

Impact of Strategy Implementation on Performance of Generic Strategy: Evidence from Thailand

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The purpose of this paper is to examine the strategic orientation in terms of Miles and Snow typologies of the firms in emerging country and investigate their implications on performance. Unlike previous research, this paper focuses the importance of strategy implementation to the performance implications of Miles and Snow typology. Data was collected from 111 key informants from firms in Thailand's chemical industry using probability sampling. The one-way Analysis of Variance (ANOVA) results showed that prospectors performed better than the other three strategic types, whereas reactors exhibited the lowest performance scores. While the success in strategy implementation is found to be a significant predictor of firm performance, the two-way Analysis of Variance (ANOVA) results revealed that the success in strategy implementation did not alter the relationship between Miles and Snow strategic type and a firm's performance. This finding suggests that the relationship between Miles and Snow strategic type and a firm's performance may be universal, regardless of the location where the study is conducted. However, additional studies in other contexts are required before the conclusion can be made whether the strategic type – performance relationship will be contingent on strategy implementation.

Keywords: *Generic strategies, typologies, Miles and Snow, firm performance, strategy implementation.*

Introduction

Strategic management is regarded as an important process for businesses (Bowman and Asch, 1987; Kumar, 2010; Thomson and Strickland, 2003; Viljoan and Dann, 2003). It has been argued that the process of strategic management affects a firm's ultimate success or failure more than any other factors (Porth, 2003). Strategic management process is important for a firm's success because it enables

a firm to develop a future direction, provides the ways to achieve its mission, and ultimately leads to value creation (Porth, 2003). A review of literature by Powell (1992) also indicates that firms whom adopt strategic management generally improve their performance. The process of strategic management can be divided into two major tasks: strategy formulation and strategy implementation (David, 1995; Hitt, Ireland, and Hoskisson, 2005; Kazmi, 2008). The former involves the crafting of a strategy, whereas

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the latter is the managerial exercise of putting a chosen strategy in place (Thomson and Strickland, 2003).

One of the most important tasks for management is to search constantly for the best strategy to boost performance. Researchers have attempted to classify business strategies into typologies as an aid to effectively investigate the relationship between strategy and other variables (Namiki, 1989). A number of studies including Covin (1991), Miles and Snow (1978), and Porter (1980) have sought to identify behaviours in the ways organizations compete and to group these behaviours or strategies into typologies or generic strategies. Of the generic strategies proposed in the literature, the Miles and Snow typology is among the most cited in the literature (Galbreath, 2010; Ketchen, 2003). The relationship between Miles and Snow's generic strategy and a firm's performance has been investigated by a number of studies (Conant, Mokwa, and Varadarajan, 1990; Garringos-Simon, Marques, and Narangajavana, 2005; Hambrick, 1983; Jennings, Rajaratnam, and Lawrences, 2003; Parnell and Wright, 1993; Shirokova, 2010; Smith, Guthrie, and Chen, 1989; Snow and Hrebiniak, 1980; Zajec and Shortell, 1989). However, their results were not consistent.

Although both strategy formulation and strategy implementation have been highlighted as significant in the literature, strategy implementation has been regarded by some authors as more important than the strategy itself (Harrison and Pelletier, 2000; Hrebiniak, 2006; Robbins and Coulter, 1996; Schneier, Shaw, and Beatty, 1991). Nonetheless, a number of studies indicate that strategy implementation has received less attention from both academics and practitioners compared to strategy formulation. Previous research has empirically tested the relationship between Miles and Snow generic strategy and a firm's performance but there has been little analysis of the role of strategy implementation.

The emergence of the so-called 'Tiger economies' in Asia and the rapid growth in newly emerging countries such as China and Vietnam, have prompted a great interest in Asian coun-

tries (Deshpande, Farley, and Bowman, 2004). Nevertheless, a review of literature indicated that the research on the link between generic strategy, implementation, and performance is only concentrated in Western countries. Currently, there is little knowledge on the relationship between generic strategy, implementation, and performance in an Eastern context. The improvement in the industry will, in turn, contribute to the economic performance of the country. The chemical industries in 'Tiger economies' of Southeast Asia, that have been reported to have good prospects in the past decade, are now being challenged by China (Wood, 2005). Firms in the chemical industry in those countries including Thailand have to prepare themselves for this challenge; therefore, it calls for a research study that explains performance diversity among these firms.

Given the importance of the role of strategic management in business, and the existing gaps in the literature, this study conducts an investigation of issues in strategic management with an emphasis on strategy implementation. Specifically, the relationships between generic strategy, implementation and performance are explored and tested. This study sets out a research project to explore and fulfill two major purposes: *first*, it aims to investigate the relationship between Miles and Snow generic strategy and a firm's performance; and *second*, it investigates the role of strategy implementation in contributing to performance.

Literature Review

Different views on strategy

Minzberg (2000) makes an analogy of strategy as a man who touches an elephant with his eyes covered and is asked to describe what the elephant looks like. One who touches its trunk tells one thing; the others who touch other parts say other things. This indicates various meanings of strategy. According to Mintzberg (2000), strategy can be viewed as plan, ploy, pattern, position and perspective. Each of those elements represents different aspects of the word 'strategy'. Another point of confu-

sion about strategy has been raised by Porter (1996). He argued that for a company to cope with a change in paradigm of competition, it requires the understanding of strategy, and distinguishing strategy from operational effectiveness. Porter indicates that many have misused the word ‘strategy’ to represent what is merely called operational effectiveness or efficiency. With regards to Porter (1996), the essence of strategy is about long-term positioning of the firm and deciding what activities are required to create value, not benchmarking, outsourcing, partnering, or reengineering. For the purposes of this study, the essences of those mentioned earlier are combined. Following the definition proposed by Hubbard (2000), strategy is defined as “those decisions which have long-term impact on the activities of the organization, including the implementation of those decisions, to create value to key stakeholders and to outperform competitors” impact on the activities of the organization, including the implementation of those decisions, to create value to key stakeholders and to outperform competitors”.

Different views on strategic management theory

There are two opposite poles of strategy perspective – deliberate strategic process (strategic planning) and emergent process (strategic incrementalism). The basis of the deliberate strategic process (strategic planning perspective) is developed from the early works in 1965 by Learned, Christiansen, Andrews and Guth at Harvard University (for a discussion see Andrew, 1971; Forester and Browne, 1996). The focus is on trying to find the fit between environment and the firm using the famous SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis. According to Andrews (1971), the process starts from assessing the external environment, as well as internal strengths and weaknesses, and then strategies are formulated and chosen by the firm and, finally, those chosen strategies are implemented.

On the other hand, the emergence process (strategic incrementalism) viewed strategy not as being formulated in a deliberate fashion, but

emerge as the result of implementation following in the process (McKiernan, 1996). The proponents of this view argue that, in reality, the deliberate or intended strategies may not be realized; rather, many strategies may have emerged without necessarily planning in advance (Hurst, et al., 1989; Mckelvey and Aldrich, 1983; Mintzberg and Water, 1985; Quinn, 1980).

For the sake of simplicity in methodology design, this study follows the deliberate strategic process views. The strategic formulation is viewed as a separate process from strategic implementation. Specifically, a strategic decision is assumed to exist before implementation has occurred. Given the different views on strategic management process, the term ‘strategic management’ also brings controversy among academics. Each perspective has different views on the process of strategic management; hence, this leads to different definitions. As this study employs the deliberate strategic process approach, ‘strategic management’ is defined as the managerial process of shaping a strategic vision, establishing objectives, developing a strategy, implementing, and evaluating and control over time). In line with Thomson and Strickland (2003), Hussey (1998) indicates that strategic management process can be broadly categorized into formulation and implementation. The former involves planning, while the latter deals with how to carry out the plan.

The level of strategies in an organization

As generally agreed in the literature, strategies in organizations can be classified into three levels: corporate, business and functional (Hubbard, 2000; Johnson and Scholes, 2002; Viljoan and Dann, 2003; Wheelen and Hunger, 1995). Corporate strategies focus on all businesses in an organization as a whole. Corporate strategies embody three general orientations: growth, stability and retrenchment. At the business level, the strategy aims to achieve competitive advantage in a particular market. And, finally, the functional or operational strategies are concerned with how each part of the organization delivers value to the business and corpo-

rate level. Business-level strategies are central interest of this study.

Types of business strategies

There are two arenas in which a firm interacts with its environment: first, a firm must match and adapt to the environment; second, it must find its way to compete with other firms that also attempt to adapt (Rumelt, 1980). The interactions have resulted in two different aspects of strategic choices: generic strategy and competitive strategy. The generic strategy deals with the basic mission or the scope of business and the strategy is expressed by the product-market definition, whereas the competitive strategy concerns itself with the special competitive advantage or creation of an edge over other rivals (Rumelt, 1980). As this study concerns firm strategy in general, the focus will be on the generic strategy.

The field of business strategy has demonstrated a shift from a perspective that each firm is unique toward a view which recognises the similarities among groups of firms (Covin, 1991; Dess and Davis, 1984; Miles and Snow, 1978; Porter, 1980). Currently, this perspective is still relevant and prevalent in the literature as evidenced by a number of recent studies that group firms based on their strategic behaviour (see, for example, Aragon-Sanchez and Sanchez-Martin, 2005; Galbreath, 2010; Garrigos-Simon et al., 2005; Torgovicky, Goldberg, Shvarts, and Dayan, 2005). O' Farrell, Hitchens, and Moffat (1992) argue that the strategic groups offer a frame of reference when referring to firms in the industry. The classification also helps researchers to effectively investigate the relationships between strategy and other variables (Namiki, 1989). The pioneers in strategic groups include the work of Covin (1991), Miles and Snow (1978), and Porter (1980). Porter (1980), for instance, proposed that any firm must choose one of three generic strategies to create and maintain sustainable competitive advantage including cost leadership, differentiation and focus strategies.

Although there are many classifications of strategic groups, Miles and Snow (1978) and

Porter (1980) are the two prevailing business strategy frameworks in the strategic management literature (Slater and Olsen, 2000). The Miles and Snow (1978) typology is based on in-depth investigation of four different industries. On the other hand, other strategy typologies, including Porter's (1980) typology, lack an extensive, detailed, theoretical orientation and are more focused and less generalizable (Smith et al., 1989). Therefore, the Miles and Snow generic strategy is an appropriate choice of structure for analyzing the chemical industry within Thailand.

Miles and Snow typology

Miles and Snow (1978) developed a comprehensive framework of organizational adaptation to environmental change and uncertainty. The complex dynamic of the adaptation process can be broken down into three choices or problems which management must continually choose or solve. The three choices, or problems, include how an organization define and approach their organization domains (the entrepreneurial problem), how an organization creates a system or appropriate technology (the engineering problem) and how an organization reduces uncertainty within an organization (the administrative problem) to accomplish success in their domains. On this basis, four types of strategic choices have emerged, namely Prospectors, Analyzers, Defenders and Reactors (Miles and Snow, 1978). The former three represent a 'stable' form of organization which can be conceptualized on a continuum. Prospectors and Defenders are the two opposite ends on the continuum with Analyzers fall somewhere between those two ends. Prospectors represent a stable form of organization, while Defenders represents an 'unstable' form of organization. Conversely, Reactors can not be placed on the continuum.

Prospectors

According to Miles and Snow (1978), Prospectors engage in more dynamic environments than other types of firms in their respective

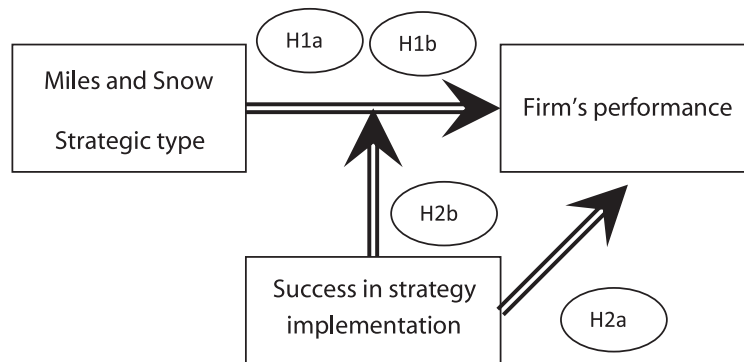


Figure 1. Conceptual Framework

industries. The competitive advantage of the Prospectors comes from their innovations in products or market developments. Therefore the central question is how to develop and exploit new products and opportunities in the market.

Defenders

Defenders, on the other hand, deliberately try to enact and maintain an environment for which a stable form of organization is appropriate (Miles and Snow, 1978). For this reason, they deal with the entrepreneurial problem by attempting to secure a portion of the market to create a stable domain. In other words, they strive to prevent competitors from entering their domain. For this reason, they are likely to focus on a narrow product-market domain.

Analyzers

According to Miles and Snow (1978), Analyzers are the result of the combination of the strengths of Prospectors and Defenders. Even though they share some common characteristics, Analyzers tend to demonstrate more risk aversion than Prospectors. A promising opportunity must be evidenced before they engage in a new product and market.

Reactors

Reactors exhibit inconsistent and unstable patterns of adjustment to their environment. They do not possess mechanisms to respond to environmental change in a consistent fashion (Miles and Snow, 1978). As a result, this type of strategy exists in a state of almost perpetual

instability and firms do not exhibit a clear pattern of strategy.

Hypothesis Development

As shown in Figure 1, this study proposes a comprehensive framework to examine the performance impact of Miles and Snow's generic strategy. Furthermore, it investigates the role of the strategy implementation to the generic strategy – performance relationship.

Miles and Snow Typology and Performance

The studies on performance generally attempt to test two propositions. The first proposition is that the Prospectors, Analyzers and Defenders perform equally. The first hypothesis is based on the principle of eqifinality which states that “the same final state can be reached from different initial conditions and in different ways” (Von Bertalanfy, 1960 p. 84). Even though this principle provides an important basis in explaining the first proposition, it is based on the context of a biological system.

In the strategic management context, the notion of ‘strategic fit’ can be used to explain why some firms perform well, while the others do not. The strategic fit principle asserts that organizational effectiveness is the outcome of fitting certain organizational characteristics to contingencies that govern the situation of the firm (Burns and Stalker, 1961; Galbreath, 1973), and a match between them (a.k.a. fit) would result in a positive organizational performance (Venkatraman and Prescott, 1990). The Miles and Snow typology embraces these concepts. For example, Miles and Snow (1978) argue that

an organization may be an effective performer if it exhibits a clear, stable strategy. Prospectors, Defenders and Analyzers are identified as “stable” forms of organizations in which they possess a clear, stable strategy for competing in their domains and each has a specific configuration of structure, technology and process that is consistent with its strategy (Miles and Snow, 1978). Prospectors, Defenders and Analyzers adjust themselves to the environments that they are in, and, at the same time, have appropriate internal organizational adaptation to handle environmental change and uncertainty. Hence, Miles and Snow (1978) suggest that the three strategic types (Prospectors, Defenders, and Analyzers) are neither superior nor inferior, the following hypothesis is postulated:

H1a : Prospectors, Defenders and Analyzers will perform equally

Another proposition examined in the literature is that Reactors tend to perform more poorly compared to Prospectors, Analyzers and Defenders. If the management does not pursue one of these ‘pure’ strategies (e.g. Prospector, Analyser, or Defender), Miles and Snow argue that they tend to be slow to respond to opportunities and are likely to be ineffective performers in the industry. This type of organization lacks consistent and stable adjustment to change and, hence, it can not achieve the ‘fit’. As a result, Reactors tend to underperform the other three. The research tends to support this proposition (Conant et al., 1990; Jennings et al., 2003; Parnell and Wright, 1993; Smith et al., 1989). This leads to the following hypothesis:

H1b : Reactors will under-perform Prospectors, Defenders and Analyzers

Zahra and Pearce II (1990) suggest that the relationship between Miles and Snow typology and performance may not be straightforward. Some variables such as company size (Smith et al., 1989), environmental attributes (Hambrick, 1983) and the fit between strategy and organization (Thomas and Ramaswamy, 1996) can also alter the performance. Consequently,

the influence of strategy implementation on the relationship between strategy type and performance is worth to examine.

Importance of strategy implementation

Strategy implementation (a.k.a. strategy execution) is defined as the managerial exercise of putting a freshly chosen strategy in place. It involves the managerial exercise of supervising the ongoing pursuit of strategy, making it work, improving the competence with which it is executed, and showing measurable progress in achieving the targeted results (Thomson and Strickland, 2003). In a nutshell, Strategy implementation refers to how firms take plans into action (Kazmi, 2008).

As the business strategies pursued by firms become more alike, the competitive advantages of firms are increasingly determined by how well they execute the planned strategy (Schneier et al., 1991). Studies on strategic management point out that the success in formulating strategy alone may not lead to the success of strategy. For example, Harrison and Pelletier (2000) indicate that the value of strategic decisions will be realized only after effective implementation of a decision. Moreover, firms can not succeed if they do not implement strategies properly and effectively (Getz, Jones, and Loewe, 2009; Robbins and Coulter, 1996). In line with this, Kruger (1996) indicates that change processes do not achieve the desired result or even fail if implementation is undermined by people in an organization. Additionally, Hrebiniak (2006) stresses the importance of strategy implementation by indicating that a firm’s poor performance generally stems from the execution of the plan, rather than the plan itself.

Although some authors remark on the importance of implementation, Miller (2002) indicates that more than 70 percent of strategic initiatives by organizations fail at the implementation stage. Various barriers such as poor communication, poor leadership, and poor systems have been identified as the obstacles to successful implementation (Beer and Eisenstat, 2000; Heide et al., 2002; Raps, 2004). Thus, implementation is an enigma and creates frus-

tration in many organizations (Noble, 1999). All of these barriers bring the spotlight to this part of the strategic process.

Currently, practitioners and academics agree that implementation is the most important part of strategic process that has been overlooked for a long period of time (Kaplan and Norton, 2001; Kazmi, 2008; Kruger, 1996). For example, Thompson and Strickland (1990) suggest that the implementation phase is the most complicated and time-consuming part of strategic management. Grundy (1998) advocates that the emphasis of strategic implementation should move from 10 percent to more than 50 percent of the overall process. A survey reported by Kaplan and Norton (2001) indicates that the implementation phase is much more important than the quality of the strategy itself.

Even though the previous literature highlights the role of strategy implementation, few of them have empirically tested the relationship. Given the importance of implementation, it is important to investigate the role of implementation in contributing to a firm's performance. Thus, it is hypothesized that:

H2a : Success in strategy implementation is a significant predictor of a firm's performance

Furthermore, Miles and Snow (1978) implicitly assume that organizational structure and processes are in line with the strategy. Thus, the fit between pursued strategy and organization structure and process suggests that strategy implementation is likely to be successful. However, the real world experience indicates that strategy implementation is not always simple and straightforward (Miller, 2002; Noble, 1999). In addition, firms generally ignore or give less attention to implementation (Grundy, 1998; Kaplan and Norton, 2001; Miller, 2002; Thompson and Strickland, 1990). Thus, the predicted results may not eventuate if implementation is not successful. The following hypothesis is derived:

H2b : The influence of the strategic type on a firm's performance depends on the success in strategy implementation.

Research Method

The unit of analysis in this research is at the firm level. This is because the primary objective of this study is to empirically test the effects of strategic types proposed by Miles and Snow (1978) and strategy implementation on a firm's performance. Structured questionnaires were collected from key informants from firms in chemical industry in Thailand. They were mostly senior executives who possess crucial information about organizational situations. The chemical industry plays an important role in Thailand's economic system. This industry is considered to be a fundamental industry for both manufacturing and the service sector. The production of chemicals leads to a continuous process in other downstream industries as many raw materials used in many industries are the products from the chemicals industry (Office of Industrial Economics, 2003). A study on a single industry provides 'natural controls' for a wide range of variables (Peteraf and Shanley, 1997). It was decided to focus on one particular industry in Thailand, the chemical industry, instead of surveying across a range of industries.

This study employs systematic sampling method; that is, every 2nd name on the list was automatically selected from the sampling frame, Z directory, after the initial starting point had been randomly determined. Data collection yield 114 questionnaires returned from 309 questionnaires sent out, thus achieving a response rate of 36 percent. According to previous research in this area, a sample size ranging from 110 to 400 is common (Conant et al., 1990; Jennings et al., 2003; Parnell and Wright, 1993; Taslak, 2004).

Measurement Model

The questionnaire consisted of two sections. The first section asked about the company and key informants information, whilst the second part asked about the key constructs. Information regarding key constructs and their corresponding scales was obtained by searching the relevant literature; therefore, all constructs were measured using existing scales drawn

from literature with some adjustments. Three constructs employed in this study were measured as follows:

Miles and Snow Typology

The extensive studies on Miles and Snow typologies lead to a number of approaches to operationalize the four types of strategies (Conant et al., 1990). Two widely employed approaches are discussed in this section: paragraph and multi-items approaches. In the paragraph approach, four typed paragraphs are presented to the respondents and then the respondents are asked to choose one paragraph that seems to best describe their firm's characteristics. Alternatively, many researchers attempted to operationalize Miles and Snow typologies by using a multi-item approach (Conant et al., 1990; Segev, 1987; Smith et al., 1989). This approach was developed to overcome the weaknesses of the single-item paragraph approach.

With the limitations of the paragraph approach, this study adopted eleven-item scale from Conant et al., (1990). In each question, four descriptions that represent the characteristics of each strategic type were presented to the respondents, and the respondents were asked to choose one of those four that best matched with their firm's characteristics. This self-reporting has been regarded as a suitable method to utilize when conducting research into strategy (Huber and Power, 1985; Snow and Hrebiniak, 1980). Firms were then classified into each Miles and Snow generic strategy based on the score that they received.

Success in Implementation

There are numerous approaches to defining success in strategy implementation. Many authors have equated implementation success with the accomplishment of certain results (Alexander, 1985; Harrison and Pellestier, 2000; Miller, 1997; Peters and Waterman, 1982). For instance, Alexander (1985, p. 94) defined the implementation success as "the extent to which the actual implementation: 1) achieved the expected goals of the strategic decision; 2)

achieved the financial results that were expected; and 3) was carried out within the various resources initially budgeted for it". This study follows the definition by Alexander (1985) which has been adopted in several subsequent studies (Al-Ghamadi, 1998; Kargar and Blumenthal, 1994; Taslak, 2004).

This measure seeks to assess the overall success of strategic implementation. The respondents were asked to evaluate the success in strategy implementation based on three criteria discussed earlier in this section, using the five-point Likert type scale which is ranging from 1 = highly unsuccessful to 5 = highly successful. The criterion to distinguish the higher and lower success of firms is based on the median score of these three objectives. Kargar and Blumenthal (1994) suggest that the firms that had a median score of 4 or 5 are classified as having higher success in implementation, whereas those who received 1 or 2 or 3 are considered as having lower success in implementation.

Firm performance

This measure aims to determine the firm performance in relation to others in the industry. Dess and Robinson (1984) argue that strategic management researchers regularly experience problems in obtaining objective data on the performance of firms. This leads to the popularity of subjective self-reporting. Most of the studies in this area prefer to operationalize the firm's performance by using subjective self-report (Conant et al., 1990; Dess and Robinson, 1984; Jennings et al., 2003; Smith et al., 1989) over objective data (Parnell and Wright, 1993). Dess and Robinson (1984) found that managers possess the ability to judge their firm's performance in relation to other competitors in the industry. In addition, Smith et al. (1989) found that the subjective evaluation correlates with the corresponding objective data. It was decided to employ subjective self-report and adopt four firm's performance criteria employed by Smith et al. (1989). The respondents were asked to rate their firm's performances relative to others in the industry on the five point interval scales (5 = top 20 percent, 4 = the upper 20-40 percent,

Table 1. Reliability statistics

Constructs	Cronbach's alpha	Number of items
Success in strategy implementation	.768	3
Firm performance	.902	4

Table 2. ANOVA results: subjective performance mean scores (Standard Deviations) between strategy and performance

Performance Dimensions	Prospector	Defender	Analyser	Reactor	F	p-value
Sales growth	3.84 (.688)	3.15 (.700)	3.36 (.931)	2.31 (.704)	11.699**	.000
Profits	3.42 (.838)	3.38 (.667)	3.31 (.822)	2.38 (.619)	8.056**	.000
ROA	3.47 (.722)	3.40 (.744)	3.22 (.681)	2.56 (.512)	6.396**	.001
Overall performance	3.68 (.671)	3.38 (.740)	3.28 (.659)	2.56 (.512)	8.581**	.000

Note**The results are highly significant at the 0.001 level

and so on). This instrument measures four aspects of firm performance which include: sales growth; profits; return on total assets; and overall performance.

This study ensures the content validity by taking all measures directly from previous research which has been tested and used in some previous studies. Thus, this questionnaire was constructed with an acceptable content validity. The reliability measured by Cronbach's alpha for success in strategy implementation and a firm's performance constructs are shown in Table 1 below. Both constructs reported the Cronbach's alpha of higher than 0.7 which complies with Nunnally's (1978) guideline.

Result and Discussion

Each of the items was first checked for skewness and kurtosis, and the presence of normality and outliers. In order to obtain a holistic picture of each of the variable, histograms and box plots were deemed appropriate. The histograms and box plots were visually examined. The data was thus normally distributed. In addition, the Durbin-Watson test was used to assess the assumption of independent errors of the data. A test value close to 2 indicates that the residuals are uncorrelated. Of 111 responses, 40 firms (36 percent) are classified as Defenders; 36 firms (32.4 percent) are Analyzers; 19 firms (17.1 percent) are Prospectors; and 16 firms (14.4 percent) are Reactors.

Hypothesis Testing Results

H1a : Prospectors, Defenders and Analyzers will perform equally

Table 2 presented mean score, standard deviation, and ANOVA test between Miles and Snow generic strategy and a firm's performance. Four performance measures including sales growth, profit, return on asset (ROA), and overall performance were employed in this study. The ANOVA test reveals whether each strategic type has the same level of firm performance or not. Specifically, ANOVA compares the mean scores of a firm's performance for each strategic type to determine if there are any differences in a firm's performance due to strategies.

Prospectors exhibited the highest mean scores in all performance measures, especially when sales growth was used as a performance measure. In contrast, Reactors exhibited the lowest mean scores in all performance measures. Defenders and Analyzers tended to have more or less the same performance scores. To test whether these four strategic types have the same or different levels of performance, the ANOVA test (F-statistic) was calculated.

The ANOVA test (F-statistic) indicated the significant results for all performance measures ($p < 0.05$). The significant F-statistic suggested that at least one of the strategic types exhibited a different level of firm performance. In other

Table 3. Results of Bivariate Regression Analysis

Independent Variable	Dependent Variable	Beta	t-Value	Sig T	R ²
Success in Implementation	Firm's Performance	.513**	6.234	.000	.256

Note**The results are highly significant at the 0.001 level.

Table 4. Two-way ANOVA test results

Source	F-test Sales growth	F-test Profit	F-test ROA	F-test Overall performance
Main effect:	6.368*	2.728*	2.826*	4.264*
Strategic type	(p=.004)	(p=.048)	(p=.042)	(p=.003)
Main effect:	8.684**	13.155**	9.010**	12.654**
Success in implementation	(p=.001)	(p=.000)	(p=.000)	(p=.001)
Interaction effect: Strategic type *	.535	1.952	1.591	1.525
Success in implementation	(p=.695)	(p=.126)	(p=.196)	(p=.212)

Note *The results are significant at the 0.05 level.

**The results are highly significant at the 0.001 level.

words, the different strategic types that firms pursued lead to different levels of a firm's performance. As ANOVA tests were significant for all four performance measures, to gain further information the *post-hoc* test was employed to produce multiple comparisons between each pair of strategic groups to reveal the orders.

The Scheffe *post-hoc* test indicated the insignificant differences in performance level of three strategic types: Prospectors, Analyzers and Defenders. When using sales growth as a performance measure, the Scheffe *post-hoc* test indicated that only Prospectors and Analyzers performed significantly higher than Defenders and Reactors. The insignificant level of performance difference was found for Prospectors and Analyzers. Even though the sales growths of Defenders were significantly lower than Prospectors and Analyzers, they exhibited significantly higher sales growth than Reactors.

H1b : Reactors will under-perform Prospectors, Defenders and Analyzers

The hypothesis 1b was strongly supported. The Scheffe *post-hoc* test revealed the significant lower level of performance for Reactors compared to Prospectors, Defenders, and Analyzers, in all performance measures at the 5 percent level of confidence. It was concluded that Reactors under-performed Prospectors, Defenders and Analyzers.

H2a : Success in strategy implementation is a significant predictor of a firm's performance

To test the predictive utility of success in strategy implementation with respect to a firm's performance, the univariate linear regression was conducted. The bivariate regression results from table 3 revealed that success in implemen-

tation was a significant predictor of firms' performance ($b = .513$, $t = 6.234$, $p < .05$), and it explained 25.6 % ($R^2 = .256$) of the variation in firms' performance. It was concluded that success in strategy implementation is a significant predictor of firm performance.

H2b : The influence of the strategic type on a firm's performance depends on the success in strategy implementation

The H2b hypothesis further investigated the relationship between strategic type and a firm's performance, previously tested in a prior section by adding success in strategy implementation as a contingent variable. The hypothesis stated that the influence of strategic type on a firm's performance depends on the success in implementation. In other words, the relationship between Miles and Snow strategic type and a firm's performance in research question one is altered by whether a firm reports success in strategy implementation.

Two-way ANOVA was employed to test these hypotheses. The tests were performed four times, corresponding to four performance measures. The median scores of success in strategy implementation were used to classify firms into two groups: firms that succeed in strategy implementation (median = 4 or more) and firms that do not succeed in strategy implementation (median = 3 or less). From Table III, the F-statistics of the interaction effect are relatively low for all performance measures. The non-significant effects were found regardless of which performance measures were used. Hence, the hypothesis H2b was rejected and it is concluded that the success in strategy implementation did not alter the relationship between

Miles and Snow strategic type and a firm's performance.

Conclusion

Two hypotheses regarding the relationship between Miles and Snow strategic type and firm performance were strongly supported. Overall, the results lend support to a number of prior studies (Garrigos-Simon et al., 2005; Jennings et al., 2003; Parnell and Wright, 1993; Smith et al., 1989; Thomas and Ramaswamy, 1996). In addition, the result of the first hypothesis was in line with the principle of equifinality and the concept of strategic fit. Unlike previous studies which were conducted in various Western countries, this study was conducted in the Eastern context of Thailand. This finding suggests that the relationship between Miles and Snow strategic type and a firm's performance may be universal, regardless of the location where the study is conducted. However, to confirm such a claim, more studies in some other countries are required.

There are two interesting points in the findings that should be further discussed. *First*, Prospectors did exhibit significantly better performance compared to Defenders when sales growth was used as a performance criteria. However, this is not a surprising result since Prospectors tend to engage with more entrepreneurial activities (Miles and Snow, 1978). *Second*, the findings contradict the conventional wisdom proposed by Porter (1980). Porter (1980) argues that firms must pursue a pure strategy to remain competitive in their respective markets. If firms pursue two distinct generic strategies at the same time, firms will find themselves 'struck in the middle', which result, in losing their competitive advantages. In this study, Analyzers, which is a hybrid strategy between Prospectors and Defenders, can achieve the same level of performance as Prospectors and Defenders. The finding from this empirical test confirms the importance of strategy implementation as suggested by the previous literature. Thus, firms can improve a great deal of their performance by placing more emphasis on strategy implementation.

When the success in strategy implementation was used as a contingent variable to test the relationship between strategic type and firm performance, the hypothesis was not supported. It indicated that the influence of strategic type on firm performance does not depend on the success in strategy implementation. This suggests that the relationship may not exist. Additional studies in other contexts are required before the conclusion can be made or confirmed. The influence of strategic type on the performance is weaker than the influence of success in strategy implementation. The finding is in line with Hatten et al. (2004) which found that the performance is more associated with strategy implementation than the Miles and Snow strategic type. The finding indicated that not only success in strategy implementation a significant predictor of a firm's performance, but also it has greater impact on a firm's performance than the Miles and Snow strategic type that a firm pursues. This finding reinforces the importance of strategy implementation in contributing to a firm's performance.

This study provides a number of business and research implications. In terms of the research implications, this research contributes to the relationship between Miles and Snow strategic type, implementation, and firm performance in the chemical industry in an Eastern context where the knowledge is lacking. In terms of implications for business, the findings reveal the desirable and undesirable strategies for the management of firms in the chemical industry in Thailand. The results also point out and confirm the role of implementation in helping firms to improve their bottom line

Future Research

More studies in other industries and other countries are required to reveal a clearer picture of the relationship. In addition, like most studies in this field, this study focuses on one particular industry. The relationship may be moderated by industry, specifically the industry cycle. For instance, Defender may be an appropriate strategy in sunset industries, while Prospector and Analyser may fit well with high growth,

dynamic industries. The future research may take this into account. The future research may consider using more specific barriers to implementations. It will enhance the usefulness of

the results in terms of business implication. The management can pinpoint the source of problem more correctly.

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