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

Wasatorn Shutibhinyo, Wila-sini Wongkaew[*]

Department of Accountancy, Faculty of Commerce and Accountancy, Chulalongkorn University, Thailand

Abstract

This paper examines how firms design and use performance measurement systems to support their strategy. In particular, the study investigate 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 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 of performance measurement systems than on interactive use regardless of their strategy.

Keywords: Performance measurement systems, diagnostic and interactive control, strategy, mixed strategy

1. INTRODUCTION

Performance measurement system (PMS) is one of the key tools which helps support strategic management process. With crucial roles of PMSs in strategic management, relationships between PMSs and strategy have been extensively researched (see Chenhall, 2003; Dent, 1990; Ittner & Larcker, 1998, 2001; Langfield-Smith, 2007; Luft & Shields, 2003). It has been argued that firms should design PMSs which 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 operationalizing strategy, most of the existing studies have tended to use strategic taxonomies which distinguish prospectors/defenders (Miles & Snow, 1978), differentiators/cost leaders (Porter, 1980), entrepreneurs/conservatives (Miller & Friesen, 1984) and build/harvest (Gupta & 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 & Langfield-Smith, 1998; Dekker, Groot, & Schoute, 2013; Lillis, 2002; Lillis & van Veen-Dirks, 2008). Global competition has forced firms to choose a combination of strategies (Lillis & 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

[*]Corresponding author. Tel.: +66-2218-5798-9; Fax: +66-2218-5798-9
E-mail: wilasini@cbs.chula.ac.th

practices in mixed strategy settings. Lillis & van Veen-Dirks (2008) and Dekker et al (2013) are among few exceptions.

Lillis & 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 & 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 & van Veen-Dirks (2008) and Dekker et al (2013) by investigating not only types of performance measures used in organizations 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 & 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 organized as follows. Next section reviews relevant literature; hypotheses are, then, developed. Research method and measurement of key variables are discussed in Section 3. Section 4 presents and discusses the empirical findings. Conclusion, limitations and directions of future research are offered in Section 5.

2. 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 orgnisations in all circumstances. Rather, it is suggested that particular features of an appropriate accounting system will depend on the specific circumstances in which an orgnisation finds itself." (Otley, 1980, p. 413) One of the key contextual variables which has received great attention is strategy (See Chenhall, 2003, Ittner & Larcker, 1998, 2001, Luft & 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 & Snow's (1978) defenders and prospectors, Miller & Friesen's (1982) conservative and entrepreneurial, Gupta & 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 & 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. Organizations 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 organizations 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 & Langfield-Smith, 2005; Chenhall & Langfield-Smith, 1998; Dekker et al, 2013; de Harlez & Malagueño, 2016; Lillis, 2002; Lillis & van Veen Dirks, 2008;).

Recognizing 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 recognize 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 & Langfield-Smith, 1998; Dekker et al, 2013; Lillis, 2002; Lillis & van Veen Dirks, 2008). In this study, we draw on strategic priorities from the extant literature 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 organizations 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 customized 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 setting.

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 & Langfield-Smith, 2003; Chenhall & Langfield-Smith, 1998; Dekker et al, 2013; Henri, 2006; Lillis, 2002; Lillis & 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 & Norton, 1992, 1996, 2001; Lynch & Cross, 1991; Neely & 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 & Xie, 1994; Hemmer, 1996; Ittner, Larcker, & Meyer, 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 & Langfield-Smith, 1998; Lillis & van Veen Dirks, 2008). Financial and market measures help managers control for excessive and costly differentiation (Lillis & 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 an emphasis on financial and market performance measures.

Detailed expectations of relative weight placed on different groups of performance measures for each strategic setting are presented together with empirical results in Table 4.

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. 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 organizational 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 & 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 emphasize standardized 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. 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 & 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

3.   RESEARCH METHOD

We collected data using a mailed questionnaire survey administered to chief finance officers (CFOs) in Thai companies listed on SET and MAI[1]. 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.

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 & Langfield-Smith (1998)	9	0.802
Strategy Flexibility	Dekker et al (2013); Chenhall & Langfield-Smith (1998)	3	0.740
Strategy Cost Leadership	Dekker et al (2013); Chenhall & Langfield-Smith (1998)	2	0.650
Groups of Performance Measures			
PM_Market Performance	Dekker et al (2013)	5	0.692
PM_Innovation	Dekker et al (2013)	3	0.826

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[1] 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 the SET and MAI.

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 & Malmi (2015)	5	0.873
Interactive Use	Bedford & Malmi (2015)	5	0.919
Control Variable			
Uncertainty	Dekker et al (2013); Tan & Litschert, (1994); Miller & Friesen (1982)	10	0.792

To identify the strategic type, we followed Lillis & van Veen-Dirks (2008). We dichotomized 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 analyzed 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 & 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 in each strategic setting, Paired Samples Tests were performed. Due to small sample size of each strategic group, we used the wilcoxon signed rank tests. The paired t-test was employed as the robustness test. In order to explore the use of the PMSs for diagnostic and interactive controls in each strategic setting, wilcoxon signed rank tests were performed. The paired t-test was employed as the robustness test.

4.   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
Groups of Performance Measures									
PM_MarketPerformance	Mean	5.968	5.853	5.967	6.100	6.157	6.111	5.720	6.325
	SD	(0.704)	(0.630)	(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 & ResourceUse	Mean	5.408	5.167	5.333	4.875	5.911	5.764	5.000	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)
Use of Performance Measurement System									
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)
Control Variable									
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)

Detailed analysis of relative weights placed on groups of performance measures and use of PMSs is presented in Table 4.

Table 4 :The Summary of Hypotheses and Research Results

H1	Expectations	Results
Cost leadership strategy firms	Efficiency, cost & resource usage > Financial & market performance, quality, innovation, managers, and employees	Partially supported with the unexpected results for the use of financial & market performance measures. Efficiency, cost & resource usage > Innovation Efficiency, cost & resource usage < financial & market performance
Customer strategy firms	Financial & market performance, quality, managers, and employees > Efficiency, cost & resource usage, and innovation	Partially supported. Financial & market performance, quality > Efficiency, cost & resource usage, and innovation Managers, and employees > Innovation
Flexibility strategy firms	Financial & market performance, innovation, managers, and employees > Efficiency, cost & resource usage, and quality	Partially supported with the unexpected results for the use of Quality measures. Financial & market performance > Efficiency, cost & resource usage, and quality Innovation < Quality
Customer and flexibility strategy firms	Financial & market performance, innovation, quality, managers, and employees > Efficiency, cost & resource usage	Partially supported with the unexpected results for the use of Efficiency measures. Quality > Cost & resource usage Innovation < Efficiency
Cost leadership and customer strategy firms	Financial & market performance, efficiency, cost & resource usage, quality, managers, and employees > innovation	Partially supported. Financial & market performance, cost & resource usage, quality, managers, and employees > innovation
Cost leadership and flexibility strategy firms	Financial & market performance, efficiency, cost & resource usage, innovation, managers, and employees > Quality	Not supported. Innovation, managers, and employees < quality
Cost leadership, customer, and flexibility strategy firms	Financial & market performance = efficiency= cost & resource usage= innovation = quality = managers= employees	Partially supported with the unexpected results for Financial & market performance measures Financial & market performance = quality Efficiency = cost & resource usage = managers = employees Financial & market performance > efficiency, cost & resource usage, innovation, managers, and employees
H2	Expectations	Results
Cost leadership strategy firms	Diagnostic use > Interactive use	Supported. Diagnostic use > Interactive use
Differentiation strategy firms	Diagnostic use =Interactive use	Not Supported. Diagnostic use > Interactive use
Mixed strategy firms	Diagnostic use =Interactive use	Not Supported. Diagnostic use > Interactive use

Table 4 shows that H1 is 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, Larcker, & Meyer, 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 & 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. 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 organizational 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).

5. 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 of firms in archetypal cost leadership, archetypal differentiation and mixed strategy firms. 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 end 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.

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 generalizability of the results. Finally, the study adopts a congruence form of fit (Gerdin & 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.

REFERENCES

Auzair, S. M., & Langfield-Smith, K. (2005). The effect of service process type, business strategy and life cycle stage on bureaucratic MCS in service organizations. *Management accounting research, 16*, 399-421.

Baines, A., & Langfield-Smith, K. (2003). Antecedents to management accounting change: A structural equation approach. *Accounting, organizations and society, 29*(3), 675-698.

Bedford, D. S., & Malmi, T. (2015). Configurations of control: An exploratory analysis. *Management accounting research, 27*, 2-26.

Bisbe, J., & Otley, D. T. (2004). The effects of the interactive use of management control systems on product innovation. *Accounting, organizations and society, 29*, 709-737.

Chenhall, R. H. (2003). Management control systems design within its organizational context: Findings from contingency-based research and directions for the future. *Accounting, organizations and society, 28*, 127-168.

Chenhall, R. H., & Langfield-Smith, K. (1998). The relationship between strategic priorities, management techniques and management accounting: An empirical investigation using a systems approach. *Accounting, organizations and society, 23*(3), 243-264.

de Harlez, Y., & Malagueño, R. (2016). Examining the joint effects of strategic priorities, use of management control systems, and personal background on hospital performance. *Management accounting research, 30*, 2-17.

Dekker, H. C., Groot, T., & Schoute, M. (2013). A balancing act? The implications of mixed strategies for performance measurement system design. *Journal of management accounting reserach, 25*, 71-98.

Dent, J. F. (1990). Strategy, organization and control: Some possibilities for accounting research. *Accounting, Organizations and Society, 15*(1/2), 3-25.

Erin, A. (1990). Two Firms, One Frontier: On Assessing Joint Venture Performance. *Sloan Management Review, 31*(2), 19-30.

Feltham, G., & Xie, J. (1994). Performance measure congruity and diversity in multi-taks principal/agent relations. *The accounting review, 69*(3), 429-453.

Gerdin, J., & Greve, J. (2004). Forms of contingency fit in management accounting research - A critical review. *Accounting, organizations and society, 29*, 303-326.

Gupta, A. K., & Govindarajan, V. (1984). Build, hold, harvest: Converting strategic intentions into reality. *Journal of business strategy, 4*, 34-47.

Hemmer, T. (1996). On the design and choice of "modern" management accounting measures. *Journal of Management Accounting Research, 8*(1), 87-116.

Henri, J.-F. (2006). Management control systems and strategy: A resource-based perspective. *Accounting, organizations and society, 31*, 529-558.

Ittner, C. D., & Larcker, D. F. (1998). Innovations in performance measurement: Trends and research implications. *Journal of management accounting research, 10*, 205-238.

Ittner, C. D., & Larcker, D. F. (2001). Assessing empirical research in managerial accounting: A value-based management perspective. *Journal of accounting and economics, 32*, 349-410.

Ittner, C. D., Larcker, D. F., & Meyer, M. W. (2003). Subjectivity and the weighting of performance measures: Evidence from a Balanced Scorecard. *The Accounting Review, 78*(3), 725-758.

Jeager, A. (1986). Organization development and national culture: Where's the fit? *Academy of Management Review, 11*(1), 178-190.

Kaplan, R. S., & Norton, D. P. (1992). The balanced scorecard - Measures that drive performance. *Harvard business review*(January-February), 71-79.

Kaplan, R. S., & Norton, D. P. (1996). *The balanced scorecard: Translating strategy into action.* Boston: Harvard Business School Press.

Kaplan, R. S., & Norton, D. P. (2001). *The strategy-focused organization: How balanced scorecard companies thrive in the new competitive environment.* Boston: Harvard Business School Press.

Langfield-Smith, K. (2007). A review of quantitative research in management control systems and strategy. In C. S. Chapman, A. G. Hopwood, & M. D. Shields, *Handbook of management accounting research* (pp. 753-783). Elsevier .

Lillis, A. M. (2002). Managing multiple dimensions of manufacturing performance - An exploratory study. *Accounting, organizations and society, 27*, 497-529.

Lillis, A. M., & van Veen-Dirks, P. M. (2008). Performance measurement system design in joint strategy settings. *Journal of management accounting research, 20*, 25-57.

Lipe, M. G., & Salterio, S. E. (2000). The Balanced Scorecard: Judgmental effects of common and unique performance measures. *The Accounting Review, 75*(3), 283-298.

Luft, J., & Shields, M. D. (2003). Mapping management accounting: Graphics and guidelines for theory-cosistent empirical research. *Accounting, organizations and society, 28*, 169-249.

Lynch, R. L., & Cross, K. F. (1991). *Measure up!: Yardsticks for continuouse improvement.* Blackwell.

Miles, R. W., & Snow, C. C. (1978). *Organizational strategy, structure, and process.* New York: McGraw Hill.

Miller, D., & Friesen, P. H. (1984). A longitudinal study of the corporate life cycle. *Management science, 30*(10), 1161-1183.

Murray, A. I. (1988). A contingency view of Porter's "generic strategies". *The academy of management review, 13*(3), 390-400.

Neely, A., & Adams, C. (2002). *Performance prism: The scorecard for measuring and managing stakeholder relationships.* Financial Times/Prentice Hall.

Nunnally, J. (1978). Psychometric Theory. In *Psychometric Theory.* New York, NY.: McGraw-Hill, .

Otley, D. T. (1980). The contingency theory of management accounting: Achievement and prognosis. *Accounting, organizations and society, 5*(4), 413-428.

Porter, M. E. (1980). *Competitive strategy.* New York: The Free Press.

Simons, R. (1991). Strategic orientation and top management attention to control systems. *Strategic management journal, 12*, 49-62.

Simons, R. (1995). *Levers of control.* Boston, MA: Harvard business school press.

Simons, R. (2000). *Performance measurement and control systems for implementing strategies.* Upper Saddle River: Prentice Hall.

Tan, J. J., & Litschert, R. J. (1994). Environment-strategy relationship and its performance implications: An empirical study of the Chinese electronics industry. *Strategic management journal, 15*, 1-20.

Tuomela, T.-S. (2005). The interplay of different levers of control: A case study of introducing a new performance measurement system. *Management accounting research, 16*, 293-320.

Vaivio, J. (2004). Mobilizing local knowledge with 'provocative' non-financial measures. *European Accounting Review, 13*(1), 39-71.

Widener, S. K. (2007). An empirical analysis of the levers of control framework. *Accounting, organizations and society, 32*, 757-788.