

AN EXPLORATORY STUDY OF BALANCED SCORECARD PRACTICES: PRELIMINARY EVIDENCE FROM THAILAND

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Abstract

This paper develops a framework for Balanced Scorecard (BSC) stage classification by considering the BSC attributes embedded in firm's performance measurement system. Employing this framework to explore the BSC application among Thai listed companies reveals that based on survey data, 69% are classified as BSC users. Compared to the self-assessed responses about BSC application, 38% misclassify themselves. This supports the different interpretations of BSC expressed in prior studies and highlights the importance of proper classification of BSC application before performing any determinant or consequence tests. The developed BSC framework can be applied to future research as researchers should consider BSC attributes, not firms' self assessed responses about BSC application, in order to mitigate the dissimilar interpretations of BSC concept. Additionally, exploring the BSC practices among Thai listed firms in all industries complements previous studies on BSC application mostly performed in specific industries in US and Europe.

Introduction

Nowadays, business environments have become increasingly competitive and dynamic. Executives should focus on business strategies and must have tools which provide useful information, both in terms of accounting data and related information regarding strategy and operations, in order to support their strategic decisions. This raises the important role of

accounting department and management accountants to provide such relevant information and to design the strategic performance measurement system to serve such need.

Balanced Scorecard (BSC) devised by Kaplan and Norton in 1992 is one of the most important developments in management accounting, particularly in strategic planning and control (Atkinson, *et al.*, 1997). It relates to the reform of the performance measurement system, one of the responsibilities of accountants.

Since its introduction and anecdotal cases of success, BSC has attracted considerable interest worldwide. The BSC adoption rates are increasing in many countries, including Thailand. Many studies have been conducted aiming to explore the BSC diffusion, to examine factors influencing BSC adoption or implementation, and to investigate the effects of BSC application. Unfortunately, prior studies provide mixed results regarding the determinants or consequences of BSC application. This is possibly due to the misunderstanding of the BSC concept and the ambiguous stages of BSC application.

As Kaplan (2010: 25) clearly stated that “Many academics, consultants, and managers... continues to think erroneously of the scorecard as a performance measurement system only. Their knowledge and acquaintance with the scorecard is probably based only on reading the original 1992 HBR article or the first half of the initial Balanced Scorecard book”. Thus, the misunderstanding of BSC concept definitely affects the research results, especially when the studies take firms’ responses about the BSC usage as given without providing a clear definition of BSC application. In other words, firms’ self-assessed responses about the BSC application are likely to bias the research results in the sense that firms may understand differently the BSC concept, resulting in dissimilar criteria used to judge to which stage of BSC application they belong.

Several studies use “Adoption” and “Implementation” interchangeably despite different meanings. In the two words following Roger (2003), “adoption” is a decision to make full use of an innovation as the best course of action available; “implementation” is all of the events, actions, and decisions involved in putting an innovation into use. Hence, BSC-

adoption firm is one at the stage of choosing to follow BSC idea, while BSC-implementation firm (or BSC user) is one at the stage of carrying out a practical means for accomplishing BSC usage. As a result, the stages of BSC application¹ cover Non-adoption, Adoption, and Implementation.

As BSC incorporates four BSC attributes (i.e., Translating strategy into operational terms, Aligning the organizational units to the strategy, Communicating strategy to employees, and Providing feedback and learning). It is not unusual that BSC firms have mixed combinations of BSC attributes. Therefore, some firms are partially-implemented BSC firms, while some are fully-implemented. This, perhaps, is one of the critical reasons for the mixed results of previous studies investigating the determinants and consequences of BSC application.

Overall, this raises the necessity of accurate determination of BSC application at the beginning of any BSC research projects. Researchers should care about the elements of BSC in order to properly identify the stages of BSC application, which consequently allows the researchers to appropriately investigate the extent of BSC usage, its determinants and consequences (Burkert, Davila and Oyon, 2010).

To date, little research has been published on strategic performance measurement systems, particularly BSC, in the context of Thailand. Most of Thai firms commonly use the performance measurement systems, but are not required to apply Balanced Scorecard. Thus, it is expected that certain companies possibly apply some or all elements of BSC either knowingly or unknowingly. Therefore, firms were asked about the characteristics of their performance measurement systems and management processes to reflect the BSC attributes placed in performance measurement systems. These embedded BSC attributes are consequently used for categorizing the stages of BSC application.

Therefore, the objectives of this study are to develop a framework of BSC application and to employ such framework to identify the BSC attributes applied by survey-responding firms, which are then used for classifying the stages of BSC application among those companies.

¹Given that the word “application” will be used to denote both “adoption” and “implementation” in this paper.

This paper contributes to the body of knowledge in the area of BSC by proposing conceptualization and operationalization of BSC framework which can be further used by both academics and practitioners. This paper also answers an interesting question about the rate of BSC application among Thai listed firms in order to complement the prior studies mostly conducted in the US and Europe.

This paper is divided into five sections. The first section is the introduction discussed earlier. The second section presents a brief literature review, followed by the research methodology explaining data collection and survey instrument. The fourth section shows the developed BSC framework, the results of the survey, and additional tests. The last section presents the conclusions and the discussion on contribution, limitations and suggestions for the future research.

Literature Review

This section briefly discusses the conceptual foundation of Balanced Scorecard and the stages of Balanced scorecard application.

The Balanced Scorecard and its Attributes

Kaplan and Norton had originally devised the Balanced Scorecard as the multi-dimensional performance measurement system with a collection of financial and nonfinancial measures (Kaplan and Norton, 1992). BSC is now transformed into a strategic performance measurement system as it is a strategic performance measurement system containing a set of integrated financial and nonfinancial performance measures that are explicitly linked to a firm's strategy. The cause-and-effect linkages among these measures can describe an organization's value-creating processes. It is used to align business activities to the vision and strategy of the organization, improve internal and external communications, and monitor organizational performance against strategic goals. (Kaplan and Norton, 1996; 2001; 2008).

The aforementioned definition of BSC highlights four BSC attributes: (1) Translating strategy into operational terms, (2) Aligning the organizational units to the strategy, (3) Communicating strategy to employees, and (4)

Providing feedback and learning. The explanations for each attribute are as follows:

Attribute 1: Translating Strategy into Operation Terms (Strategy)

This is a very crucial feature of BSC since it is a foundation of BSC and the other BSC attributes (i.e., Alignment, Communication, and Feedback) described later. With this characteristic, a firm can claim that it has implemented BSC. This key attribute includes all of the following sub-attributes:

- (1) Multiple perspectives: Grouping the measures into multiple dimensions allows a manager to look at the business concerning interrelated important perspectives. This also implies that the measures consist of both financial and nonfinancial (i.e., operational) ones along such multiple perspectives.
- (2) Measures derived from strategy: Measures should be linked to the organization's strategy so that a firm's strategy can be inferred by looking at its key measures. Hence, 'creating a Balanced Scorecard should not start with selecting metrics' (Kaplan, 2010, p.18), but with developing the strategy. This underscores the significance of well-defined strategy as a basis for deriving strategic measures.
- (3) Cause-and-effect relationships (or Causal links): The linkages among the strategic objectives or measures within and across perspectives can tell the business strategy or illustrate the value-creation process. This sub-attribute also makes the other three attributes work out easily.

All three aspects of translating strategy into operation terms help clarify and gain the consensus about the firm's strategy, while providing a base for the other three attributes.

Attribute 2: Aligning the Organizational Units to the Strategy (Alignment)

As an organization consists of various business units and support departments, it is important to align business units' and functional units'

strategies to the corporate-level strategy in order to generate the corporate synergy, which causes a collection of business units to create more value than if each unit operates autonomously.

*Attribute 3: Communicating Strategy to Employees
(Communication)*

The CEOs and executives cannot run the business by themselves. When the objectives or measures are consistent with the overall strategy, communicating and educating ensures that employees understand a firm's strategy and scorecard. This intrinsically and extrinsically motivates employees to perform their work in the ways that contribute to success of the strategy.

Attribute 4: Providing Feedback and Learning (Feedback)

Organizations should link strategy to the budgeting process by setting performance targets for the strategic measures and by screening the strategic initiatives for achieving such targets. In addition, to keep BSC in tune with external environment, a firm needs to consider whether or not its strategy is appropriate. This raises the importance of the feedback and learning process that enables the strategic refinements or makes strategy a continual process.

According to previous BSC research, most studies have not been concerned about all the above-mentioned BSC attributes. Some prior studies have focused only on sub-attribute(s) or a single attribute of BSC (e.g., Hoques and James, 2000; McWhorton, 2001; Gosselin, 2005; Abernethy, Horne, Lillis, Malina and Selto, 2005; Jusoh, 2007), while some have done on the various combinations of the BSC features (e.g., Lipe and Salterio, 2000; Malina, 2001; Malina and Selto, 2001; Bryant, Jones and Widener, 2004; Malina, Norreklit and Selto, 2007). Most research focuses more on attribute 1 (Translating strategy into operational terms) and 4 (Providing feedback and learning) than attribute 2 (Aligning the organizational units to the strategy) and 3 (Communicating strategy to employee).

Surprisingly, there is only one research study (De Geuser, Mooraj and Oyon, 2009) that refers to all four BSC features and test them separately; however, the authors focus only on BSC users to examine whether these

four features of BSC and top management support are the sources of BSC contributions. They find that attribute 1 (Strategy) and 4 (Feedback) seem to be the key sources of overall improvement; while attribute 2 (Alignment) and 3 (Communication) show marginal impact. Top management support do not influence any perceived organizational performance.

This current study has extended prior studies by examining all four BSC features in order to classify the different stages of BSC application. Firms with attribute 1 are considered as BSC-implemented firm, which can be reclassified as fully-implemented or partially-implemented firms, depending on the application of the other three BSC attributes. Specifically, the BSC-implemented firm with attribute 2, 3, and 4 will be classified as fully-implemented firm, while one with only certain attributes will be classified as partially-implemented firm.

The Stages of BSC Application

In order to identify the stages of BSC application, most prior studies have taken firm's self-assessed response as given. As mentioned earlier, the misunderstanding of BSC concept can bias the research results. To mitigate the different interpretation of BSC concept, researchers should ask the characteristics of a firm's performance measurement system that help reflect the BSC attributes embedded in its performance measurement system and allow researchers to classify the stages of BSC application without relying on the firm's self-assessed response.

This section presents (1) the prior studies that relied on the firm's response about the stage of BSC application, (2) the studies that relied on the firm's response about the characteristics of its performance, and (3) the classification framework developed in this study.

Relying on firm's response about BSC application

In order to explore the BSC practice among the targeted firms, most prior studies have taken firms' self-assessed response as given.

Some studies (e.g., Thinwilai, 2005) have asked firms to indicate whether or not they are BSC firms by asking only one YES/NO question. Several studies (e.g., Ittner, Larcker and Randell, 2003; Speckbacher, Bischof

and Pfeiffer, 2003; Assiri, Zairi and Eid, 2006; Chen, Duh and Lin, 2006; Jusoh, 2007; Yu, Perera and Crowne, 2008; Yongvanich and Guthrie, 2009) have usually required firms to specify the stage of BSC application. Then, researchers have assigned the responding firms as non-BSC or BSC users based on the selected stages. For example, Ittner et al.'s(2003) have classified the stages of BSC implementation into six stages, which are later used for assigning firms as non-BSC or BSC firms as follow:

Table 1: Ittner et al.'s (2003) Classification Framework

BSC Stages	Classification
(1) Not considered (2) Implemented and abandoned (3) Considering (4) Implementing now	Non-BSC firms
(5) Used (6) Used extensively	BSC firms

Firms are classified as Non-BSC firms if the firms' respondents identify that their firms are at the stage of (1) Not considered, (2) Implemented and abandoned, (3) Considering or (4) Implementing now. BSC firms are those at the stage of (1) used or (2) used extensively.

Very few studies (i.e., Speckbacher et al., 2003; Yongvanich and Guthrie, 2009) are in line with the above classification, but provide further valuable consideration. Specifically, the BSC attributes are additionally considered for firms that initially respond that they are at the stages of BSC usage (or BSC users).

For example, Speckbacher et al., (2003) have classified the stages of BSC implementation into seven stages and have consequently assigned firms as non-BSC or BSC following firms' selected stages. Subsequently, BSC firms are classified into three types of BSC regarding the applied attributes of BSC.

Table 2: Speckbacher et al.'s (2003) Classification Framework

BSC Stages	Classification	Criteria
(1) No contact with BSC thus far (2) Know BSC (3) Studied BSC, but no concrete steps taken (4) First steps already taken (5) BSC project has existed	Non-BSC firms	
(6) BSC implemented in individual business units (7) BSC implemented for entire company	BSC firms Type 1 Type 2 Type 3	(1) Identify strategic measures or objectives (2) Group strategic measures or objectives into perspectives Type 1 with the following criterion: (3) Employ cause-and-effect chains Type 2 with some or all of the following criteria: (4) Contain action plans/target (5) Link Measures to incentives

Responding firms were classified as Non-BSC firms if they specify that they are at the stage of (1) No contact with BSC thus far, (2) Know BSC, (3) Studied BSC, but no concrete steps taken, (4) First steps already taken or (5) BSC project has existed. Whereas, firms at the stage of (1) BSC implemented in individual business units or (2) BSC implemented for entire company are considered as BSC firms. The BSC firms are then analyzed to establish whether or not they have the following BSC attributes – (1) Identify strategic measures or objectives, (2) Group strategic measures or objectives into perspectives, (3) Employ cause-and-effect chains, (4) Contain action plans/target and (5) Link Measures to incentives. This allows researchers to re-categorize these BSC firms into three groups regarding criteria mentioned in Table 2.

BSC firms with strategic measures grouped into perspectives are initially classified as Type I BSC users. If Type I firms have cause-and-effect chains, they are considered as Type II users. Finally, Type II users with action plans/target and/or incentive linked measures will be perceived as Type III firms.

Regarding conceptual foundation of BSC and the stages of application based on Roger (2003), the key feature of BSC is translating strategy into operational terms: deriving measures from strategy, grouping those measures into multiple perspectives and illustrating the value-creation process through causal links. Hence, only Type II and III BSC firms should be considered as BSC implemented firms (or BSC users). Whereas, Type I firms are those at the adoption stage.

Furthermore, Speckbacher et al. (2003) have not studied all four attributes of BSC; Yongvanich and Guthrie (2009) have done so but have not investigated those attributes separately.

At this point, it is crucial to call attention to the important concern – different interpretations of BSC that are increasingly expressed in prior studies. Particularly, some academics and practitioners may consider BSC as a performance measurement system since their knowledge about BSC is based only on the original 1992 BSC article, which is only one part of the current BSC concept (Kaplan, 2010).

As aforementioned, dissimilar interpretations (or misunderstanding) of BSC concept can affect the firm's self-assessed response about the BSC application and, subsequently, bias the research results. Specifically, firms with similar BSC attributes may specify the BSC stage differently. Firms with some BSC attributes² possibly perceive that they are not qualified enough to claim that they are BSC users. They probably select the stage of "implementing now" or "first step has been taken." Hence, researchers in this case classify these firms as Non-BSC users despite the fact that they are. In contrast, firms without BSC attributes³ may believe that they are

²For example, firms with performance measurement systems containing strategic financial and non-financial measures that can be illustrated as cause-and-effect relationships across multiple perspectives; however, the other three attributes have not been implemented.

³For example, firms with performance measurement systems containing strategic financial and non-financial measures that cannot be illustrated in causal chains

BSC users as the BSC has been initiated in their firms. Therefore, they may respond to the questionnaire by selecting the stage of BSC usage. This definitely affects the classification of BSC application and subsequently distorts the research results.

In order to mitigate the misunderstanding of BSC concept, the researchers should require respondents to identify the characteristics of their firms' performance measurement system, not to straightforwardly indicate the stage of BSC application. These features mirror the BSC attributes embedded in a firm's performance measurement system. That is, the characteristics of a firm's performance measurement system reflecting the BSC attributes should be considered to identify the stage of BSC application for each responding firm.

Relying on firm's responses about the characteristics of its performance measurement system

Only a few studies (e.g., Soderberg, 2006) have classified the BSC application considering the characteristics of performance measurement systems (PMS) at the business unit level. Specifically, the structure and the use of current performance measurement system are employed to categorize units as BSC or non-BSC without asking whether or not they are BSC users.

Specifically, responding business units were initially classified as BSC users at level 1 if they have Strategy attribute (i.e., its business unit strategy is well defined and the performance measures are derived from such strategy). The BSC level 1 users are then analyzed to establish whether or not they have the following BSC attributes: Balance (PMS contained financial and nonfinancial measures and PMS contained driver (leading) and outcome (lagging) measures), Causal links (PMS has measures that are linked through driver-outcome relationships and business unit understand the potential driver-outcome relationship among individual measures), Double loop learning (Deviation from expected or planned results causes the business unit's management to question the unit's business strategy), and Tie to compensation (Business unit use the PMS to compensate/reward some or all of unit's employees). This allows researchers to re-categorize these BSC units into different stages regarding the criteria mentioned in Table 3. Note that firms that have not met any of the requirements are classified as non-BSC users.

Table 3: Soderberg's (2006) Classification Framework

Classification	BSC Level	Attribute	Criteria
Non-BSC users			No criterion is met.
BSC users	1	Derived from strategy	(1) Business unit strategy is well defined. (2) Performance measures are derived from such strategy.
	2a ⁴	Strategy+ Balance	BSC level 1 with the following criteria (1) PMS contained financial and nonfinancial measures. (2) PMS contained driver (leading) and outcome (lagging) measures.
	2b	Strategy+ Causal links	BSC level 1 with the following criteria (1) PMS has measures that are linked through driver-outcome relationships. (2) Business unit understand the potential driver-outcome relationship among individual measures.
BSC users	3 ⁵	Strategy+ Balance+ Causal links	Level 2a with Causal links, or Level 2b with Balance
	4 ⁶		Level 3 with some or all following criteria
		Double Loop Learning	(1) Deviation from expected or planned results causes the business unit's management to question the unit's business strategy.
		Tied to Compensation	(2) Business unit use the PMS to compensate/reward some or all of unit's employees

⁴This level 2a is consistent with the Speckbacher et al.'s (2003) Type 1 BSC plus a well-defined strategy.

⁵This level 3 is consistent with the Speckbacher et al.'s (2003) Type 2 BSC plus a well-defined strategy.

⁶This level 4 is partially consistent with the Speckbacher et al.'s (2003) Type 3 BSC.

Level 1, 2a, 2b, and 3 are consistent with attribute 1 (Strategy). Level 4 combines attribute 3 (Communication) and 4 (Feedback). However, attribute 2 (Alignment) has not been considered.

Based on the key features of BSC, business units at level 3 and 4 should be categorized as business units at implementation stage (BSC users); however, those at level 1, 2a and 2b should be done as those at adoption stage.

In line with Soderberg's (2006) classification of BSC attributes, this present study mitigates the interpretation problem by requiring respondents to identify the characteristics of their firms' performance measurement systems, not to straightforwardly indicate the stage of BSC application.

However, Soderberg's (2006) have not considered all attributes of BSC. Thus, this current study has extended prior research by developing the BSC classification framework considering all four attributes of BSC with the assumption that a firm's responses about its characteristics of performance measurement system can reflect its actual practice. The BSC attributes applied and specified by responding firms allow this paper to classify firms into different stages of BSC application – nonadoption, adoption, and implementation.

Furthermore, the results of this current study should complement those of prior studies mainly conducted among large firms in specific industries in the US and Europe.

The developed systematic framework of BSC considering four attributes of BSC as the necessary criteria to indicate the stage of BSC application for each responding firm is discussed in the next section.

The Developed Classification of BSC Stages in This Study

Based on the conceptual foundation of BSC, the comprehensive framework for classifying the stage of BSC application along with the BSC attributes are proposed in Table 4.

Table 4: The Developed Framework for Classifying the Stages of BSC Application

BSC Stages	Conditions
Non-Adoption	No any criterion is met.
Adoption	Adoption firm = Firm with the following criteria: (1) Financial and non-financial measures (2) Grouped into perspectives
Implementation ⁷	Implementation firm = Adoption firm with the following sub-attributes to satisfy Attribute 1: Translating strategy into operational terms (1) Well-defined strategy (2) Strategic objectives or measures (3) Cause-and-effect relationship Firms at this stage are classified as BSC firms, which can be re-classified as partial- or fully-implemented BSC firms:
Implementation	Partial ⁸ BSC firms that have applied some of the following attributes: Attribute 2: Aligning the organizational units to the strategy (1) Aligning business units' or support functions' strategies to firm's strategy (2) Disseminating objectives or measures throughout the company Attribute 3: Communicating strategy to employees (1) Communicating vision, mission, and strategy throughout the company (2) Understanding firm's strategy (3) Linking measures to reward system Attribute 4: Providing feedback and learning (1) Linking strategy to operating plan and budgeting systems (2) Information system for strategy review (3) Process for formulating, learning, and reviewing strategy (4) Process for questioning and refining strategy
	Full BSC firms that have applied all of the above.

⁷This stage is consistent with the Speckbacher et al.'s (2003) Type 2 BSC plus a well-defined strategy and the Soderberg's (2006) Level 3 BSC.

⁸This stage covers the Speckbacher et al.'s (2003) Type 3 BSC plus a well-defined strategy and the Soderberg's (2006) Level 4 BSC.

As previously discussed, the BSC stages are determined by the BSC attributes applied in firms' performance measurement systems. Particularly, firms that have met the first two criteria (i.e., firms with financial and nonfinancial measures grouped into multiple dimensions) are classified as BSC-adoption firms; otherwise, they are Non-adoption ones.

Consequently, if BSC adoption firms have (1) Well-defined strategy, (2) Strategic objectives or measures, and (3) Cause-and-effect relationships, they are categorized as BSC-implementation firms. This is due to the fact that all conditions for the attribute 1 are satisfied. As the attribute 1 is the key feature of BSC, firms that have translated strategy into operational terms should be labeled as BSC-implemented firms, regardless of the existence of other three attributes.

Finally, if BSC-implementation firms have all BSC attributes, they are considered as fully-implemented BSC firms. If not, they are perceived as partially-implemented ones.

Research Methodology

This study explores BSC application among listed firms in Thailand by employing a mail-survey. Data collection and survey instrument are discussed in this section.

Data Collection

Samples in this cross-sectional survey research are 508 firms listed in the Stock Exchange of Thailand (SET) and Market for Alternative Investment (MAI). Based on a total of 73 responses (14.37 percent response rate), five have incomplete data; hence, 68 responses were used for the data analysis. This low response rate is not unusual for the mail-survey in Thailand (Pholnaruksa, 2007). Table 5 presents the industries of the responding firms in comparison with targeted firms.

Table 5: The Targeted and the Responding Firms

Industry		Targeted firms		Responding firms	
		No. of firms	Proportion	No. of firms	Proportion
SET	Financials	57	11%	11	15%
	Agribusiness & Food	41	8%	5	7%
	Consumer Products	40	8%	4	5%
	Industrials	78	15%	10	14%
	Property & Construction	79	16%	14	19%
	Resources	25	5%	5	7%
	Services	84	17%	12	17%
	Technology	38	7%	4	5%
MAI		66	13%	8	11%
Total		508	100%	73	100%

Survey Instrument

A survey package (a questionnaire with cover letter and a postage-paid, self-addressed envelope) was mailed out to CFOs in May and June, 2011. The questionnaire was firstly developed based on the BSC framework developed and proposed in Table 4 in this study. Consequently, the questionnaire is revised based on the pre-tested results and comments from academics and the CFOs' of the pre-test firms. Respondents were assured that their anonymity would be preserved.

There are three sections in a questionnaire. Section 1 requires respondents to answer the YES/NO questions to indicate the characteristics of the performance measurement systems and management processes in their organizations. Section 2 requires respondents to answer the YES/NO questions to identify whether the firm is BSC user, or not. Section 3 requires the respondents to specify the percentage ranging 0-100 about BSC attributes.

Data from section 1 and 3 allow researchers to identify the BSC attributes embedded in performance measurement system and to specify the stage of BSC application of responding firm. That is, data from section 1 and 3 help identify the stage of BSC application of responding firm based on

the classification framework developed in this study. Data from section 2 show the classification of BSC application (i.e., BSC users, non-BSC users) based on self-assessed response. Thus, this allows researchers to compare the classification of BSC application based on the developed framework and that based on self-assessed response. Logically, the extent that the BSC application classified by the developed framework disagrees with that by self-assessed response reflects the misunderstanding of the BSC concept. That is, if the BSC application classified by the developed framework agrees with that by the self-assessed response, such a responding firm has classified itself correctly. However, if the BSC application classified by the developed framework disagrees with that by self-assessed response, such a responding firm has misclassified itself.

The details of each section are as follows:

Section 1: The first part requires respondents to answer the YES/NO questions to indicate the characteristics of the performance measurement systems and management processes in their organizations. Specifically, these responses reflect the BSC attributes embedded in the firms' performance measurement systems as follows:

Attribute 1 (Strategy):

- (1.1) using financial and non-financial measures (1 sub-question),
- (1.2) grouping measures into multiple perspectives (1 sub-question),
- (1.3) translating strategy into operational terms (4 sub-questions),

Attribute 2 (Alignment):

- (2) aligning the organizational units to the strategy (2 sub-questions),

Attribute 3 (Communication):

- (3) communicating strategy to employees (3 sub-questions), and

Attribute 4 (Feedback):

- (4) providing feedback and learning (4 sub-questions).

A firm is considered to have has a particular attribute in its performance measurement system if the responses for all sub-questions under such attribute are YES.

Attributes 1.1 and 1.2 are the criteria for categorizing firms into firms at non-adoption or adoption stage. If attributes 1.1 and 1.2 are met, such responding firms are initially classified as firms at adoption stage (BSC-adoption firms).

Attribute 1.3 is a criterion for determining whether BSC-adoption firms can be classified as BSC implemented firms. If attribute 1.3 are met, such BSC-adoption firms are then classified as firms at the implementation stage.

The last three attributes (attributes 2, 3, and 4) are conditions for categorizing BSC-implemented firms into partially-implemented or fully-implemented ones. If BSC-implemented firms have attributes 2, 3, and 4, they are classified as fully-implemented firms

Thus, the BSC application mainly consists of four stages – Nonadoption, Adoption, Partial implementation, and Full implementation.

Section 2: The self-assessment about BSC application is in the second part. This allows the researcher to examine the different interpretations of BSC by investigating whether the stages of BSC application responded by firms differ from those determined by the BSC framework proposed in this study.

Section 3: The respondents are also required to specify the degree of agreement in percentage⁹ for the additional 24 questions related to BSC attributes. Each of the first two sub-attributes has one question. The remainder has six, four, four and eight questions, respectively. These percentage responses are used in validating the appropriateness of classifying BSC attributes based on YES/NO responses discussed later.

Findings

The Survey Results

Based on the proposed framework, the BSC attributes applied in the firms' performance measurement systems are indicated. Afterward, the BSC application among responding firms are classified as follows:

⁹The percentage degree of agreement ranges from 0-100% and is divided into five columns: Least (0-20%), Little (21-40%), Average (41-60%), Some (61-80%), and Most (81-100%).

Table 6: The Survey Results

Stages of BSC application	Classified by BSC attributes	
	Number of firms	Proportion
Non-Adoption	6	9%
Adoption	15	22%
Partial Implementation	12	18%
Full Implementation	35	51%
Firms without missing data	68	100%
Firms with missing data	5	
Total	73	

BSC-Adoption firm

An organization with a collection of financial and nonfinancial measures (attribute 1.1) that are grouped into perspectives (attribute 1.2) is considered to be a BSC-adoption firm since it is at the stage of choosing to follow BSC idea, which has these two conditions as the basic criteria. A firm not meeting all of these two conditions is classified as a non-adoption one.

Of the 68 useable observations, 62 answered YES to both questions (i.e., Financial and non-financial measures (attribute 1.1) and Grouped into perspectives (attribute 1.2)). At least, they could be classified as BSC-adoption firms. However, the performance measurement systems of some firms contain additional attributes of BSC. This means that some firms could be classified as BSC-implementation firms; some could not.

BSC-Implementation firm

The performance measurement systems of 47 BSC-adoption firms meet the strategy requirement: the strategy is well-defined and the measures are derived from strategy as well as can be shown as a causal chain to illustrate the value-creation process. These sub-attributes are the key important features of BSC in translating strategy into operational terms. Thus, these 47 firms are classified as BSC-implemented firms. The remaining 15 firms are still at the BSC-adoption stage since some conditions are not met.

Consequently, the other BSC attributes for BSC-implemented firms are examined. Thirty five firms are considered as fully-implemented BSC firms since all of the conditions for alignment, communication and feedback are

met. The rest (12 firms) are classified as partially-implemented BSC firms as they have only certain attributes of BSC.

The Misclassification of BSC Concept

As mentioned earlier, relying on the self-assessed responses can bias the research results since firms may dissimilarly interpret the BSC concept and, subsequently, differently classify themselves. The evidence of misclassification highlights the importance of accurate classification of BSC application at the first step of any determinant and consequence study. The stages of BSC application classified by BSC attributes proposed in this paper in comparison with those classified by self-assessed responses are as follows:

Table 7: The Comparison of the Classification Based on the Proposed Framework and on Self-Assessed Responses.

Stages of BSC application	Classified by BSC attributes	Classified by Self-assessed responses	
	Number of firms	BSC	Non- BSC
Non-Adoption	6	1	5
Adoption	15	4	10
Partial Implementation	12	11	2
Full Implementation	<u>35</u>	<u>16</u>	<u>19</u>
Firms without missing data	<u>68</u>	<u>32</u>	<u>36</u>
Firms with missing data	5	2	3
Total	<u>73</u>	<u>34</u>	<u>39</u>

This empirical result is not surprising since many academics have expressed their concerns about various definitions of BSC concept (e.g., Malmi, 2001; Ittner et al., 2003; Kaplan, 2010).

One out of six firms claims to be a BSC user despite the fact that it is only at the non-adoption stage. It is found that this firm has just started the BSC project. Four out of fifteen firms claims to be BSC users despite the fact that they are only at the adoption stage. One firm does not have even a well-defined strategy; while, one has just started the BSC project for six months and then rejected it; its measures are not linked to its firm's

strategy. The other two firms do not have a causal-link among the strategic objectives or measures.

Regarding firms with BSC implementation, only 2 out of 12 partially-implemented firms and 19 out of 35 fully-implemented firms misclassified themselves. These firms have unknowingly implemented the BSC. Anecdotal evidence from the interview reveals that top management encourages developing a firm's performance measurement system containing a set of integrated financial and nonfinancial performance measures that are explicitly linked to its strategy. The causal links describe an organization's value-creating processes. Top management believes that this system aligns business activities to the vision and strategy of the organization, improves internal and external communications, and monitors organizational performance against strategic goals. Noticeably, the BSC has been implemented unintentionally.

Overall, the misclassification rate is 38% (26 out of 68 firms). Although 62% of responding firms can correctly classify themselves, this empirical evidence presents the interpretation issue that should be mitigated. Inaccurate classification of BSC application can misrepresent the research results and mislead the implication for practices.

Additional Test: Test for Validity of Classifying BSC Attributes From Yes/No Responses

As aforementioned, this paper identifies the BSC attributes from YES/NO responses (Data in section 1 in the questionnaire). One may cast doubt that firms with YES (NO) responses do (not) have such practices in their organizations. Although the actual practices cannot be observed, the respondents are required to specify the degree of agreement in percentage (0-100%) for 24 statements to reflect the degree of BSC attributes¹⁰ embedded in their firms' performance measurement systems in section 3 in the questionnaire.

¹⁰Based on the untabulated results, a reliability check on each attribute produces cronbach's alpha values above the lower limits of normal acceptable value (Nunnally and Bernstein, 1994), confirming the reliability of all constructed variables.

Logically, firms that respond YES (NO) in the YES/NO questions should exhibit high (low) percentage scores. Firms with a particular BSC attribute identified by YES/NO responses should have higher percentage scores for such attribute than those without.

The following tests are performed to test whether the classification of BSC attributes by relying on YES/NO responses is valid.

Test for mean comparison

As mentioned earlier, the mean percentage score of YES-response firms should be significantly greater than that of NO-response firms, regarding each attribute. The t-Tests for equality of means and Mann-Whitney tests¹¹, for each attribute, show that the mean percentage response of YES-response firms (YES-firms) is greater than that of NO-response firms (No-firms) at 0.05 significance level. Hence, the YES/NO responses can be employed to classify the BSC attribute and, subsequently, the stage of BSC application.

Test for 60-percent cutoff point

For each attribute, the mean percentage score of YES-firms is examined whether it is greater than 60 percent. This cutoff-point¹² is qualitatively similar to the cutoff-point used in Soderberg (2006). Although the use of each BSC attribute can be classified by relying on YES/NO responses, this additional test is still necessary due to the fact that Yes/No responses are missing for some observations. More importantly, the results from this analysis provide the valid cut-off point for percentage responses, which can be used for future research. The untabulated results show that, for each attribute, the mean percentage score for YES-firm is significantly greater than 60 percent at 0.05 significance level. Hence, the 60-percent can be applied as a cutoff point for every BSC attribute. Firms with greater-than-60% average response of particular attributes will be considered as firms with such attributes.

¹¹When the normality assumption for t-Test is violated, we employ nonparametric Mann-Whitney test.

¹²This 60-percent cutoff point is the upper (lower) limit of percentage in the “average” (“some”) column.

Agreement test

The above two additional tests show that the attribute classification using YES/NO responses and that using 60-percent cutoff point are valid. However, one may question whether these two classification methods provide the similar results. If both methods can similarly identify the attributes, when the YES/NO response is this missing, researcher can employ the 60-percent cutoff point instead. Therefore, a test for agreement between the attribute classification using YES/NO responses and that using 60-percent cutoff point has been performed (i.e., YES/NO method VS 60-percent-cutoff-point method). The untabulated Kappa test results show that the agreement between these two methods of attribute classification is statistically significant at 0.05 significance level, except for one sub-attribute (i.e., well-defined strategy) at 0.10 level. The rate of agreement is over 70 percent. Thus, these two methods provide significantly similar results.

The results from three tests support the identification of BSC attributes, for each responding firm, by considering YES/NO responses. If the YES/NO responses are missing, the 60% cutoff point can be employed to identify the use of each BSC attribute.

Table 8: The Revised Results of Survey

Stages of BSC applicationc	Classified by BSC attributes			Classified by Self-assessed responses	
	Yes/No	%	Total	BSC	Non- BSC
Non-Adoption	6		6	1	5
Adoption	15	1	16	4	11
Partial Implementation	12		12	11	2
Full Implementation	<u>35</u>	<u>3</u>	<u>38</u>	<u>17</u>	<u>21</u>
Firms without missing data	<u>68</u>	<u>4</u>	<u>72</u>	<u>33</u>	<u>39</u>
Firms with missing data	5	(4)	1	1	0
Total	<u>73</u>		<u>73</u>	<u>34</u>	<u>39</u>

Hence, the revised results of the survey are shown in Table 8. 22% and 69% are firms at adoption and implementation stages respectively. 39% (28 out of 72 firms) misclassify themselves.

Conclusions and Discussion

Based on the conceptual foundation of BSC, this paper has developed a systematic framework for classifying the stages of BSC application. The BSC attributes are initially identified and are subsequently employed as criteria for specifying the stages of BSC application – Non adoption, Adoption and Implementation. The BSC application among listed firms in Thailand is explored by bringing the proposed framework into play and by asking for the self-assessment.

Based on developed BSC framework and survey data, 69% are considered as BSC users; 38% misclassified themselves. The results support the notion that firms differently interpret the BSC concept (e.g., Ittner et al., 2003; Burkert et al., 2010; Kaplan, 2010), causing the erroneous categorization. Some firms think that they are BSC users; however, they are actually not. On the contrary, several firms perceive that they are not BSC users, despite the fact that they are. Misclassification is perhaps one of the reasons for mixed evidence in prior studies and can distort the future research results if this problem has not been solved. Hence, the evidence in this study highlights the importance of categorizing the stages of BSC application accurately before conducting any determinant or consequence analysis (Burkert et al., 2010). This study also shows that the classification employing YES/NO questions is valid.

Regarding the contribution to the literature, this study provides a systematic framework for the classification of BSC application by considering BSC attributes, not the firms' self-assessed responses. As this framework helps mitigate the problem of dissimilar interpretations regarding BSC concept, it should be applied to future research in order to reveal the reliable research results.

According to implications for practice, based on the surveyed data from Thai companies listed on SET and MAI, almost 70% of responding firms have implemented BSC either intentionally or unintentionally. This evidence preliminarily shows that accounting techniques and practices in Thailand are by some means adopted from those in more developed countries, mainly the United States. This research also complements prior studies mainly performed among large firms in specific industries in the US and Europe.

Moreover, the proposed framework can be utilized as a self-assessment outline for reviewing whether the firm's performance measurement system is along the lines of BSC concept or as an initial guideline for putting BSC into practice.

Concerning limitations, although mail survey is appropriate for study that explores the interesting issues in a large sample at a relatively low cost, its common limitation is low response rate and self-response bias. This study assumes that the firm's responses about its characteristics of performance measurement system can reflect its actual practice. Furthermore, the data of each company in the sample is gathered only from one person in order to represent the actual behavior with regard to BSC attributes in such firm. Since there is no way to determine how these data truly represent the firm's behavior (Roger, 2003), this limitation is alleviated by collecting the data from the most knowledgeable person, i.e., the CFO or top executive. Regarding the response scale, some returned questionnaires are responded without specifying the percentage scores, but selecting the interval range of percentage scores; hence, following Pholnaruksa (2007), the midpoint of interval range has been assigned the corresponding selected interval.

This study can be replicated to examine the BSC application in different contexts with a larger sample size. The proposed framework in this paper can also be employed as a starting point before testing the determinants or consequences of BSC application; hence, prior determinant and consequence studies can be re-performed by employing this framework to firstly identify the stages of BSC application. Moreover, the details of how balanced scorecard is developed are beyond the scope of this study; thus, the action research can be conducted to complement this study by, for example, investigating how firm derives relevant measures from its strategy, exploring how firms cascade the corporate-level strategy to business units and supporting functions, or determining when the BSC measures should be linked to reward systems.

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