



Strategy, Choice of Performance Measures and Use of Performance Measurement Systems: Empirical Evidence from Thailand

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ABSTRACT

This paper examines how firms design and use performance measurement systems to support their strategy. In particular, the study investigates linkages between business strategy (i.e. cost leadership, differentiation and mixed strategy) and relative weights placed on different groups of performance measures and ways in which performance measurement systems are used (i.e. diagnostically or interactively). Drawing on data collected from 93 firms listed in the Stock Exchange of Thailand (SET) and Market for Alternative Investment (MAI), the study reveals that 46 out of 93 firms (49.46%) pursue mixed strategy. The results indicate that firms place an emphasis on strategy-consistent performance measures only to a certain extent. Overall, high emphasis is placed on financial and market and quality-related measures regardless of their strategy. With regard to the use of performance measurement systems, firms place greater emphasis on diagnostic use than on interactive use regardless of their strategy.

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INTRODUCTION

Performance measurement system (PMS) is one of the key tools which helps support strategic management process. When linked with strategy, PMS helps facilitate strategic implementation (Simons, 2014). PMS can be used to communicate strategy to organisational members. It helps monitor and control the implementation of strategic plans. It can also provide feedback on effectiveness of business strategy, enabling management to revise strategy (Adler, 2018; Melnyk et al., 2014). With crucial roles of PMSs in strategic management, relationships between PMSs and strategy have been extensively researched (see Chenhall, 2003; Dent, 1990; Ittner and Larcker, 1998, 2001; Langfield-Smith, 2007; Luft and Shields, 2003; Martyn et al., 2016; Otley, 2016, for a review). It has been argued that firms should design PMSs to suit firms' strategy in order to reinforce strategy-consistent behaviour (Lillis, 2002). Although management accounting and control studies have successfully established a link between strategy and PMSs, when operationalising strategy, most of the existing studies have tended to use strategic taxonomies which distinguish prospectors/defenders (Miles and Snow, 1978), differentiators/cost leaders (Porter, 1980), entrepreneurs/conservatives (Miller and Friesen, 1984) and build/harvest (Gupta and Govindarajan, 1984) and treat each pair as mutually exclusive. Limited research has examined PMSs in a context where joint or mixed strategies are pursued.

Empirical studies have shown an increasing number of firms pursuing multiple strategic priorities (Chenhall and Langfield-Smith, 1998; Dekker et al., 2013; Lillis, 2002; Lillis and van Veen-Dirks, 2008). Global competition has forced firms to choose a combination of strategies (Lillis and van Veen-Dirks, 2008). In order to balance cost, quality and flexibility strategies, it is important that firms develop the right infrastructure to support their multiple, potentially conflicting, strategic priorities (Murray, 1988). Despite an increasing number of firms pursuing mixed strategies, little empirical research has been conducted to understand performance measurement practices in mixed strategy settings. Lillis and van Veen-Dirks (2008) and Dekker et al (2013) are among few exceptions.

Lillis and van Veen-Dirks (2008) and Dekker et al (2013) use firms located in the Netherlands as their samples. Findings from their studies show that firms which pursue mixed strategies exhibit more complex and comprehensive PMSs. Although Lillis and van Veen-Dirks (2008) and Dekker et al (2013) have shed some lights on the design of PMSs in a mixed strategy context, limited, if any, attention is paid to how PMSs are used. Dekker et al (2013) address how PMSs are linked to incentive compensation, but issues of whether mixed strategy firms use information from PMSs diagnostically to control and correct deviations from pre-determined standards or interactively to stimulate search and foster learning (Simons, 1995) remain silent. Different ways in which PMSs are used by top management encourage different kinds of behaviour. Therefore, an examination of how information from PMSs are used is necessary.

In this paper, we extend Lillis and van Veen-Dirks (2008) and Dekker et al (2013) by investigating not only types of performance measures used in organisations which pursue cost leadership, differentiation and mixed strategies but also how PMSs are used (i.e. diagnostically or interactively) in each strategic setting. While both Lillis and van Veen-Dirks (2008) and Dekker et al (2013) focus on performance measures used to evaluate performance of managers, our study complements their studies by examining performance measures employed to monitor business performance. Key objective of the paper is to achieve an understanding of how PMSs are designed and used to manage business performance in different strategic settings, particularly in the context of mixed strategies.

The remainder of the paper is organised as follows. Next section reviews relevant literature; hypotheses are developed. Research method and measurement of key variables are, then, discussed. Next, empirical findings are presented and discussed. The final section offers conclusion, limitations and directions of future research.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Contingency-based research has a long tradition in management accounting and control research. It is based on a premise that "there is no universally appropriate accounting system which applies equally to all organisations in all circumstances. Rather, it is suggested that particular features of an appropriate accounting system will depend on the specific circumstances in which an organisation finds itself." (Otley, 1980, p. 413) One of the key

contextual variables which has received great attention is strategy (See Chenhall, 2003, Ittner and Larcker, 1998, 2001, Luft and Shields, 2003 for a review).

In prior accounting studies, several taxonomies for business strategy have been employed to examine relationship between business strategy and management accounting and control, including Miles and Snow's (1978) defenders and prospectors, Miller and Friesen's (1982) conservative and entrepreneurial, Gupta and Govindarajan's (1984) harvest and build and Porter's (1980) cost leadership and differentiation. Although a range of strategic taxonomies has been used, these strategic typologies are generally congruence (Auzair and Langfield-Smith, 2005). Defenders, conservatives, harvest and cost leaders can be seen to share some similar characteristics. Prospectors, entrepreneurs, build and differentiators are also considered possessing similar characteristics which differ significantly from defenders/ conservatives/ harvest/ cost leaders.

Traditionally, each pair of strategic taxonomy is treated as mutually exclusive. Organisations which pursue both cost leadership and differentiation strategies simultaneously are seen as being unfocused (Porter, 1980), and potentially having weaker performance. However, in a review of contingency-based management accounting and control literature, Chenhall (2003) questions whether the strategic typologies developed in the 1980s are still relevant in contemporary setting. In today's environment, he argues, most organisations need to be low cost producers and, at the same time, providing high quality products and/or services to customers in a timely and reliably manner. The pursuit of joint strategies is also observed empirically (Auzair and Langfield-Smith, 2005; Chenhall and Langfield-Smith, 1998; Dekker et al, 2013; de Harlez and Malagueño, 2016; Lillis, 2002; Lillis and van Veen Dirks, 2008).

Recognising the presence of the pursuit of mixed strategy, we do not assume *a priori* that firms pursue only one strategic priority at a given time. We also recognise that, for differentiation strategy, firms may develop their capabilities in various ways; therefore, there could be a diversity in strategic priorities relating to differentiation (Chenhall and Langfield-Smith, 1998). In this study, we draw on strategic priorities from the extant literature (Chenhall and Langfield-Smith, 1998; Dekker et al, 2013; Lillis, 2002; Lillis and van Veen Dirks, 2008) and identify strategic priorities relating to cost leadership and differentiation as follows:

Cost. This strategic priority focuses on efficiency and productivity of the operations process. Efficient use of resources in order to lower costs which will, in turn, enable the organisations to offer products and services to customers at low price is a major concern.

Customer. This strategic priority aims to offer high quality products and services. Reliable and on-time delivery is also a major concern. Often, products and services are customised to match customers' current needs. Besides, the emphasis is also placed on advertising, promotion and breadth of distribution channels.

Flexibility. This strategic priority focuses on developing new, innovative products and services to satisfy customers' needs. Emphasis is also placed on developing flexible operations process in order to enhance the ability to adapt or adjust swiftly when needed.

As we acknowledge that combining multiple strategic priorities can be a viable strategy, we classify plausible combinations of strategic priorities as follows: (1) cost leadership; (2) customer; (3) flexibility; (4) combination of customer and flexibility; (5) combination of cost leadership and customer; (6) combination of cost leadership and flexibility; and (7) combination of cost leadership, customer and flexibility. For firms focusing on cost as their strategic priority, we consider them as cost leadership archetype. As for firms placing an emphasis on customer, flexibility or a combination of both, they are differentiation archetype. And for firms pursuing a combination of cost leadership and customer, a combination of cost leadership and flexibility or a combination of cost leadership, customer and flexibility, they are mixed strategy firms. We, then, explore how PMSs are designed and used to support strategic management process in each of the seven strategic settings.

As for choice of performance measures, we draw on prior literature, academic and practitioner, to identify an extensive list of performance measures and cluster them into 7 groups, namely (1) financial and market, (2) efficiency, (3) cost and resource usage, (4) innovation, (5) quality, (6) managers and (7) employees (Baines and Langfield-Smith, 2003; Chenhall and Langfield-Smith, 1998; Dekker et al, 2013; Henri, 2006; Lillis, 2002; Lillis and van Veen Dirks, 2008).

Normative management accounting and control literature has argued that firms should adopt performance measures which are consistent with their strategic priorities to encourage strategy-consistent behaviour (Kaplan and Norton, 1992, 1996, 2001; Lynch and Cross, 1991; Neely and Adams, 2002). Economics-based agency models and informativeness theories also suggest that measures which carry incremental information on the

agent's actions should be included in performance evaluation. Financial measures alone are incomplete, and therefore, are unlikely to be the most effective ways to motivate employees (Feltham and Xie, 1994; Hemmer, 1996; Ittner et al., 2003). Leading indicators of future financial performance (i.e. measures which correspond directly to firm's strategic priorities) can provide incremental information on manager's actions. Based on these arguments, we expect that firms will place relatively high weight on these leading, strategically relevant performance measures.

In addition to performance measures directly correspond to strategic priorities, we also expect that firms pursuing differentiation and mixed strategies will place high emphasis on financial and market performance. A reliance on financial measures can help managers trade off among cost, revenue and profit consequences of differentiation activities and multiple strategic priorities (Chenhall, 2003; Chenhall and Langfield-Smith, 1998; Lillis and van Veen Dirks, 2008). Financial and market measures help managers control for excessive and costly differentiation (Lillis and van Veen Dirks, 2008). These arguments form the basis of the following hypotheses:

H1a: Firms place greater emphasis on group(s) of performance measures which directly correspond to their strategic priorities than on other groups of performance measures.

H1b: Firms pursuing differentiation and mixed strategies place greater emphasis on financial and market performance measures than on other groups of performance measures.

While appropriate design of PMSs is crucial in supporting strategic management process, ways in which PMSs are used by management is not less important. Information from PMSs can be used in different ways, and style in which PMSs are used can induce different kinds of behaviour (Bedfor et al., 2016; Guenther and Heinicke, Forthcoming; Simons, 2014). Simons (1995) proposes levers of control framework to explain how managers use management control to support strategic management process. Among the four levers of controls identified, two levers of controls – diagnostic and interactive control systems – are directly related to the ways in which management control systems, including PMSs, are used. Based on Simons' (1995) levers of control framework, when management controls are used diagnostically, managers will identify key performance variables, establish targets to be achieved, monitor actual performance against the pre-determined targets and correct deviations from the pre-determined goals. On the contrary, if management control systems are used interactively, managers will personally and continually engage in decisions and activities of subordinates. Information from management control systems will provide agendas for debates and stimulate learning and emergence of new ideas and strategies. Interactive use of management control systems encourages search beyond routine channels and, therefore, resulting in organisational learning, rather than control. Traditionally, PMSs were often considered diagnostic control systems. PMSs were seen to function as a feedback system, providing information on deviations between actual results and pre-determined goals which will, then, enable corrective actions to be undertaken. However, more recent literature has highlighted that PMSs can also be used interactively (De Harlez and Malagueño, 2016; Tuomela, 2005; Vaivio, 2004; Widener, 2007).

When relating business strategy to ways in which PMSs are used, for firms pursuing cost leadership strategy, they tend to emphasise standardised operations and have a good understanding of expected outcomes (or target); therefore, it is relatively easy for them to set goals, monitor results and detect deviations (Bedford, 2015; Bedford et al., 2016; Henri, 2006). This situation renders diagnostic use of PMSs possible. In addition, interactive use of PMSs can be costly and time-consuming, as it requires active and continuing attention from managers (Widener, 2007). When environment is relatively stable and diagnostic use of PMSs is sufficient like in a setting of cost leadership firms, we do not expect firms to use PMSs interactively. On the contrary, firms pursuing differentiation and mixed strategies are likely to face higher strategic risks and uncertainties. Identification of clear goals and targets becomes more difficult, and expected outcomes are not easy to measure. When facing various types of risks, interactive use of PMSs becomes effective (Bisbe and Otley, 2004; Simons, 1991). Although existing literature often tends to suggest that differentiation is associated with interactive PMSs, it should be noted that interactive and diagnostic use of PMSs are not mutually exclusive (Widener, 2007). As Simons (2000, p. 305) has argued, "the information and learning generated by interactive systems can be embedded in the strategies and goals that are monitored by diagnostic control systems." Based on these arguments, we form hypotheses as follows:

H2a: Firms which pursue cost leadership strategy place more emphasis on diagnostic use of PMSs than on interactive use

H2b: Firms which pursue differentiation strategy place an emphasis on both diagnostic and interactive use of PMSs

H2c: Firm which pursue mixed strategies place an emphasis on both diagnostic and interactive use of PMSs

RESEARCH METHOD

To conduct the study, we collected data using a mailed questionnaire survey administered to chief finance officers (CFOs) in Thai companies listed on the Stock Exchange of Thailand (SET) and Market for Alternative Investment (MAI). Before administering the survey, we modified the questionnaire based on the comments from two academics and two practitioners to ensure the understandability of the questionnaire. A questionnaire with a prepaid return-envelope was sent to CFO during July, 2016. A reminder, including the new questionnaire, was sent to the non-responding firms two months after the initial mailing. Noted that data used in this paper is part of a broader and larger-scale research project on strategic management and management accounting and control practices in Thai companies listed on SET and MAI.

Out of 651 firms, 119 questionnaires were returned (18.28%). One response has a lot of missing values; therefore, the final useable sample was 118 responses. As a check of non-response bias, we compared the mean of all variables between the first and last 20 responses; we find no statistically significant difference. Thus, it is reasonable to believe that non-response bias is not significant in the study.

In this study, the respondents were asked to indicate (1) the emphasis the company placed on the strategic priorities as compared to other companies in the industry, (2) the importance of the measures in evaluating business performance, (3) the ways in which PMSs are used and (4) the degree of environment uncertainty. Questions and measurement scales were adapted from prior studies as shown in Table 1. All variables were measured as the mean of all items. The reliability of all variables is acceptable since the Cronbach alpha of all variables are greater than 0.60 (Nunnally, 1978).

Table 1 Variable measurement

Variables	Adapted from	Number of items	Cronbach's alpha
Strategy Priorities			
Strategy_Customer	Dekker et al (2013); Chenhall and Langfield-Smith (1998)	9	0.802
Strategy_Flexibility	Dekker et al (2013); Chenhall and Langfield-Smith (1998)	3	0.740
Strategy_CostLeadership	Dekker et al (2013); Chenhall and Langfield-Smith (1998)	2	0.650
Groups of Performance Measures			
PM_MarketPerformance	Dekker et al (2013)	5	0.692
PM_Innovation	Dekker et al (2013)	3	0.826
PM_Efficiency	Dekker et al (2013)	2	0.710
PM_Costand ResourceUse	Dekker et al (2013)	4	0.802
PM_Quality	Dekker et al (2013)	7	0.883
PM_Manager	Dekker et al (2013)	2	0.934
PM_Employee	Dekker et al (2013)	5	0.886
Use of Performance Measurement System			
Diagnostic Use	Bedford and Malmi (2015)	5	0.873
Interactive Use	Bedford and Malmi (2015)	5	0.919
Control Variable			
Uncertainty	Dekker et al (2013); Tan and Litschert, (1994); Miller and Friesen (1982)	10	0.792

To identify the strategic type, we followed Lillis and van Veen-Dirks (2008). We dichotomised each of strategic priority variable at the mean, since this allowed us to separate firms into two groups: High and Low commitment to each strategic focus. After performing the mean-cut analysis, 25 firms are classified as no specific strategy due to low commitment to all strategic priorities. We ignored these 25 firms; therefore, only 93 firms are analysed in this study. Table 2 presents the evidence of firms pursuing the archetypal and mixed strategies.

Table 2 Classification of firms based on strategy types

Strategic priorities		Types of strategy	No. of firms	%
1	Cost	Archetypal cost	15	16.13
2	Customer	Archetypal differentiation	12	12.90
3	Flexibility	Archetypal differentiation	6	6.45
4	Combination of customer and flexibility	Archetypal differentiation	14	15.05
5	Combination of cost and customer	Mixed strategies	9	9.68
6	Combination of cost and flexibility	Mixed strategies	5	5.38
7	Combination of cost, customer and flexibility	Mixed strategies	32	34.41
Total			93	100.00

Regarding the group of performance measures, following Dekker et al (2013), 28 performance measures are classified into 7 groups: (1) financial and market; (2) efficiency; (3) cost and resource usage; (4) innovation; (5) quality; (6) managers and (7) employees. High (low) score represents that company places more (less) emphasis on that group of performance measures. The variable of PMS usage, following Bedford and Malmi (2015), represents the use of PMSs for diagnostic and interactive controls. High (low) score shows the greater (less) use of PMSs as part of diagnostic and interactive controls. The environment uncertainty is the control variable for the robustness test.

To assess the relative weights place on groups of performance measures and the use of the PMSs for diagnostic and interactive controls in each strategic setting, Paired Samples Tests were performed. Due to small sample size of each strategic group, the wilcoxon signed rank tests was employed.

RESULTS

Mean scores and standard deviations (in parentheses) for all variables for firms in each strategic setting are presented in Table 3. Preliminary analysis of the findings reveals that overall, firms tend to place highest emphasis on financial and market performance and quality related measures and lowest emphasis on innovation related measures. In addition, the diagnostic use of PMSs dominates in all strategic settings.

Table 3 Descriptive Statistics

Types of Strategy		All samples	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Type 7
Variables	No. of firms	118	15	12	6	14	9	5	32
<i>Groups of Performance Measures</i>									
PM_MarketPerformance	Mean	5.968	5.853	5.967	6.100	6.157	6.111	5.720	6.325
	SD	(0.704)	(630.0)	(0.531)	(0.603)	(0.550)	(0.449)	(0.923)	(0.462)
PM_Innovation	Mean	4.720	3.867	4.528	4.556	5.548	4.222	4.800	5.583
	SD	(1.175)	(1.006)	(0.915)	(0.720)	(0.723)	(1.404)	(0.650)	(0.872)
PM_Efficiency	Mean	5.140	4.967	5.083	4.583	6.036	4.722	5.300	5.719
	SD	(1.196)	(1.231)	(0.875)	(2.010)	(0.796)	(1.417)	(0.447)	(0.813)
PM_Cost and ResourceUse	Mean	5.408	5.167	5.333	4.875	5.911	5.764	000.5	5.977
	SD	(1.009)	(0.924)	(0.900)	(1.148)	(0.800)	(1.013)	(0.771)	(0.642)
PM_Quality	Mean	5.822	5.619	5.941	5.048	6.378	5.952	5.914	6.393
	SD	(0.966)	(1.017)	(0.996)	(0.836)	(0.515)	(0.923)	(0.359)	(0.587)
PM_Manager	Mean	5.322	4.833	5.375	5.167	5.679	6.056	4.800	6.000
	SD	(1.163)	(1.277)	(0.678)	(1.169)	(0.933)	(0.682)	(0.447)	(0.707)
PM_Employee	Mean	5.249	4.813	5.133	5.167	5.657	5.644	4.960	5.981
	SD	(1.034)	(1.165)	(0.783)	(0.625)	(0.695)	(1.126)	(0.573)	(0.680)
<i>Use of Performance Measurement Systems</i>									
Diagnostic Use	Mean	5.897	5.813	5.917	5.967	6.214	5.822	5.720	6.269
	SD	(0.817)	(0.691)	(0.629)	(0.612)	(0.625)	(1.168)	(1.222)	(0.563)
Interactive Use	Mean	5.324	4.920	5.367	5.167	5.671	5.622	5.120	5.938
	SD	(0.979)	(0.759)	(0.772)	(0.898)	(0.747)	(1.168)	(1.354)	(0.619)
<i>Control Variable</i>									
Uncertainty	Mean	4.633	4.160	4.425	4.920	4.707	4.400	4.760	5.244
	SD	(0.803)	(0.538)	(0.666)	(0.586)	(0.875)	(0.970)	(0.654)	(0.702)

Results of relative weights placed on groups of performance measures and use of PMSs are presented in Table 4.

Table 4 The Summary of Hypotheses and Research Results

H1a	Expectations	Results
Cost leadership strategy firms	Efficiency, cost and resource usage > Financial and market performance, quality, innovation, manager, and employee	Partially supported with the unexpected results for the use of financial and market performance measures. Efficiency, cost and resource usage > Innovation Efficiency, cost and resource usage < Financial and market performance (Efficiency, cost and resource usage = quality = manager = employee)
Customer strategy firms	Financial and market performance, quality, manager, and employee > Efficiency, cost and resource usage, and innovation	Partially supported. Financial and market performance, quality > Efficiency, cost and resource usage, innovation Managers, employees > Innovation (Manager, employee = efficiency = cost and resource usage)
Flexibility strategy firms	Financial and market performance, innovation, manager, and employee > Efficiency, cost and resource usage, and quality	Partially supported with the unexpected results for the use of Quality measures. Financial and market performance > Efficiency, cost and resource usage, quality Innovation < Quality (Innovation = efficiency = cost and resource usage) (Manager, employee = efficiency = cost and resource usage = quality)
Customer and flexibility strategy firms	Financial and market performance, innovation, quality, manager, and employee > Efficiency, cost and resource usage	Partially supported with the unexpected results for the use of Efficiency measures. Quality > Cost and resource usage Innovation < Efficiency (Financial and market performance, managers, employees = efficiency = cost and resource usage) (Innovation = cost and resources usage) (Quality = efficiency)
Cost leadership and customer strategy firms	Financial and market performance, efficiency, cost and resource usage, quality, manager, and employee > innovation	Partially supported. Financial and market performance, cost and resource usage, quality, managers, and employees > innovation (Efficiency = innovation)
Cost leadership and flexibility strategy firms	Financial and market performance, efficiency, cost and resource usage, innovation, managers, and employees > Quality	Not supported. Innovation, manager, and employee < Quality (Financial and market performance, efficiency, cost and resource usage = Quality)
Cost leadership, customer, and flexibility strategy firms	Financial and market performance = efficiency = cost and resource usage = innovation = quality = manager = employee	Partially supported with the unexpected results for Financial and market performance measures Financial and market performance = Quality Efficiency = Innovation Efficiency = Cost and resource usage = manager = employee Financial and market performance, Quality > Efficiency, cost and resource usage, innovation, manager, employee Cost and resource usage, manager, employee > Innovation
H1b	Expectations	Results
Archetypal Differentiation firms	Financial and market performance > Innovation, efficiency, cost and resource use, quality, manager and employee	Partially supported. Financial and market performance > Innovation, efficiency, cost and resource use, manager and employee (Financial and market performance = Quality)
Mixed strategy firms	Financial and market performance > Innovation, efficiency, cost and resource use, quality, manager and employee	Partially supported. Financial and market performance > Innovation, efficiency, cost and resource use, manager and employee (Financial and market performance = Quality)
H2a	Expectation	Results
Archetypal Cost leadership strategy firms	Diagnostic use > Interactive use	Supported. Diagnostic use > Interactive use
H2b	Expectation	Results
Archetypal Differentiation strategy firms	Diagnostic use = Interactive use	Not Supported. Diagnostic use > Interactive use
H2c	Expectation	Results
Mixed strategy firms	Diagnostic use = Interactive use	Not Supported. Diagnostic use > Interactive use

Table 4 shows that H1a and H1b are partially supported. Firms place great emphasis on strategy-consistent performance measures to certain extent. However, outcome/common measures (i.e. financial and market and quality-related measures) have tended to receive higher weights than input/unique measures (i.e. efficiency, innovation, manager and employee related measures) in all strategic settings. This is probably because, in general, firms tend to place more weights on output measures than on input ones (Ittner et al., 2003), especially when firms do not understand how the inputs become outputs (the transformation process) but have good indicators of result (Erin, 1990). Innovation related measures represent product-specific and firm-specific innovations that will be later introduced to customer or be implemented in the firm's operations. The group of quality measures reflects the consequence of product-specific and firm-specific innovations. Therefore, the innovation related measures are the input metrics, while quality related ones are output metrics. Or even in a

context where companies understand the transformation process and can assess the results of the process, they may still concentrate on output measures, since this approach gives managers the freedom to pursue innovative strategies – as long as they can produce results (Erin, 1990). These findings are in line with psychology-based studies which have argued that human information processing limitations often lead evaluators to place greater weight on outcome/lagging measures although the driver/leading measures might be more informative (Lipe and Salterio, 2000).

With regard to use of PMSs, firms place significantly higher emphasis on diagnostic use of PMSs than interactive use in all strategic settings. H2a is supported, since firms with archetypal cost leadership strategy place more emphasis on diagnostic use of PMSs than on interactive use as we have expected. However, H2b and H2c are not supported. The emphasis on diagnostic use of PMSs of archetypal differentiation and mixed strategy firms is contradictory to our expectation. It is plausible that these firms have mechanisms or systems other than PMSs, such as planning or cultural control systems, to stimulate discussion and enhance organisational learning when facing with strategic uncertainties. Informal channel could also be another way management and employees communicate and engage in discussion to stimulate search beyond regular channel. As interactive use of PMSs can consume significant amount of management time; therefore, management may choose not to use PMSs interactively if not imperative. Another plausible reason for firms placing greater emphasis on diagnostic use of PMSs could be relating to Thai culture. Thailand exhibits high degree of power distance (Hofstede, 1984). Confrontation meetings are unlikely to be effective in countries with a high uncertainty avoidance and high power distance (Jeager, 1986).

CONCLUSION, LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

The paper provides a comprehensive analysis of relative weights placed on different groups of performance measures and use of PMSs for diagnostic and interactive controls in archetypal cost leadership, archetypal differentiation and mixed strategy firms. Findings from the study suggest that firms place an emphasis on performance measures which are consistent with their strategy only to a certain extent. These findings are similar to findings from studies conducted in western countries. Regarding the use of PMSs, firms place a greater emphasis on diagnostic use of PMSs than interactive use regardless of their strategy. This differs from findings from studies conducted in western contexts which found that in certain strategic settings, firms place a greater emphasis on interactive use of PMSs.

The paper contributes to existing literature, especially contingency-based management accounting and control research in several respects. The prevalence of mixed strategy firms in our findings suggests that in contemporary environment, firms may need to balance multiple strategic priorities in order to maintain their competitive positions. This finding reinforces Chenhall's (2003) call for a re-examination of validity of strategic typologies often employed in contingency-based management accounting and control research which have often classified firms into one of the ends of the continuum of strategic typology. It also stresses the importance of understanding how firms design and use PMSs to support their multiple, potentially conflicting, business strategies.

The reliance on financial and market performance and quality related measures which dominates the research results also highlights that psychology-based explanations are not less important than economic-based explanations in understanding performance measurement practices. While psychology-based studies have often focused on performance evaluation at individual level, findings from this study suggest that psychology-based explanations also hold when examining choice of performance measures at corporate level.

The focus on diagnostic use of PMSs in all strategic settings suggests that other factors than strategy and strategic uncertainties play crucial roles in explaining styles in which PMSs are used. Although further research is required to achieve a better understanding of factors influencing diagnostic and interactive use of PMSs, findings from the study indicate that research results from western context may not be applicable to other contexts. This calls for further research on performance measurement practices of firms in non-western contexts.

As with any study, this study is subject to limitations, and results should be interpreted with care. Firstly, the sample sizes of the study are small; therefore, the nonparametric tests are employed. Nevertheless, the parametric tests provided qualitatively similar results. Secondly, strategy and performance measure variables were measured using the self-assessment approach. This may introduce bias in the variable measurement.

Thirdly, this study is constrained to Thailand, therefore, limiting the generalisability of the results. Finally, the study adopts a congruence form of fit (Gerdin and Greve, 2004). Performance consequences of a match or mismatch between strategy and PMSs were not examined. Further research could investigate whether firms with a better fit between strategy and PMSs exhibit superior performance. In addition, an in-depth, field-based research examining how PMSs, together with other management control systems, are used in different strategic settings could help enhance our understanding of diagnostic and interactive use of PMSs.

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