

EXPLORING THE LINK BETWEEN LEARNING AND FIRM PERFORMANCE: AN EMPIRICAL STUDY OF PRIVATE MANUFACTURING FIRMS IN YANGON – MYANMAR

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ABSTRACT

This paper focuses on evaluating the performance of firms from the knowledge and learning perspective. The survey covered a random sample of 120 private manufacturing firms in industrial zones in the Yangon area. Two broad categories of learning are determined: Internal and external. Internal learning is captured by two domains of learning, individual and organisational, whereas external learning involves customers, competitors and suppliers. Firm performance is evaluated using two broad groups of aspects: Non-financial and financial. The ordinary least square (OLS) results show that first, different domains of learning affect firms' performance differently. Individual, organisational and competitor learning impact firms' non-financial performance, whereas other forms of learning do not. Second, the effect of different domains of learning on performance differs in accordance with the different aspects of performance measurement. Individual learning can explain firms' financial performance both directly and indirectly. However, organisational and competitor learning explain firm financial performance indirectly. Third, non-financial performance affects financial performance. Thus, the empirical results have important implications.

Keywords: learning, knowledge, performance, manufacturing firms

INTRODUCTION

Myanmar's economy has encountered significant changes after its transition to a market-oriented system. In the previous economic system, the participation of the private sector in economic activities is rather limited, and as a result, many private activities were confined to the small-scale industries that were operating in an unfavourable environment. However, after the transition to a market economic system, the government encouraged private sector participation in the national economy with the hope that promotion of the private sector would

strengthen the national economy and encourage economic development through competition in terms of the market mechanism. Many former state-owned enterprises were privatised; industrial zones were established to promote their systematic development, and various laws were endorsed that allowed foreign-directed investment to facilitate the transfer of knowledge and technology to local firms. As a result, the number of private firms increased, along with their contribution to the GDP. However, the manufacturing sector's contribution to the GDP is still lower than that of the other sectors and that of the other least-developing countries in the region. The private manufacturing sector, which accounts for more than 75% of total manufacturing industries, has declined in recent years in terms of employment and value added (Industrial Development Committee, 2009). Despite globalisation and regional integration benefits in terms of access to better technology, many manufacturing firms find it difficult to survive because of the increased pressure stemming from higher-quality, cheaper imported products from neighbouring countries. Although the total value of exported products has proved to be increasing, many firms have failed to access international markets. Their informal structure, resource scarcity and lack of managerial expertise may impede their ability to sustain competitive advantage in the long run. Rousseau (1997) suggested that to survive under rapid, intense competitive pressure, firms will need to learn at an increasingly rapid rate. Learning capability is regarded as a buffer for sustained organisational performance in single-unit firms, typically relatively smaller, entrepreneurial firms, and particularly, firms in our context. Hence, the successful learning strategies of some firms could be expected to compensate for the firms' weaknesses in sustaining better performance.

However, a survey of the literature suggests that organisational learning is one of the capabilities necessary for competitive advantage (Eisenhardt & Martin, 2000). Through learning, firms may expand their ability and skill base and improve their ability to assimilate and utilise new information (Cohen & Levinthal, 1990; Leonard-Barton, 1992; Shilling, 2002). Organisational learning has also been proposed as a viable strategy for firms attempting to survive when facing pressure (Rousseau, 1997). A number of researchers have shown that variations in firm performance can be observed because of differences in learning capability (Nonaka & Takeuchi, 1995). However, these studies were conducted in the context of developed countries (e.g., Ruiz-Mercader, Meronon-Cerdan, & Sabater-Sanchez, 2006), which makes generalisation to Myanmar difficult. In fact, firms in this sector in Myanmar are far from the research agenda to provide practitioners or policy makers with relevant policy interventions. In addition, these studies examined the sources of performance differences in terms of only internal or external variables. Actually, according to the absorptive capacity perspective, both are necessary for better performance because although internal variables such as individuals' knowledge and learning and structural flexibility

are important for the application and sharing of knowledge and learning, competitive advantage is also dependent on openness to external changes.

Therefore, drawing from essentials of empirical research in the Myanmar context and the demand for more comprehensive research, this study investigates how the different types of learning contribute to firm performance. To perform this investigation, this study identified the different types of learning and how each type impacts firm performance. The study includes a set of specific objectives. First, the study investigates how different types of learning impact firms' non-financial performance. Second, the relationship between non-financial and financial performance is examined. Finally, the potential mediation effect of non-financial performance is explored.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Definitions of Learning

Different definitions of learning have been developed by various authors. For example, Fiol and Lyles (1985) indicated that learning is the development of insights, knowledge and associations between past actions, the effectiveness of those actions, and future actions. Huber (1991) stated that an entity learns if, through the processing of information, the range of its potential behaviours is changed. Dimovski (1994) defined learning as consisting of the following three processes: information acquisition, interpretation and behaviour and cognition changes. Crossan, Lane, White and Djurfeldt (1995) defined learning as a process of change in cognition and behaviour and suggested that it does not necessarily follow that these changes will directly enhance performance. Despite variations, all these definitions fall under general classifications of learning as lower order or higher order, double looped or single looped, generative or adaptive, adaptive or interpretative or combinations of two types. Although there is little agreement among theorists concerning the definition of learning, they all appear to assume that learning produces positive benefits to performance (Pamler & Cynthia, 2000).

Cognitive and Behavioural Perspectives on Learning

Another issue to be addressed relates to the conceptualisation of learning. Many previous researchers of organisational learning focus on the conception of learning in accordance with two contrasting theories with origins in the field of psychology: cognitive learning theory and behaviour theory.

Studies using cognitive theory assumed learning to be an interpretative perspective. According to this perspective, learning is a cognitive development that does not induce any noticeable changes in behaviour (Crossan et al., 1995; Lundberg, 1995; Yeo, 2002). Researchers adopting the cognitive view focused on changes at various levels: changes in the state of knowledge or beliefs at an individual level, changes in shared understanding at the group level and changes to the storehouse of knowledge in the system, structure and procedures at the organisational level (Crossan et al., 1995). These degrees of changes are regarded as the index for measuring the amount and extent of learning (Lundberg, 1995).

Conversely, behavioural theorists conceived of learning as adaptation. They assumed that learning should be accompanied by observable changes in behaviour, even if there was no precedent change in the thinking process (Crossan et al., 1995; Yeo, 2002; Lundberg, 1995). This approach is sometimes assumed to be a defensive adjustment. Some authors attempt to differentiate between two types of adaptation: a deviation reducing adaptation and a deviation amplifying adaptation (Fiol & Lyles, 1985). Under this approach, the extent of learning is measured against changes in behaviour. Many studies conducted under this behavioural assumption focus on the organisational level and index changes in structures, technologies and systems as responses to people's own experiences and the experiences of members and other organisations. However, Fiol and Lyles (1985) suggested that the cognitive and behavioural approaches to learning not only represent two different phenomena but are also inaccurate reflections of the other. According to these authors, changes in action may occur without any cognitive development, and knowledge may be gained without being accompanied by a change in behaviour.

However, some researchers attempt to bridge the gaps between these two perspectives by asserting that both changes are necessary to the measurement of learning. Essentially, neither cognitive nor behavioural perspectives alone can provide a complete measure for the explanation and measurement of the extent of learning. The integration of these two perspectives is a necessity for the conceptualisation of learning (e.g., Crossan et al., 1995; Yeo, 2002; Lundberg, 1995). According to the cognitive perspective alone, the outcome of the learning process is obscured because in many cases, change in cognition is unobservable and not easily measurable. Knowledge and insight that cannot produce action is assumed to be blocked because knowledge that cannot be applied can be overridden by other cognitions (Crossan et al., 1995). Similarly, under the behavioural perspective, the consequence of learning is regarded as temporary as a result of its interventionist and costly nature because behavioural change in many organisations stems from the use of artificial learning tools such as rewards systems or other incentive schemes. If such mechanisms are removed, behaviour

is congruent with cognition (Festinger, 1957). Because of the limitations of each perspective, this study adopted the "integrated perspective" on learning, which views learning as a change in both cognition and behaviour. It can be rationalised that the combination of two perspectives is more appropriate for the measurement of the extent of learning in an organisation; i.e., the cognitive perspective is necessary for observing changes in mental models and thought processes, but its qualitative nature makes it insufficient for observing the consequences of learning. Similarly, for learning to be measurable, managerial tools and techniques influencing the behaviours of people in the organisation must be present, and it is accepted in all organisational settings that it is also imperative to incorporate the behavioural perspective. Therefore, this study will adopt the conceptualisation covering both perspectives, i.e., the "integral perspective" developed by Botis, Crossan, & Hlland (2002).

Levels of Learning

Researchers to date have identified learning by using different levels of analysis to determine learning performance linkages. Their assumptions regarding the levels of learning depend on their interpretation of the organisation (Crosson et al., 1995). If the theorist assumed that learning was an individually based phenomenon, then he or she emphasised the individual level. If the theorist regarded organisational learning as more than the sum of individuals, then the emphasis was on the organisational level. Similarly, if the theorist considered the role of the sharing and integration of individual-based learning, they focused on incorporated group-level analysis, and if they considered blurred organisational boundaries, inter-organisational level analysis was the focus. Basically, studies can be loosely categorised as those that considered internal-level variables such as individual, group or organisational variables, those that considered external variables such as learning from outside sources and those that considered both. Based on the discussion above, in this study, the broader perspective on organisational learning was adopted by incorporating both the internal and external levels because the former is a necessity for the generation and application of knowledge for organisational performance and competitive advantage, but the latter posits a mechanism for refining and rebuilding the new knowledge.

Internal Learning and External Learning

Internal learning can be generally referred to as learning at the intra-organisational level. Different authors maintain different views of internal learning. Schroeder, Bates and Junttila (2002) viewed internal learning as a routine practice at the individual and organisational levels that promotes private

knowledge, causal ambiguity and social complex factors that confer complete advantage and inhibit transfer. Bierly & Hamalaninen (1995) viewed internal learning as knowledge shared among organisational members that fosters organisational capabilities and can be observed in several domains within the organisation. However, because the concept of "team" or "group" is difficult to make applicable because of its relatively informal structure and the associated work culture, this study categorised internal learning using two domains: individual and organisational.

As previously discussed, external learning refers to learning at the inter-organisational level. External learning is regarded as a means to achieve fundamental organisational goals because it increases the number of better and newly defined sets of competencies (Prahalad & Hamel, 1990). Caloghirou, Protopogrou, Spanos and Papaginnakis (2004) argued that in this era of intense competition and rapid technological change, firms cannot rely solely on their own existing capabilities and knowledge bases. Rather, it is necessary to make efforts to benefit from the experience and knowledge of other economic actors. Accordingly, many studies have explored the effect of learning exerted by modern collaborative arrangements such as joint ventures and alliances (e.g., Lee, Lee, & Pennings, 2001; Gils & Zwart, 2004; Liu, Ghauri, & Sinkovics, 2010).

However, some researchers have argued that for firms with limited resources, particularly medium-sized SMEs, and even large firms in our context, external bodies such as suppliers, customers and competitors are the most important sources of learning with regard to products, processes, technologies and practices (Jones & Macpherson, 2006). Thus, because of the important nature of these external knowledge providers, this study regards external learning as learning from customers, competitors and suppliers.

Internal Learning and Non-financial Performance

In this study, individual learning is characterised as the development of individual competence, capability and motivation to undertake a required task through intuition and the interpretation process among employees (Botis et al., 2002). However, unlike the large firm context in developed countries where individual learning is enhanced by formal human resource practices, a significant aspect of knowledge and skills development in our country could be the use of informal elementary learning mechanisms such as apprenticeship learning.

Evidence that individual learning influences firm performance has been reported in a handful of studies using a mixture of indicators (Botis et al., 2002; Joythibabu, Farooq, & Pradhan, 2010), although a few have reported an

insignificant relationship (Milla & Birdi, 2010). Prieto and Revilla (2006) suggested that non-financial performance could be an intermediate outcome that must be introduced to observe the effects of learning capability, part of which is individual learning, on financial performance. In addition, studies on intellectual capital have suggested that employees with a higher level of competency are better able to understand customer needs and sustain relationships with them to ensure their loyalty (Chen, Zhu, & Xie, 2004). Thus, the effect of individual learning on manufacturing firm performance is to be explored in this study using the following hypothesis:

H1: Individual learning has a positive association with firms' non-financial performance.

We adopted a view of organisational-level learning as an alignment of a non-human storehouse of learning in systems, structure, and procedures that support organisational direction in a given competitive environment (Andrews, 1971; Botis et al., 2002). However, unlike the large firm context in developed countries where a large portion of knowledge is stored in system, process and procedure through the use of the latest data-based system, such as ICT, most knowledge may be stored in the minds of the managers, and knowledge sharing may be a relatively simple, informal system (word of mouth).

Similar to individual learning, a good deal of research on organisational learning shows that organisational learning influences firm performance (e.g., Botis et al., 2002; Tippins & Sohi, 2003; Skerlavaj, Stemberger, Skrinjar, & Dimovski, 2007; Ting, 2012; Idowu, 2013). However, agreement has not been reached regarding which aspects of business performance are influenced. However, the relatively higher impact of organisational learning on non-financial indicators such as the satisfaction of employees or customers, customer retention, quality improvement and organisational reputation has been reported in some studies (e.g., Spicer & Sadler-Smith, 2006; Lopez, Peon, & Ordas, 2005). Spicer and Sadler-Smith (2006) reported on the organisational structure that allows for the free flow of information and a culture that fosters risk taking and experimentation and the procedures that enable the identification of customer needs, revision and review of organisational routines. They are better able to identify customer needs and achieve public goodwill as a result. Thus, the following is proposed:

H2: Organisational learning has a positive association with firms' non-financial performance.

External Learning and Non-financial Performance

The marketing literature suggests the importance of customer learning to the fostering of competitive advantages (Narver & Slater, 1995; Weerawardena, 2003; Hermann, Alexander, Gerald, & Daniela, 2012). It is asserted that the firm's ability to learn faster than competitors is the main source of competitive advantage. However, the literature has few suggestions regarding what is meant by customer learning and how it can best be performed. The concept of customer learning used in this study was drawn from the thoroughly discussed existing literature and defined as the three sequential processes of information acquisition, interpretation and resulting cognitive and behaviour changes, as suggested by Sinkular (1994) and others (e.g., Huber, 1991; Dimovski, 1994; Skerlavaj et al., 2007).

Although the influence of customer learning on the firm's competitive advantage is covered thoroughly in the literature, there is limited evidence of a clear effect. However, according to various perspectives, customer learning has been found to affect the firm's ability to produce creative products and services, adopt new marketing and managerial practices (Weerawardena, 2003), enhance measures of customer-based performance such as customer retention, value, and ROI (e.g., Zahy & Giffin, 2004), create new ideas, i.e., innovation (Rhee, Park, & Lee, 2010), etc. In addition, customer knowledge is a helpful reference for improvement (Tseng, 2009) and is beneficial to customer satisfaction, loyalty and productivity (Mithas, Kirshnan, & Fornell, 2005). The firm's ability to learn about targeted customer needs and wants is said to better position the firm to offer more appropriate and high-quality products, which is thought to result in higher customer satisfaction and a superior level of customer retention (Slater & Narver, 1995). Based on this discussion, the following hypothesis was advanced:

H3: Customer learning has a positive association with firms' non-financial performance.

The market orientation literature suggests that competitor learning is important for superior performance (Rhee et al., 2010; Sinkular, 1994). Competitors are entities in the same industry that produce similar products or service. This type of learning is beneficial such that it shortens the product development process because technology is off-the-shelf and ready-made practices are already available (Bierly & Hamalaninen, 1995). Aspects of competitor knowledge cover intelligent knowledge regarding competitors' scale and quantity, manufacturing technologies and methods, their marketing strategies, etc. However, because there is direct competition between competing firms and each firm may fear the loss of competitive advantage, it is impossible to learn mainly directly from competitors

through formal dialogue. Instead, learning can be accomplished in indirect ways. For example, a firm can study the products and services of competitors that are available on the market, monitor competitors' movements and actions, and obtain word of mouth information on their practices and technologies. Similarly to customer learning, competitor learning is measured by the extent of the three sequential processes of information acquisition, interpretation and the resulting cognitive and behaviour changes.

Unfortunately, clear evidence of the impact of competitor learning on firm performance has not been well researched in the empirical literature. However, indirect evidence of the influence of competitor learning on firm performance can be observed in market orientation studies in the context of the organisational learning literature (Naver & Salter, 2000; Rhee et al., 2010). A recent study of small, innovative technology firms in South Korea conducted by Rhee et al. (2010) indicated that competitor learning affects the firm's ability to achieve sales growth and profitability through its ability to develop new, better knowledge for responding to competitors' movements and actions. Ideally, competitor learning has the potential to improve non-financial performance because it provides a source of benchmarking and best practice transfers (Drew, 1997). In addition, it is proposed that competitor learning is one of the key competencies for achieving success in the marketplace (Kohi & Jaworski, 1990). As a result, the firms that possess a stronger ability to learn from competitors could enjoy better non-financial performance by improving their ability to make better adjustments by copying competitors' strategies. Thus, the following is hypothesised:

H4: Competitor learning has a positive association with firms' non-financial performance.

One of the important domains of external learning is to learn from related and supporting industries such as suppliers (Bierly & Hamalaninen, 1995). Suppliers are the individuals or firms in related or supporting industries from which firms source their raw materials or inputs. Suppliers could be individuals or firms in the local area with regional proximity or firms beyond the national boundary. This type of supplier learning is easier because there is no direct competition between the firms and firms can provide complementary information in the interest of both parties. Supplier learning can be maintained through long-term, close relationships with the supplier (Haikansson et al., 1999; Schroeder et al., 2002). There is general agreement among researchers that suppliers are an important source for broadening the firm's knowledge base (Bierly & Hamalaninen, 1995; Haikansson et al., 1999; Amara, Landry, Becheikh, & Ouimet, 2008). We consistently define supplier learning as the process of information acquisition

occurring through long-term relationships with suppliers, information interpretation and the resulting behaviour and cognitive changes.

The literature on social capital and network theory has devoted much attention to the building of special relationships with external actors in value chains, such as suppliers (Burt, 1992; Granovetter, 1985). The work on social capital and network theory indicates the beneficial effects of social capital and networks, one of which is the effect of supplier networks on organisational performance (Pennings, Lee, & Witteloostuijn, 1998; Hansen, 1995). However, the same interest has been limited in terms of how the business relationship with suppliers in general affects the organisational performance from the organisational learning perspective. Some researchers have stated that supplier learning is still in an early stage and called for more empirical research to advance the knowledge in this field (Bessant, Kaplinsky, & Lamming, 2003). Therefore, to advance our understanding of the effect of learning from the supplier on firm performance, we proposed that learning from suppliers will assist manufacturing firms in improving non-financial performance in two ways. First, through long-term relationships with suppliers, firms can enjoy reductions in transaction costs, opportunity costs and inventory costs, which can improve their ability to satisfy stakeholders through their capacity to offer lower prices. Improvements in quality can also be attained through an increased ability to obtain reliable, quality inputs from the relationship. Second, suppliers can provide essential complementary information on the products, process and technological knowledge that are of importance to firms with limited resources for identifying and seeking this knowledge through their own private efforts. Thus, firms with a higher relative capacity to learn from suppliers may be in a better position to satisfy customers, establish customer loyalty and produce quality products by improving their ability to make adjustments to the delivery of goods and services and adapting to the better practices suggested by suppliers. Therefore, the following is hypothesised:

H5: Supplier learning has a positive association with firms' non-financial performance.

Interactions between Internal and External Learning

The first five hypotheses suggest that each domain of internal and external learning could influence firms' non-financial performance independently. In addition, it is possible for synergistically interaction to influence firms' non-financial performance. Bierly and Hamalaninen (1995) considered the study of the effect of only one type of domain (i.e., internal) and disregard of the effect of

another (i.e., external) to be problematic; they are mutually interdependent such that they must be analysed together.

There are also explanations for why the interactive learning process could influence the firm's performance level. The literature on absorptive capacity has recognised the importance of the establishment of an internal knowledge base before understanding and applying external knowledge to commercial ends (Cohen & Levinthal, 1990). An internal knowledge base refers to the knowledge retained at the individual level and stored within organisational memory, which represents successful internal learning. Thus, within the framework of absorptive capacity, internal learning is a prerequisite for gaining successful outcomes from external learning. Conversely, the value of internal learning domains is contingent on external learning capabilities. To extract value from internal learning domains, firms must complement knowledge with knowledge and information from external sources. In summary, qualified workers and/or institutionalised learning, supported by knowledge and information regarding customers/competitors and/or advice and suggestions from suppliers, are important inputs for transformation into goods and services that improve stakeholder satisfaction. These lines of reasoning lead to the following hypothesis:

H6: Internal learning (il & ol) and external learning (cusl, coml & supl) have a positive and significant interaction effect on firms' non-financial performance.

Non-financial and Financial Performance

There is wide agreement among researchers that firm performance is a multifaceted construct and is required for measurement of the scope extending beyond traditional accounting measures. It has been proposed that Profit theory (Cyert & March, 1963) alone is not a valid measure of organisational performance in the modern business world, which is characterised by an emphasis on a multiple goal orientation. Thus, it was bluntly asserted that satisfaction of stakeholders must be considered when assessing the modern company's performance (Freeman, 1984). The stakeholder approach to performance measurement classified performance into two broad sets of interrelated objectives: The primary, ultimate objectives of business firms, including financial profitability, and secondary objectives, which relate to the satisfaction of key stakeholders such as customers and suppliers (Atkinson, Waterhous, & Wells, 1997). These researchers asserted that without an attempt to achieve secondary objectives, the attainment of primary objectives as improvement in financial gains is unfeasible. Firm ability to achieve the primary

objective depends on the firm's ability to achieve secondary objectives. This study emphasised the firm's ability to satisfy stakeholders such as customers, suppliers and employees as the major driver of financial gains. In this regard, the firms' ability to satisfy stakeholders is regarded as the main source of achieving better financial outcomes. Non-financial performance is regarded as an immediate outcome to be realised before financial achievement.

Building upon this literature, researcher interest in exploring the relationship between non-financial and financial measurement has increased. A wide variety of approaches have been adopted in exploring the influence of non-financial outcomes on the financial value of firms, including cross-sectional and longitudinal and quantitative and qualitative methods (Koska, 1990; Hallowell, 1996; Sabate & Puente, 2003; Prieto & Revilla, 2006; Roberits & Dowling, 2002). For example, some studies have explored the relationship between reputation and profitability (Roberts & Dowling, 2002; Sabate & Puente, 2003), but others have determined the effect of quality on profitability (Weisendanger, 1993). Likewise, Fornell, Anderson and Donald (1994) asserted that forms of cost reduction resulting from quality improvement are more prevalent in manufacturing than in the service industry, in which improvement in quality is associated with many additional costs. In addition, the relationship between customer satisfaction and the financial profitability of firms was confirmed in many studies (Rust & Zahorik, 1991; Ittner & Larcker, 1998). However, because of the differences in study context, the effect of non-financial performance on financial performance is to be tested again in this study. Thus, the following is hypothesised:

H7: There is a significant and positive relationship between non-financial and financial performance.

The Mediating Role of Non-Financial Performance

As discussed above, different domains of learning should improve firms' non-financial performance and non-financial performance should in turn improve financial performance. Thus, the effect of different types of learning on financial performance could be indirect, meaning that to capture financial value from learning capability, firms must possess the ability to satisfy stakeholders as a precedent (Prieto & Revilla, 2006). However, it is possible that different domains of learning influence firms' financial performance differently whereas different domains of learning provide different capabilities for sustaining competitive advantages (Bierly & Hamalaninen, 1995). To understand the effect of different domains of learning on non-financial performance and financial performance, despite not being formally hypothesised, whether different domains of learning

impact financial outcomes in a single regression analysis and the extent of their mediation is to be tested in a mediation model.

METHODOLOGY

Data and Sample

This study used primary data that were collected using structured questionnaires because the variables to be measured cannot be measured using secondary sources. The primary data were collected during February and March 2011. The questionnaire preparation process consisted of two general steps. First, they were prepared in the English language. Then, they were translated into the Myanmar language by the researchers, whose native language is Myanmar. In addition, the accuracy of the translation from English to Myanmar was again verified by the senior researchers and professors in the department of commerce at the Yangon Institute of Economics.

The focus of the study was various manufacturing firms in five different industrial zones in Yangon, Myanmar. The manufacturing firms were chosen as the sample for detailed study for a few reasons. First, the country's manufacturing sector still makes a lower contribution to GDP than other ASEAN Developing countries. Second, the promotion of the industrial sector has been classified as a crucial part of the national development agenda. Third, managerial implications for these firms have become a critical issue in the liberalising economic era because many of the firms are under pressure. Generally, the knowledge gained from this type of investigation can illuminate practices, warranting thorough study.

However, the participating firms were selected in two general stages. Industrial zones with more than 200 firms were selected from the many industrial zones in the Yangon area for the first stage. Larger established zones were selected to control for the effects of differences in level of infrastructure with regard to such factors as the accessibility of electricity and transportation facilities in smaller industrial zones in the developmental stage. Of eight industrial zones with more than 200 firms, only three industrial zones were randomly selected because of the time constraints of the survey period. Although the initial sample covered 150 firms from the three industrial zones in the Yangon area, because some completed questionnaires were unusable, only 120 firms were used for the main analysis. The following tables provide a detailed description of the sample firms in the three industrial zones and their distribution among various types of industries.

Table 1
Distribution of sample firms by industrial zone

Name of industrial zones	No. of firms	Percentage (%)	Total no. of firms	Percentage of total (%)
Hlaing Thar Yar	54	45	474	11
Shwe Pauk kan	21	18	315	17
South Dagon	45	38	798	7
Total	120	100	1728	14.4

Table 2
Distribution of sample firms by type of industries

Type of industry	No. of firms	Percentage of firms (%)
Accessories	11	9
Plastics	7	6
Appliances	17	14
Food processing	29	24
Electronics	7	6
Garment	15	13
Machinery	2	2
Paper and stationery	10	8
Pharmacies	4	3
Steel	3	3
Wood-based	8	7
Footwear	5	4
Beverages	2	2
Total	120	100

The study respondents are general managers or owners or managers of the firms. For large firms in developed countries where specialised human resource (HR) departments are used, the HR manager may be the most appropriate respondent. However, for the firms in the least developing context with a semi-informal structure, owners or managers of the firms are the most aware of the knowledge levels of the employees and their application of knowledge to the job because he or she is the main person evaluating them for pay, promotion and other rewards. Thus, they are assumed to have the most knowledge of individual employees and firm structure. For some variables, such as individual learning, they may also be the proper proxy to answer questions for the employees. In addition, they are the

key people in the firms and possess knowledge of performance based on accounting data and conditions in the industry.

Measurement of Variables

Dependent variables

Five-point Likert scales were used for all variables (individual learning; organisational learning; customer, supplier and competitor learning). According to Botis et al. (2002), individual learning is measured by individuals' ability to capture and utilise work-related knowledge, whereas organisational learning is assessed using the extent of common knowledge retained in the work system. The scales for external learning are evaluated using the extent of knowledge acquisition, interpretation and utilisation achieved through customers, competitors and suppliers and adopted from previous studies (Narver & Slater, 1990; Matsuno, Mentzer, & Ozsomer, 2002; Schroeder et al., 2002). Based on the stakeholder approach to performance measurement, non-financial performance, as a mediator variable, is measured in terms of customer satisfaction, customer retention, firm reputation and improvement in product quality. The measures of financial performance covered the perceptual measures of five items relating to profit growth, sales growth, profit (sale) margin and overall profitability (Lopez et al., 2005). The respondents were asked to indicate their level of agreement or satisfaction, which could range from 1 (very low) to 5 (very high). All of these variables can be said to be multi-item constructs (see details in Appendix). Similarly to many previous studies in the same field, composite scores were created for each variable by taking the average of the items for each observation, except for the two control variables, with their objective measures.

Variables such as firm size and age that may affect firm performance were used as control variables (Botis et al., 2002; Ruiz-Mercader et al., 2006; Joythibabu et al., 2010). Number of full-time employees was chosen as a proxy for firm size. However, to reduce the variation among firms, this measure was transformed into log terms.

ANALYSIS AND RESULTS

To verify the validity and reliability of the measurement scales, we followed certain standard practices. Content validity was determined by experts. The Coefficient of Alpha was computed to assess the unidimensionality of the items. All of the scales fell above the minimum acceptable value of 0.70 (Nunnally,

1978). The reliability, mean, standard deviation and correlation among measurement items are presented in Table 3.

Table 3
Descriptive statistics and reliability for the scales

	1	2	3	4	5	6	7	8	9	10
1 Individual learning	1									
2 Organizational learning	.53*	1								
3 Customer learning	.57*	.53*	1							
4 Competitor learning	.45*	.51*	.45*	1						
5 Supplier learning	.42*	.59*	.50*	.49*	1					
6 Financial performance	.41*	.29*	.30*	.20*	.23*	1				
7 Non-financial performance	.41*	.36*	.20*	.41*	0.19*	.37*	1			
8 Size	-0.12	.19*	-0.01	-0.03	0.13	0.002	-0.15	.25*	1	
9 Age	0.01	-0.04	-0.10	-0.03	-0.04	0.08	-0.02	-0.09	-0.14	1
10 Mean	4.08	4.22	4.19	3.98	4.40	3.67	4.61	3.73	4.60	-
11 S.D.	0.58	0.67	0.74	0.92	0.62	0.71	0.38	1.17	9.46	-
12 Reliability	0.71	0.81	0.80	0.84	0.77	0.71	0.84	-	-	-

* $p < .05$

Ordinary least square analysis (OLS) was used as the main analytical method because of the moderate sample size. The analytical results are provided in three groups. First, the analysis of the relationships between the independent and interaction effects of different types of learning on the dependent variable non-financial performance was presented. Separate regression models were run to observe the additive effect of different types of learning on non-financial performance. In addition, the independent variables were mean centred to reduce the effect of multicollinearity when creating interaction terms (Aiken & West, 1991). Second, the relationship between non-financial and financial performance was examined. Third, the potential mediation of non-financial performance on the relationship between different types of learning and financial performance was explored through mediation analysis. The mediating effect analysis was performed in three steps (Baron & Kenny, 1986).

Table 4
 OLS result for main and interaction effects (H1–H6)

Dependent Variable: Non-Financial Performance									
N = 112									
Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9
Constant	4.111 ***	1.787 ***	2.072 ***	1.591 ***	2.05 ***	1.056 **	1.726 ***	1.636 ***	1.69 ***
Controls									
Logsize	-0.005	-0.096	-0.872	-0.098	-0.877	-0.077	-0.092	-0.086	-0.086
Age	-0.815	-0.004	-0.003	-0.002	-0.003	-0.002	-0.004	-0.002	-0.003
Main effects									
Individual learning		0.304 **	0.307 **	0.334 **	.306 **	0.347 ***	0.275 **	0.285 **	0.286 **
Organisational learning		0.273 **	0.251 **	0.225 **	.255 **	0.251 **	0.298 **	0.317 **	0.308 **
Customer learning			-0.130	-0.041	-0.127	-0.286	-0.079	-0.101	-0.141
Competitor learning			0.214 ***	0.201 **	0.221 ***	0.164 **	0.231 ***	0.321 ***	0.204 **
Supplier learning			-0.130	-0.094	-0.135	-0.021	-0.132	-0.131	-0.067
Interactions									
il*cusl				0.231 **					
il*coml.					0.026				
il*supl						0.629 ***			
ol*cusl							0.181*		
ol*coml.								0.163 **	
ol*supl									0.125
R²	0.021	0.224	0.279	0.306	0.279	0.356	0.298	0.307	0.292
Adjusted R²	0.003	0.195	0.230	0.252	0.223	0.306	0.244	0.254	0.237
F	1.18	7.88	5.75	5.68	4.99	7.12	5.48	5.72	5.31
ΔF	–	14.28 ***	2.88 **	4.07 **	0.06	12.37 ***	2.86 *	4.25 **	1.91

Unstandardized coefficients.
 * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$; two tailed test.

Table 4 reports the results regarding the main and interaction effects of different types of learning on non-financial performance. As previously mentioned, different models were run to test the additive effects of internal and external learning variables on the dependent variable, non-financial performance. In model 2 (and all other models), the results show that both the individual and organisational learning variables prove to be positive and statistically significant

for non-financial performance at 0.05%. Thus, the results support both H1 and H2. The model 3 results show that only competitor learning is significant at 0.01%, whereas other types are insignificant. Thus, H4 is supported as expected, and others, such as H3 and H5, are rejected. The interaction effects of each internal learning variable and external learning variable were tested in models 4, 5, 6, 7, 8 and 9. However, out of the six interaction terms, only four terms appeared to be statistically significant. In general, the results provide partial support for H6.

Table 5
OLS result for the relationship between non-financial and financial performance (H7)

Dependent Variable: Financial Performance		N = 113
Variables	Coefficients	
Constant	3.688***	
<i>Controls</i>		
Logsize	0.025	
Age	0.005	
<i>Independent variable</i>		
Non-financial performance	.203***	
R ²	0.150	
Adjusted R ²	0.127	
F	6.51	

Unstandardized coefficients.
 * $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$; two tailed test

As postulated, non-financial performance is positively related to financial performance at $p < 0.01$ (Table 5), thereby supporting H7.

Following Baron and Kenny (1986), we used a three-step procedure to determine the mediation effect of non-financial performance on the relationship between different types of learning and firms' financial performance (Table 6). First, the relationship between dependent and independent variables was investigated. Only individual learning has a direct, significant relationship with financial performance. The significant relationship between independent variables and mediator non-financial performance was examined in the second step. Three out of the five learning variables have a significant link to mediator variable non-financial performance, as suggested in the direct effect analysis. Finally, the mediator variable was added to the first step to determine whether it eliminates the effect of independent variables. The results show that the effect of two independent variables such as organisational and competitor learning is removed

but that individual learning is still significant ($p < 0.05$) and the mediator, non-financial performance, exhibits a stronger effect, having a greater standardised coefficient ($p < 0.01$). These findings indicate that non-financial performance partially mediates the relationship between individual learning and financial performance and fully mediates for organisational and competitor learning.

Table 6
OLS result for mediation effects of non-financial performance ($N = 111$)

Independent variables	Step 1 FP as DV	Step 2 NFP as DV	Step 3 FP as DV
Constant	1.632**	2.072***	2.979***
<i>Controls</i>			
Logsize	0.011 (0.35)	-0.872 (-0.146)	0.025 (0.078)
Age	0.003 (0.870)	-0.003 (-0.047)	0.004 (0.106)
<i>Main independent variables</i>			
Individual learning	0.206** (0.323**)	0.307** (0.259**)	0.161** (0.253**)
Organisational learning	0.037 (0.068)	0.251** (.243**)	0.002 (0.005)
Customer learning	0.052 (0.105)	-0.130 (-0.138)	0.071 (0.139)
Competitor learning	-0.009 (-0.024)	0.214*** (0.283***)	-0.043 (-0.105)
Supplier learning	0.006 (0.011)	-0.130 (-0.116)	0.027 (0.045)
<i>Mediator</i>			
Non-financial performance			0.151*** (0.281***)
R ²	0.186	0.279	0.245
Adjusted R ²	0.132	0.230	0.186
F	3.44	5.75	4.15

Unstandardised coefficients and β values are presented in parentheses.
* $p < 0.10$; ** $p < 0.05$; *** $p < 0.01$; two-tailed test

DISCUSSION

Internal and External Learning and Non-financial Performance

Our first five hypotheses proposed that the greater level of two types of internal learning, individual and organisational (H1 and H2), and the three types of external learning, that achieved through customers, competitors and suppliers (H3, H4 and H5), result in non-financial improvement. The regression results indicate a positive and significant relationship between two types of internal learning (H1 and H2) and learning from competitors (H4). Thus, this result suggests that knowledge retained in the minds of individual employees is important to achieving high non-financial performance for firms in our context. In other words, firms' non-financial performance in the form of stakeholder satisfaction can be obtained by means of maintaining capable, motivated and committed individual employees. Similarly, the positive and significant relationship between organisational learning and non-financial performance provide evidence that knowledge embedded in the firm's systems, processes and procedures are essential to the achievement of non-financial outcomes. However, unlike studies based on developed and developing countries, the study did not provide clear evidence that organisational learning has a greater effect on performance. Thus, organisations with better storehouses of learning could pass down knowledge and learning to current and future employees, and employees with a higher learning capacity and greater knowledge could contribute their knowledge at the organisational level.

Contrary to our hypothesis, this study does not indicate that customer learning (H3) had a main effect on firms' non-financial improvement. There are multiple possible explanations for why such learning migrates away from the improvement of non-financial performance in this study. This study focused on the quantity rather than the quality of customer knowledge and the responsiveness of the firms. In reality, firms' perception of customer knowledge and responsiveness may deviate from the optimal level of satisfying genuine customer tastes and preferences because first, firms in our context are at a disadvantage in accessing up-to-date customer information because of the use of lengthy distribution channels to sell products. As a result, many firms appear to possess inadequate abilities or opportunities to respond to the knowledge of customers in a timely and efficient manner. In addition, the insignificant effect of customer learning on non-financial performance may partly reflect their perceived inadequacy to access and respond to customer knowledge even though they are attaining non-financial improvement at an optimal level. Contrary to this explanation, if all firms are utilising customer learning as a strategy for sustaining

non-financial performance, it may be difficult for firms to use customer learning as a strategy for sustaining superior non-financial outcomes.

However, the interaction between customer learning and individual and organisational learning indicates interesting positive and significant effects, suggesting that customer learning is necessary but not a sufficient condition for sustaining non-financial performance. Firms with a higher level of absorptive capacity, i.e., firms that can accumulate knowledge at the individual level and/or at the organisational level, are better at acquiring and responding to customer tastes and preferences to achieve non-financial outcomes than those with a limited capacity to do so. Conversely, firms with little absorptive capacity may be disconnected from local knowledge of stakeholder satisfaction that would produce loyal customers and firm goodwill.

This study produced evidence that learning from competitors (H4) has the strongest positive significant impact on firm non-financial performance. This evidence also implies that firms in our context appear to be more inclined towards learning from others' experience and have more competence to do so. Actually, such findings can be expected in this context, in which firms' own knowledge generation mechanism (i.e., R & D) is limited. In such a situation, benchmarking against competitors' actions most likely provides them with an important means for superior non-financial performance, at least in the short run. Moreover, this conclusion is supported by the presence of many firms in our context in traditional sectors involving simple manufacturing and producing simple products, where benchmarking against competitors' actions is likely to be a minor adaptation rather than a major change for which imitation does not require significant causal ambiguity and path dependency.

However, the insignificant interaction effect of individual learning and competitor learning reflects the costly nature of maintaining both types of learning. Maintaining learning-oriented, qualified workers and responding to competitors' actions may also entail higher costs. As a result, firms may find it difficult to make investments in both types of learning to maintain non-financial outcomes.

Some authors have suggested the importance of learning from supplier networks in improving firm performance (Schroeder et al., 2002; Droge, Claycomb, & Germain, 2003), but our study did not indicate a main effect. Some studies also proposed that there is an inconclusive effect because it depends on the knowledge level of suppliers, which is determined by the number of other supplier networks (Haikansson, Havila, & Pedersen, 1999) and the fit between the learning styles of manufacturers and suppliers (Azadegan & Dooley, 2010). For firms in our

context, supplying firms may not appear to possess an adequate ability or capacity to develop and provide relevant knowledge to their customer firms. Another possible reason for insignificant supplier learning in terms of non-financial performance highlights the measurement issue that must be addressed in future studies.

Non-financial and Financial Performance

As hypothesised, the relationship between non-financial and financial performance was confirmed. Thus, the results support the stakeholder perspective and add value to the manufacturing literature by suggesting that firms' efforts towards stakeholder satisfaction are the essential means of sustaining higher financial returns. In addition, firm efforts towards stakeholder satisfaction are the main source of profit generation even though it is argued that firms in Least Developed Countries (LDCs) are at a disadvantage in relation to foreign firms with better images. In reality, the maximum level of financial performance can be achieved by means of the provision of quality products and services that affect customer satisfaction, customer loyalty and firm reputation regardless of source.

Mediation Effects

To confirm non-financial performance as an intermediate outcome of different types of learning, we performed a mediation analysis. The mediation model indicates that non-financial performance serves as the intermediate outcome between some types of learning and financial performance. However, high non-financial performance is not directly available to all firms under any circumstances unless properly developed. High non-financial performance is only available to firms possessing appropriate learning capabilities. Among these, this study showed that the learning capabilities of individuals, at the organisational level and regarding competitors' actions, are essential to the eliciting of high non-financial performance and financial performance. More specifically, the complete mediation of non-financial performance between organisational and competitor learning suggests that non-financial performance is necessary to gaining financial outcomes from these two types of learning. Similarly, the partial mediation of non-financial performance between individual learning and financial performance indicates that although individual learning has the ability to improve financial performance directly; the greater extent of the improvement in financial resulting from individual learning can be obtained only through improvement in non-financial performance. However, whether the firms with strong financial performance could seek to be the top choice among learning-oriented, talented employees is the issue warranting further discussion.

CONCLUSION

This study investigated the effects of internal and external learning domains on the performance of manufacturing firms. The results indicated that different domains of learning influence firm performance differently. The two internal learning variables, knowledge retained at the individual level and that institutionalised at the organisational level, are important in explaining the firm's non-financial performance. Of the three domains of external learning, only competitor learning has a positive impact on firm non-financial performance. Two external learning variables that did not exhibit a main effect appeared to interactively influence non-financial performance through two internal learning variables. In addition, it is clear that the influence of different domains of learning on firm performance varied according to the different measures of performance. Individual learning has the power to influence firm financial performance directly. However, the influence of other domains of learning on financial performance is indirect, occurring through non-financial performance. In addition, the effects differ in terms of independence or synergy, depending on the domain. More specifically, organisational and competitor learning have an independent, indirect effect, but customer and competitor learning have an interactive, indirect effect.

Policy Implications

Implications for the private sector

Given that individual learning appeared to be crucial for both non-financial and financial performance outcomes, managers should make a certain level of investments in nurturing and retaining competent workers. To do so, firms should use formal and informal training to equip workers with necessary skills and competencies. Employees should be encouraged to share experiences with one another to increase their learning opportunities. The use of other human resource practices such as systematic hiring, performance-based rewards and promotion systems should be of great value in attracting capable workers and motivating them to use their competency to its full potential. Firms should develop an organisational learning system to store organisational experience and to develop processes and procedures to make all members of the organisation aware to achieve better performance outcomes.

In addition, managers should pay special attention to responding to competitors' movements and actions, given the importance of competitor learning to non-financial outcomes. Resources should be allocated and incentives should be provided accordingly. However, this importance also indicates the requirement

that all firms perform constant innovation because a firm's innovation in products, processes and technology tends to become quickly obsolete by means of learning through imitation among competing firms.

Implications for policy makers

Given the importance of competent employees, policy interventions should be directed towards a requirement for all firms to equip their employees with the necessary job-related skills. Necessary support programs in the form of financial assistance and incentive schemes in the form of loans should be provided for firms with resource constraints on implementation. In addition, managers should be encouraged to acquire knowledge of business management by attending outside professional training programs to raise their level of awareness of managerial knowledge on HR practices. Trade shows, workshops and meetings are of great value in enhancing opportunities for learning between competing firms in the same industry. It would be beneficial for firms if mass media such as TV, magazines and newspapers were encouraged to release real-time product and market information so that firms could regularly determine, evaluate and respond to customers' tastes and preferences and competitor actions.

Limitations and Directions for Further Research

This study has limitations that require that issues be addressed in future organisational learning research. The first and foremost issue involves the use of perceptual measures for performance indicators, particularly for financial performance indicators. The next limitation relates to the issue of exploring antecedents of learning. Although this study provides useful insights into firm-level performance implications for the Myanmar context from the perspective of knowledge and learning, because of the time limitations of the survey period, this study cannot explore the antecedents of learning. Therefore, it would be appreciated if future study could involve the exploration of contextual factors in a similar context.

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APPENDIX

Indicators for Each Variable

All the statements/indicators are based on the Five-point Likert scale from 1 to 5.
1 = Strongly disagree; 2 = Moderately disagree; 3 = Neither disagree nor agree; 4 = Moderately agree; 5 = Strongly agree

Non-financial Performance

Our customers are satisfied with the products and services of our firm.

Our customer retention rate is as high as or higher than that of our competitors.

Our organization has good reputation in the sector.

The products supplied by the firm are considered high quality.

Financial Performance

Degree of satisfaction concerning financial profitability

Degree of satisfaction concerning growth in sales

Degree of satisfaction concerning growth in profits

Degree of satisfaction concerning sales margin

Individual learning

Individuals are able to break out of traditional mindsets to see things in new and different ways.

Individuals feel sense of pride in their work.

Individuals have a clear sense of direction in their work.

Individuals are aware of critical issues that affect their work.

Individuals generate many new insights.

Organizational learning

We have a strategy that position well for the future.

The organizational structure supports our strategic direction.

The organizational culture can be characterized as innovative.

The organizational structure allows us to work effectively.

Our operational procedures allow us to work effectively.

Customer learning

Our customers give us feedback on quality and delivery performance.

Our customers are actively involved in product design process.

We react quickly to the changes in customers products and services needs.

We constantly monitor our level of commitment and orientation to serving customers needs.

We are knowledgeable about customer product and service preferences.

We have considerable interaction and information exchange and discussion of past, present and future needs with customers.

Competitors Learning

We are collecting competitor's information.

We regularly scan and evaluate competitor's strengths and weakness.

Our competitors are extremely important source of learning new methods and services.

If a major competitor were to launch a new campaign, we would implement a response immediately. (Our company responds rapidly to competitive actions).

Supplier learning

We strive to maintain to establish long term relationship with supplier.

We maintain close relationship with supplier about quality consideration and design changes.

We retain knowledge and information from supplier.

We have consideration interaction and information exchange and discussion of past, present and future needs with supplier.

If our suppliers give advice and suggestion regarding improvement for operation (products, process, technology), we tried to implement accordingly.