely to be significantly smaller compared to non-SMEs at moderate and high levels of internationalization, providing support for H1.

Table 5. Mean number of full time managers

Degree of Internationalization	Low	Moderate	High	Kruskal-Wallis		
				Statistics	df	Sig. (2 tailed)
Year 1	2.01	4.28	3.37			
SMEs	5.095	6.98	6.29	54.018	2	0.000
Non-SMEs	-1.629	-2.199	-3.942	39.430	2	0.000
Mann-Whitney Z Statistics	0.105	0.027	0.001			
Sig (2 tailed)						
Year 2						
SMEs	2.61	3.01	4.51			0.000
Non-SMEs	4.295	6.295	6.975	43.234	2	0.000
Mann-Whitney Z Statistics	-0.939	-1.397	-3.709	51.623	2	
Sig (2 tailed)	0. 926	0. 165	0. 000			
Year 3					2	
SMEs	3.01	4.01	2.01			0.000
Non-SMEs	4.85	6.095	6.095	43.867		0.000
Mann-Whitney Z Statistics	-0.318	-1.629	-2.009	36.207	2	
Sig (2 tailed)	0. 755	0. 090	0. 045			

Managerial expertise

The objective of H2 was to compare the managerial expertise of SMEs and non-SMEs as they internationalize.

H2: There is a statistically significant difference in the propensity for SMEs and non-SMEs to appoint an expert to the management team and also to receive training according to their degree of internationalization

Table 6 displays the percentage of SMEs and non-SMEs employing full time mangers other than the founding/owners according to their degree of internationalization in each year. The chi-square statistics indicated that the difference between the proportion of firms employing outside managers and the degree of internationalization was significant for both SMEs and

non-SMEs in all three years. However, for non-SMEs, there was a clearly positive relationship between the employment of outside managers and the degree of internationalization in all three years. With SMEs such relationship existed only in Year 3. Comparing SMEs and non-SMEs at each level of internationalization, the Table below clearly shows that a smaller proportion of SMEs employed outside managers in all three levels in each year, and was statistically significant except in Year 3 for moderately internationalized firms. Overall, these results provide support for H2 that compared to non-SMEs, SMEs are less likely to employ an outsider manager as they internationalize.

Table 6. Percentage of firms employing outside managers

Degree of Internationalization	Low	Moderate	High	Chi Square		
				Statistics	df	Sig. (2 tailed)
Year 1						
SMEs	21.8%	40.8%	49.7%	12.888	2	
Non-SMEs	69.2%	87.9%	83.2%	16.430	2	0.000
Chi Square statistics	5.699	3.309	11.42			0.000
Sig (2 tailed)	0.015	0.087	0.001			
df	1	1	1			
Year 2						
SMEs	25.0%	42.4%	43.5%	18.534	2	0.000
Non-SMEs	60.6%	73.6%	81.4%	29.623	2	0.000
Chi Square statistics	2.066	2.711	12.90			
Sig (2 tailed)	0.116	0.120	0.000			
df	1	1	1			
Year 3						
SMEs	25.6%	45.9%	35.3%		2	0.000
Non-SMEs	68.6%	82.0%	83.2%	18.867	2	0.001
Chi Square statistics	6.573	0.333	13.78	29.207		
Sig (2 tailed)	0.011	0.647	0.000			
df	1	1	1			

Additionally, the percentage of SMEs and non-SMEs that had some or all of their employees undertake management and professionals training were only available in Year 3. The chi-square statistics indicated that the difference between the percentage of firms using management and professional training and the degree of internationalization was statistically significant for both SMEs and non-SMEs. However, there was a clearly positive relationship between management and professional training and the degree of internationalization with non-SMEs; no such relationship existed with SMEs. Comparing SMEs and non-SMEs at each level of internationalization, it was found that a smaller proportion of SMEs were using management and professional training. The chi-square statistics indicated that the difference

in management training was significant at the high level of internationalization whereas the difference in professional training was significant at all levels of internationalization. This suggests that SMEs are significantly less likely to engage in management training at high levels of internationalization, and professional training at all levels of internationalization. Overall, this result provides support for H2 that compared to non-SMEs, managers of SMEs are less likely to receive training as they internationalize.

Managerial processes

The objective of H3 was to compare the managerial processes (strategic or international expansion plan as well as TQM) of SMEs and non-SMEs as they internationalize.

H3: ***There is a statistically significant difference in the propensity for SMEs and non- SMEs to develop a strategic and international expansion plan according to their degree of internationalization***

Table 7 shows the percentage of SMEs and non-SMEs using a formal strategic or international expansion plan according to their degree of internationalization in each year. The chi-square statistics indicated that the difference between the proportion of firms using strategic planning and the degree of internationalization was statistically significant for both SMEs and non-SMEs in all three years. There was a clearly positive relationship between the use of strategic planning and the degree of internationalization in all three years with regard to non-SMEs. With SMEs such relationship existed only in Year 1.

Table 7. Percentage of firms with a formal strategic or international expansion plan

Degree of Internationalization	Low	Moderate	High	Chi Square		
				Statistics	df	Sig. (2 tailed)
Year 1						
SMEs	28.1%	40.8%	49.7%	12.888	2	0.002
Non-SMEs	72.2%	87.9%	83.2%	16.430	2	0.000
Chi Square statistics	5.699	3.309	11.42			
Sig (2 tailed)	0.015	0.087	0.001			
df	1	1	1			
Year 2						
SMEs	25.0%	42.4%	43.5%			
Non-SMEs	60.6%	73.6%	81.4%	18.534	2	0.000
Chi Square statistics	2.066	2.711	12.90	29.623	2	0.000
Sig (2 tailed)	0.116	0.120	0.000			
df	1	1	1			
Year 3						
SMEs	25.6%	45.9%	35.3%			
Non-SMEs	68.6%	82.0%	83.2%	18.867	2	0.000
Chi Square statistics	6.573	0.333	13.78	29.207	2	0.001
Sig (2 tailed)	0.011	0.647	0.000			
df	1	1	1			

When comparing SMEs and non-SMEs at each level of internationalization, it was found that a small proportion of SMEs uses strategic or international expansion planning when compared to non-SMEs at all three levels. The chi-square statistics indicated that this difference was statistically significant at the low level (Years 1 and 3), moderate level (Year 1) and high level of internationalization (all three years). Overall, these results provide support for H3, thus, compared to non-SMEs, SMEs are less likely to develop a strategic or international expansion planning as they internationalize. Table 8 shows the percentage of SMEs and non-SMEs using export planning according to their degree of internationalization in each year. The chi-square statistics indicated that the difference between firms using export planning and the degree of internationalization was significant for both SMEs and non-SMEs in all three years. There was a clearly positive relationship between the use of export planning and the degree of internationalization in all three years for SMEs and non-SMEs. Comparing SMEs and non-SMEs at each level of internationalization, the table shows that the difference in the use of export planning was only statistically significant (chi-square statistics) at high levels of internationalization in only Year 3. Overall, these results provide little support for H3, thus, there is no significant difference in the proportion of SMEs and non-SMEs using export planning as they internationalize.

Table 8. Percentage of firms with an export plan

Degree of Internationalization	Low	Moderate	High	Chi Square		
				Statistics	df	Sig. (2 tailed)
Year 1						
SMEs	17.8%	40.8%	49.7%		2	
Non-SMEs	69.2%	87.9%	83.2%	146.888	2	0.000
Chi Square statistics	1.899	0.409	1.423	56.430		0.000
Sig (2 tailed)	0.159	0.587	0.201			
df	1	1	1			
Year 2						
SMEs	15.0%	42.4%	43.5%		2	0.000
Non-SMEs	60.6%	73.6%	81.4%	131.534	2	0.000
Chi Square statistics	1.466	0.070	0.90	59.623		
Sig (2 tailed)	0.216	0.720	0.410			
df	1	1	1			
Year 3						
SMEs	13.6%	45.9%	35.3%			
Non-SMEs	58.6%	82.0%	83.2%	129.867	2	0.000
Chi Square statistics	0.573	0.433	7.781	28.207	2	0.001
Sig (2 tailed)	0.471	0.547	0.004			
df	1	1	1			

Table 9 below displays the degree to which SMEs and non-SMEs have implemented the business improvement management techniques; just-in time (JIT), quality assurance (QA) and total quality management (TQM) according to their degree of internationalization. Regarding TQM, the chi-square statistics indicated that the degree of implementation and the degree of internationalization was highly significantly different for both SMEs and non-SMEs. There was a clearly positive relationship between the degree of TQM, QA and JIT implementation and the degree of internationalization with non-SMEs in Year 3. However, with SMEs no such relationship was found.

Comparing SMEs and non-SMEs at each level of internationalization, Table 9 clearly shows that, with the exception of JIT at the moderate level, SMEs were implementing TQM, QA and JIT to a lesser extent than non-SMEs. TQM was significantly different at the high level, suggesting that the extent to which SMEs had implemented TQM was lesser than non-SMEs at high degrees of internationalization. QA was significantly different at the domestic level and high level, suggesting that the extent to which SMEs had implemented QA was lower than non-SMEs at the low and high levels of internationalization. No significant difference was found with regard to JIT, suggesting that there is no significant difference in the extent to which SMEs and non-SMEs have implemented JIT.

Table 9. Mean usage of business improvement management techniques

Degree of Internationalization	Low	Moderate	High	Chi Square Statistics	Chi Square df	Chi Square Sig. (2 tailed)
Total Quality Management						
Year 3	0.3367	0.5877	0.3639			
SMEs	0.3661	0.6667	0.8519	11.887	2	0.004
Non-SMEs	-0.289	-0.669	-4.042	20.10	2	0.000
Mann-Whitney Z statistics	0.775	0.587	0.000			
Quality Assurance (QA)						
Year 3	0.7367	1.0526	1.0001		2	0.000
SMEs	0.9861	1.2825	1.2805	16.534		
Non-SMEs	-2.69	-1.607	-2.290	8.601	2	0.024
Mann-Whitney Z statistics	0.008	0.115	0.024			
Just in Time Inventory (JIT)						
Year 3	0.1267	0.3267	0.2317			
SMEs	0.2161	0.2421	0.2661	11.367	2	0.005
Non-SMEs	-1.489	-1.089	-0.419	0.137	2	0.806
Mann-Whitney Z statistics	0.145	0.295	0.695			

Overall, Table 9 provides a result regarding the management techniques used by the firms. It appears to be a little difference in the application of JIT as they grow internationally, significant differences was found between SMEs and non-SMEs regarding TQM and QA at high levels of internationalization. This provides some support for H3, thus, compared to non-SMEs, SMEs are less likely to use some management technique systems as they internationalize.

5. Conclusion and Policy Implication

This study has found a strong significant relationship between managerial capabilities of firms and internationalization. Especially, management capacity (size), management expertise (business education & training) and management processes (export planning) of non-SMEs increases with the degree of internationalization. However, with SMEs, the

relationship was not evident. The management capacity (size), management expertise (training), management processes (strategic and export planning, TQM, JIT, QA) of SMEs with a moderate level of internationalization were greater than that of SMEs with low level of internationalization. However, unlike non-SMEs, there was little difference in the managerial capabilities of SMEs at low, moderate and high levels of internationalization. There was one exception to this finding. The use of export or international expansion planning by both SMEs and non-SMEs increased according to the degree of internationalization. A comparison of managerial capabilities of SMEs and non-SMEs according to their degree of internationalization indicates that the differences in the management capacity (management size), management expertise (business and professional training) and management processes (strategic planning, export planning, TQM, JIT, QA) were most evident at a high degree of internationalization. This is largely due to the fact that, unlike non-SMEs, there was little difference in the managerial capabilities of SMEs at moderate and high degrees of internationalization. There was also a significant difference in the managerial capabilities of SMEs and non-SMEs at all levels of internationalization. For example, management capacity (size) of SMEs was significantly less than their non-SMEs counterparts at the moderate level of internationalization. SMEs were significantly less likely to employ a qualified manager (expertise) or uses professional training at the moderate level of internationalization when compared to non-SMEs. Finally, SMEs were significantly less likely to develop management process, (strategic or international expansion plan, TQM, JIT, QA) when compared to non-SMEs. Overall, these results suggest that compared to non-SMEs, SMEs grow internationally with less managerial capability.

The findings of this study indicate that SMEs were less statistically significant than non-SMEs as they grow internationally with regard to managerial capabilities. These differences were most evident at a high degree of internationalization. Support was found for H3, that there was significant difference in the proportion of SMEs and non-SMEs using export planning as they internationalize. Significant differences were found between SMEs and non-SMEs with regard to TQM at high levels of internationalization, there were little differences in the use of JIT as they grow internationally. This suggests that, compared to non-SMEs, SMEs are less likely to use some management control systems as they internationalize.

Table 10. Summary of results from hypothesis testing

HYPOTHESES	Supported / Not supported
H1: There is a statistically significant difference in the management size of SMEs and non-SMEs according to their degree of internationalization	Supported
H2: There is a statistically significant difference in the propensity for the management size of SMEs and non-SMEs to receive training according to their degree of internationalization	Supported
H3: There is a statistically significant difference in the propensity for SMEs and non-SMEs to develop an international expansion plan according to their degree of internationalization	Supported

The motivation for this study arose from a growing body of literature in international business that increasingly recognizes the importance of firm resources to the progress of firm's international operations. However, this study has extends previous internationalization research, which is mainly focused on the factors that can influence the internationalization process to include managerial capabilities as a key element in the process.

The quantitative analysis has revealed that SME's managerial capacity had a substantial effect on its ability to grow internationally. Limited managerial capacity, for example, reduced the time available for the management to plan for and pursue international growth opportunities, such as attending international trade fairs to market the firm and to build the firm's international network relationships. Firms that pursue active international growth opportunities with inadequate managerial capacity suffered deterioration in performance in their domestic market. This finding is consistent with Leonidou (2004) observation that, it is important to have a sufficient managerial capacity for international business operations.

Managerial expertise was also found to influence the internationalization process of SMEs in the developing countries. Of the 250 SMEs used for analysis in this study, only 2 percent of management had higher business and other educational qualification, while except one company, all the 250 non-SMEs used in this study had more than 65 percent of management with higher business educational qualification, and this was found to be instrumental for bringing about changes required to grow the business internationally. Examples of these changes included the shift from production mindset to customer orientation, reconfiguration of product lines and designs, improvements to the firm's product costing system, marketing materials, updated website information, and introduction of new sales and marketing techniques in international markets. The appointment of these expertise managers was also

found to assist in communicating an image of being a professionally managed, which was important for winning contracts with or from overseas firms. In addition to managerial capacity and expertise, it was also important for the SMEs to develop requisite managerial process, particularly in the areas of business planning and strategic pathway, accounting systems, quality assurance programs, and export documentation systems. Business planning and strategic pathway was critical for successful internationalization because it enabled the non-SMEs to assess how internationalization fit into their values, vision and objectives of the firm. More so since successful internationalization required a long-term commitment, it was important that SMEs engaged in strategic and business planning, so that the management and or owners could weigh up the costs (financial and non-financial) associated with internationalization. These are also critical for the identification and selection of appropriate international operation strategies (suitable foreign market and entry methods) and for establishing targets to monitor actual versus planned performance for a corrective action to be taken.

Through an empirical investigation of a sample of 500 SMEs and non-SMEs, this paper document that managerial capabilities play a significant role if opportunities for international development are to be fully exploited. The results show that lack of managerial capabilities negatively affects SMEs' likelihood of being in international business. To start international activities, a firm must commit resources to going international and overcoming barriers to exporting. An important implication emerges from the study, as well as a challenge for the management of SMEs: they need to strengthen their organization with greater professionalization of management and more highly-qualified personnel if they want to grow in international markets as it is critical for enhancing their capabilities to respond effectively to the challenges at international marketplace competition.

The results suggest that SME business owners should exploit professional management in developing their internationalization strategy since managerial capacity, expertise and processes are significant in SMEs' internationalization pathways. The strong link between managerial capabilities and international business implies that SMEs owners as well as policy makers should focus on fostering this in order to stimulate international business growth by SMEs. The findings also have implications for those who serve as policy-makers and consultants in supporting SMEs in their international growth strategies. Consultants and policy makers should advise SME business owners about the importance of hiring qualified managers with requisite qualification. In assisting the SME business owner in the evaluation of the opportunities involved in managerial capabilities, consultants and policy makers could highlight its implications in terms of access to resources such as information, competencies, finance, and networks, which may prove crucial for the recognition and exploitation of business opportunities abroad.

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Appendix A: Results of Kolmogorov-Smirnov & Shapiro-Wilk Tests

	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistics	df	Sig.	Statistics	df	Sig.
Export intensity (2009/10)	0.345	500	0.000	0.455	500	0.000
Export intensity (2010/11)	0.346	500	0.000	0.453	500	0.000
Export intensity (2011/12)	0.347	500	0.000	0.451	500	0.000
Firm age (2009/10)	0.156	500	0.000	0.905	500	0.000
Firm age (2010/11)	0.144	500	0.000	0.906	500	0.000
Firm age (2011/12)	0.153	500	0.000	0.903	500	0.000
Firm size (2009/10)	0.163	500	0.000	0.826	500	0.000
Firm size (2010/11)	0.163	500	0.000	0.803	500	0.000
Firm size (2011/12)	0.171	500	0.000	0.824	500	0.000
Innovation commitment (2009/10)	0.428	500	0.000	0.170	500	0.000
Innovation commitment (2010/11)	0.438	500	0.000	0.130	500	0.000
Innovation commitment (2011/12)	0.423	500	0.000	0.191	500	0.000
Management team size (2009/10)	0.191	500	0.000	0.806	500	0.000
Management team size (2010/11)	0.177	500	0.000	0.816	500	0.000
Management team size (2011/12)	0.184	500	0.000	0.759	500	0.000