



Contents lists available at ScienceDirect

Journal of Business Research



Effect of transformational-leadership style and management control system on managerial performance

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ARTICLE INFO

Article history:

Received 20 January 2016

Received in revised form 25 July 2016

Accepted 8 August 2016

Available online xxxx

Keywords:

Transformational-leadership style

Performance measurement system

Reward system

Broad-scope information

ABSTRACT

Our study adds perspective on research into choices in the design of management control systems by examining: (1) how transformational-leadership style influences the choice of the design of a comprehensive performance-measurement system (PMS) and reward system; (2) how subordinate managers' reliance on broad-scope accounting (BSA) information facilitates their managerial decision-making processes and managerial performance. Our results suggest that transformational-leadership style has a significant positive and direct effect on managerial performance. We find that it has a significant positive and direct effect on the use of BSA information and comprehensive PMS, but has no significant effect on reward systems. We also find that transformational-leadership style has a partial indirect effect on managerial performance via three mediators, namely, comprehensive PMS, reward systems, and BSA information. Our findings shed light on how such mediators intervene in the relationship between transformational-leadership style and managerial performance.

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1. Introduction

Research acknowledges that leadership style can influence a firm's strategic priorities and implementation of formal control systems (e.g. Abernethy, Bouwens, & van Lent, 2010; Menguc, Auh, & Shih, 2007); firm innovation and creativity (e.g. García-Morales, Jiménez-Barrionuevo, & Gutiérrez-Gutiérrez, 2012; Gumusluoglu & Ilsev, 2009; Jung, 2001; Jung, Chow, & Wu, 2003; Jung, Wu, & Chow, 2008); and organizational and team performance (e.g. Braun, Peus, Weisweiler, & Frey, 2013; Birasnav, 2014; Waldman & Yammarino, 1999). Our study continues this line of research by examining the influence of leadership style on the choices in the design of management control systems (MCS), and the effect of this design on managerial performance. An MCS provides a means of gathering and processing information to assist managers in planning, control, and performance evaluation throughout the organization. The information generated by an MCS serves two main purposes: decision-influencing and decision-facilitating (Baiman, 1982; Narayanan & Davila, 1998). In an MCS's decision-influencing

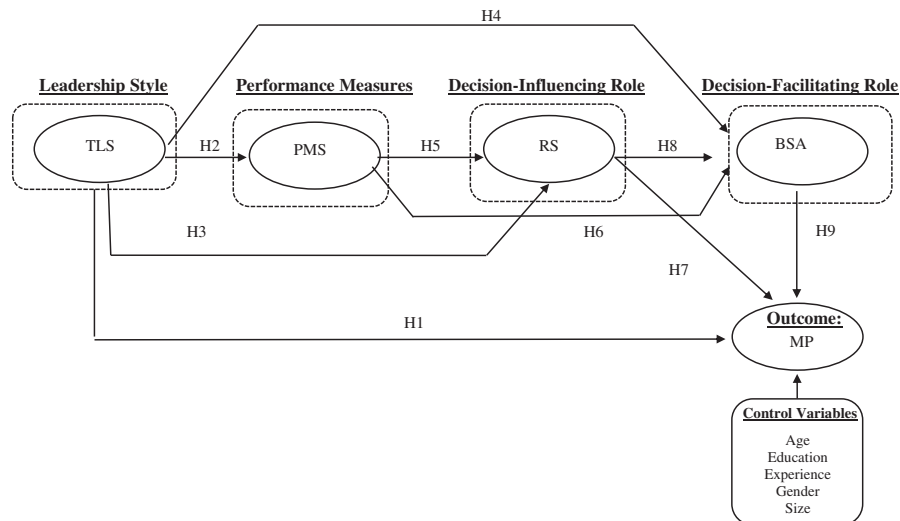
role, information is used for performance evaluation and motivational purposes. In contrast, in its decision-facilitating role, information is used for enhancing managerial decision making.¹

Our study is motivated as follows. First, we find that few studies have investigated in a single study the effect of transformational-leadership style on the three MCS design choices, namely, comprehensive performance-measurement system (PMS), reward system, and reliance on broad-scope accounting (BSA) information and managerial performance. For example, Abernethy et al. (2010) examine the influence of leadership style on choice of PMS design without considering the potential effect of reward systems and BSA information on managerial performance. That is, they did not explore the influence of leadership style on the *decision-influencing role* of the reward system and the *decision-facilitating role* of the accounting-information system on managerial performance. This is despite the recognition in prior literature of the influence of leadership styles on the use of decision-facilitating information for managerial attitudes and performance. See Hopwood, 1974; Otley, 1978, and the importance of the interdependency of PMS and reward systems (see Widener, Shackell, & Demers, 2008). While Widener et al. (2008) find a complementarity between PMS and reward system, they do not consider the potential effect of the reliance on BSA

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¹ In the context of our study, managerial decision-making activities include planning, investigating, coordinating, evaluating, supervising, staffing, negotiating, and representing (see Mahoney et al., 1963; Mahoney, Jerdee, & Carroll, 1965).



Abbreviation of variables

TLS = Transformational leadership style; PMS = Comprehensive performance measurement system; RS = Reward system, BSA = BSA information; MP = Managerial performance

Fig. 1. Conceptual model.

information and managerial performance. Therefore, our study extends the research of Abernethy et al. (2010) and Widener et al. (2008) by examining the effects of transformational-leadership style on the choices of comprehensive PMS, reward systems and BSA information, as well as transformational-leadership style's effect on managerial performance. Fig. 1 depicts the conceptual model used in our study. It indicates that transformational-leadership style is positively related to managerial performance (H1), comprehensive PMS (H2), reward systems (H3), and BSA information (H4). These predictions suggest that transformational leaders motivate and inspire followers (i.e. subordinate managers) to achieve higher managerial performance and in the choices they make for MCS design. In addition, Fig. 1 reveals that comprehensive PMS is related to reward systems (H5) and BSA information (H6). This prediction suggests that a PMS can affect the decision-influencing role of the reward system and the decision-facilitating role of the BSA-information system. Finally, Fig. 1 posits that the decision-influencing role of a reward system is related to managerial performance (H7) and the use of BSA information (H8). The reliance on a BSA-information system is in turn related to managerial performance (H9).

Second, our study is motivated to address a concern proposed by Franco-Santos, Lucianetti, and Bourne (2012, p. 96; emphasis added) that “the impact of *comprehensive PMS* on reported performance is unclear, as the results of this body of literature are inconclusive.” We explore the role of leadership style as an *antecedent* of MCS design choice because Abernethy et al. (2010, p. 3; emphasis added) acknowledge that leadership style is “clearly to be an important correlated (but often omitted) variable given that *management control system* choices are the means by which top management communicate, empower and execute their vision.” We justify our choice of *transformational-leadership style* as follows. First, transformational leaders are more *charismatic and inspiring* in the eyes of their subordinates. Transformational leaders have great referent power and influence, inspire loyalty to the organization, command respect, and have the ability for important vision (House, 1977). Such attributes of transformational leaders suggest that they can develop and maintain a control system such as a reward system that recognizes and compensates managers (i.e. followers) for their efforts (Jung, 2001). Second, transformational leaders use *individualized consideration* significantly, which in turn contributes to subordinates achieving their fullest potential. Individualized consideration is a method of communicating timely information to subordinates via

coaching and mentoring. It provides for continuous follow-up and feedback. More importantly, it links an individual's current needs to the organization's mission and elevates those needs when it is appropriate to do so (Bass, 1985, 1990; Bass & Avolio, 1989). Transformational leaders pay attention to individual differences in subordinates' needs for growth and development. They set examples and assign tasks on an individual basis, not only to satisfy the immediate needs of subordinates, but also to elevate subordinates' needs and abilities to higher levels. Such characteristics of transformational leaders suggest that they can develop and maintain a control system such as a BSA-information system that recognizes the information needs of managers. The decision-facilitating role of a BSA-information system will facilitate the effectiveness of managers' managerial decisions. Third, transformational leaders use *intellectual stimulation* and challenge employees to accept innovative solutions to problems and to challenge the status quo (Bass, 1985; Berson & Avolio, 2004). Intellectual stimulation is seen in subordinates' conceptualization, comprehension, and analysis of the problems they face and the solutions they generate. Through the intellectual stimulation of subordinates, new methods of accomplishing the organization's mission are explored. Indeed, prior literature has found that transformational leadership style can develop and maintain a control system that values and rewards creativity and innovation through appropriate performance measures and reward systems (Jung, 2001; Mumford & Gustafson, 1988). Taken together, transformational leaders will rely on the decision-influencing and decision-facilitating roles of MCS information for employees' performance evaluation, motivation, and managerial decision making. We believe an investigation of the role of transformational-leadership style as an antecedent of MCS design may provide important insights into the motivations behind an organization's choice of MCS design.²

Our study contributes to the existing literature in the following ways. First, the results of our study provide insight into the *process* by which transformational-leadership style affects individuals' managerial performance through the use of comprehensive PMS, reward systems, and BSA information for managerial decision-making processes. Second, the results of our study advance the findings of prior studies (Abernethy et al., 2010; Widener et al., 2008) in relation to the following: (1) how transformational-leadership style can motivate managers' reliance on

² An MCS comprises PMS, reward system and reliance of BSA information.

accounting information for performance evaluation and reward purposes; and (2) how BSA information is used to facilitate the decision-making processes, and the effect of these processes on individuals' managerial performance. Specifically, our results demonstrate that the connection between transformational leaders style and managerial performance is direct and positive. Our supplementary analyses reveal that the positive relationship between transformational leadership and managerial performance is attributed to the mediating effects of the decision-influencing and decision-facilitating roles of MCS. Finally, the findings of our study add to the list of studies that have examined the effectiveness of adopting a “Western” MCS to enhance decision-making processes (e.g. Anderson & Lanen, 1999; Doan, Nguyen, & Mia, 2011; O'Connor, Chow, & Wu, 2004). The results of our study suggest that the adoption of an effective Western MCS design can enhance managers' performance across national boundaries (i.e. enterprises operating in a transitional economy such as that of Vietnam). Given the number of foreign-investment firms operating in transitional economies in the Asian block (e.g. Vietnam), our results have important implications for companies in the Anglo-American block (e.g. Australia, United Kingdom, United States) that wish to establish a business in a transitional economy in the Asian block.³

The remainder of our paper is structured as follows. The theoretical framework underlying this study is developed in the following section, and leads to the statements of hypotheses. The subsequent sections address the research method, results, contributions to the literature and limitations of the study.

2. Theoretical development and statements of hypotheses

2.1. Transformational-leadership style and managerial performance

Prior literature (e.g. Burns, 1978; Ensley, Pearce, & Hmieleski, 2006) suggests that transformational leaders appeal to the ideals and morals of their followers to inspire the followers to reach their highest levels of achievement and take ownership of the goals of the group. Under a transformational leader, the followers are primarily motivated toward the achievement of the goal in and of itself, with or without the rewards that might be associated with the outcome (Pearce et al., 2003). Transformational leadership style can help promote long-term vision, and inspiration, which may also promote incremental contributions of followers through exerting effort beyond the call of duty. Thus, transformational leaders can motivate their followers to exert effort to improve performance. Choi (2006, p. 33) argues that “followers led by charismatic leaders often show high task performance.” This enhanced task performance can be attributed to followers' great need for achievement, which has been stimulated by the envisioning behavior of the charismatic (transformational) leader. As the vision greatly differs from the status quo, followers mobilize all their abilities to realize the vision with which they identify (Bass, 1985). Thus, the following hypothesis is tested:

H1. There is a positive relationship between transformational-leadership style and managerial performance.

2.2. Transformational-leadership style and comprehensive PMS

In this study, we adapt the *transformational-leadership style* of Bass (1990). Transformational-leadership style is similar to the consideration scale as outlined in Stogdill, Goode, and Day (1963). Our study examines transformational-leadership style as a style of superiors that supports subordinates by raising awareness of the subordinates' importance and the value of expected outcomes, and motivates them by

satisfying their needs for attention and personal development within the collective vision of the organization. We conceptualize transformational-leadership style in terms of departmental managers' perceptions of their superiors' charisma and ability to inspire. Prior literature suggests that transformational-leadership behaviors can influence employees' reactions in different ways (Bass, 1985; Berson & Avolio, 2004). First, transformational leaders stimulate and inspire followers by offering a compelling vision of the future (Bass, 1985). Second, they use intellectual stimulation and challenge employees to accept innovative solutions to problems and to challenge the status quo (Bass, 1985; Berson & Avolio, 2004).

Therefore, transformational leaders are expected create a positive effect on their followers' reactions (Bass & Riggio, 2006; Groves, 2005). Prior studies have found that transformational leadership style can cultivate the organizational culture toward creativity and innovation (Jung et al., 2003, 2008; García-Morales et al., 2012; Gumusluoglu & Ilsev, 2009). Such leadership can develop and maintain a control system that values and rewards creativity and innovation through appropriate performance measures and reward systems (Jung, 2001; Mumford & Gustafson, 1988). It is also noted that the transformational-leadership style is more appropriate in a changing environment (Bass, 1990). Firms usually prefer senior managers with a transformational-leadership style because they have greater capacity to cope with rapid changes and an uncertain environment. Employees (i.e. subordinates) in firms that have transformational leaders will consider their performance evaluation (which is based on a comprehensive PMS, a performance-evaluation system that includes financial and non-financial performance measures) to be fair for the following reasons. First, the use of traditional (i.e. financially based performance measures only) to evaluate managers' performance has been criticized for being too aggregated and backward-looking (Johnson & Kaplan, 1987; Kaplan & Norton, 1996a). The “incompleteness” of financially based performance measures has led to the call for the reliance on *multiple* performance measures for performance evaluation. Proponents of the use of comprehensive PMSs argue that the use of a diverse set of financial and non-financial measures can prevent managers from sub-optimizing by ignoring relevant performance dimensions or improving one measure at the expense of others (Ittner, Larcker, & Meyer, 2003; Ittner, Larcker, & Randall, 2003). Second, firms led by transformational leaders are more likely to employ a differentiate (or prospector-type) strategy in which the exploitation of products and market opportunities are important. In such an environment, external, non-financial, and future-oriented information is crucial for managers. Hence, the performance-evaluation system implemented should reflect these information needs of local managers. Customer-focused measures are an example of non-financial performance measures. These include measures of product quality and performance, delivery lead-time, and customer responsiveness. Such measures are associated with differentiation strategies and attributes of the product-process output that are valued by customers and can be used to provide feedback at the operation level (Chenhall & Langfield-Smith, 1998; Kaplan, 1990; Lillis & van Veen-Dirks, 2008). Thus, it follows that the transformational-leadership style is likely to be positively related to comprehensive PMS. Thus, we predict the following hypothesis:

H2. There is a positive relationship between transformational-leadership style and use of comprehensive PMS.

2.3. Transformational-leadership style and reward system

Senior managers that have a transformational-leadership style can stimulate and inspire followers (i.e. managers) by offering a compelling vision of the future (Bass, 1985). They convince managers to accept or create innovative solutions to problems rather than simply accepting the status quo (Bass, 1985; Berson & Avolio, 2004). Therefore, we expect

³ According to the *Statistics Handbook 2014 of Hanoi Vietnam*, foreign-investment enterprises have increased from 6545 firms in 2009 to 10,220 firms in 2013 (General Statistics Office. *Statistical Handbook 2014*. Hanoi, Vietnam: General Statistics Office of Vietnam).

transformational leaders will rely on the decision-influencing role of MCS information to evaluate employees' performance and motivate employees. Indeed, prior studies note that transformational leaders establish and maintain a reward system that values and compensates managers for their efforts (Jung, 2001; Mumford & Gustafson, 1988). The term "reward system" refers to the levels of pay and benefits provided to employees based on their performance, which can also be termed "performance-based reward". A reward system, which consists of intrinsic and extrinsic rewards, can motivate employees to exert effort to enhance their performance. Intrinsic rewards motivate managers intrinsically to work at higher levels of productivity and strive to develop professionally. Such rewards have been found to be a great deal stronger than financial rewards in increasing employee motivation. This is not to say that employees will not seek financial rewards in addition to intrinsic rewards; rather, it simply means that money is often not sufficient to maximize motivation. People want to feel like their contribution is important. For example, an employee might want to reach a sales quota set by the superior to earn the bonus that is attached to the quota, but unless the employee feels a sense of accomplishment as part of achieving the sales quota, the motivation to achieve the quota is less powerful. Conversely, extrinsic rewards can be as simple as being assigned a better office, or receiving verbal praise, public recognition, awards, promotions or additional responsibility. These material rewards can be motivational because pay, advancement and recognition are important to most employees. Thus, it follows that some forms of recognition (e.g. intrinsic and extrinsic rewards) must be present to motivate subordinates to enhance their attitude toward their job (McKenna, 1994). For example, Okokie (1996) recognizes that leaders who provide rewards to their subordinates can influence subordinates' practice of the continuous improvement program of total quality management. Hence, it is expected that transformational leaders can rely on a reward system to stimulate and inspire their subordinates to achieve organizational goals. We postulate that the transformational-leadership style is positively related to reward system, as stated in the following hypothesis:

H3. There is a positive relationship between transformational-leadership style and reward system.

2.4. Transformational-leadership style and BSA information

As noted, a transformational leader can influence managers' reaction, and play an important role in creating a congenial organizational culture and motivating managers (Bass & Avolio, 1994). It also affects the managers' use of accounting information in making decisions (Avolio, 2011). The accounting literature acknowledges that the way accounting information is used by managers depends on the leadership style of their superior. For example, a superior with a transformational-leadership style uses accounting information for the planning and control system in their communication with subordinates (Abernethy et al., 2010). Such leaders often encourage and delegate decision-making responsibilities to their subordinates (Bass & Avolio, 1997). To fulfill these responsibilities, managers require more BSA information for making decisions involving complex and uncertain matters (Mia, 1993; Patiar, 2005). The term "BSA information" is defined in our study as decision-facilitating information that comprises internal and external, non-financial and future-oriented information. Accordingly, senior managers with a transformational-leadership style are likely to be successful in encouraging their managers to use BSA information to cope with a rapidly changing context (Abernethy et al., 2010; Naranjo-Gil & Rinsum, 2006; Patiar, 2005). Therefore, we propose the following hypothesis:

H4. There is a positive relationship between transformational-leadership style and managers' use of BSA information.

2.5. Comprehensive PMS and reward system

Numerous prior studies provide evidence to suggest that comprehensive PMS precedes reward systems (Ferreira & Otley, 2009; Scott & Tiessen, 1999; van Veen-Dirks, 2010). For example, Ferreira and Otley (2009, p. 272) note that "reward systems are the outcome of performance evaluations." In contrast, Scott and Tiessen (1999) find that team performance is positively associated with the comprehensiveness of performance measures used. Van Veen-Dirks (2010) notes that performance measures may influence employees' behaviors because his or her personal trade-offs between labor and leisure will be based on the PMS. He or she will allocate effort to activities based on how this affects the performance measures that are important in the determination of his or her rewards. Similarly, Moers (2006) investigates the effect on delegation of the relative use of financial performance measures for incentive-compensation purposes. He finds that the properties of performance measures play an important role in explaining their use for incentive-compensation purposes. Thus, the existing evidence suggests that comprehensive PMS is positively related to reward system, which leads to the following hypothesis:

H5. There is a positive relationship between comprehensive PMS and reward system.

2.6. Comprehensive PMS and BSA information

Research states that managers can use information generated from a comprehensive PMS to assist them in managing their organization's operations (Chenhall & Morris, 1993; Kaplan & Norton, 1996b). It is argued that as a PMS becomes more comprehensive, it provides a wealth of observations about the organization's operations, and such observations provide the impetus for managers to make sound decisions. Research also indicates that managers can use more comprehensive performance information to verify, confirm, and validate their beliefs about cause-and-effect relationships embedded in a firm's strategy and action plan (Luft & Shields, 2001). In addition, these cause-effect connections can help managers to clarify and confirm the business model of the organization. The fact that a comprehensive PMS broadens the scope of accounting information reported to managers in the organization helps managers to make appropriate decisions. As noted, we argue that firms led by transformational leaders are more likely to be adopting a differentiate (or prospector-type) strategy in which the exploitation of products and market opportunities is important. Consequently, we expect external, non-financial, and future-oriented information (i.e. BSA information) to be crucial for managers. As a PMS becomes more comprehensive, more BSA information will be needed, which in turn helps managers in their decision-making processes. From this information, we propose the following hypothesis:

H6. There is a positive relationship between a comprehensive PMS and BSA information.

2.7. Reward system and managerial performance

One of the most important tools used to motivate employees is an appropriate reward system (Schulz, Wu, & Chow, 2010). Managers are motivated through their perceptions of performance measures, types of rewards, and evaluation/reward system, as well as the connections between these perceptions (Kominis, Emmanuel, & Slapnicar, 2007). We argue that a close connection between rewards and performance targets may improve managerial performance. Many studies have found a significant association between the reward system and performance (e.g. Byun, Kim, & Shin, 2009; Gomez-Mejia, Berrone, & Franco-Santos, 2010; O'Connor, Deng, & Luo, 2006). However, it may be problematic if the performance measurement is not appropriate.

For example, [Ittner, Larcker, & Meyer \(2003\)](#), [Ittner, Larcker, & Randall \(2003\)](#) found that managers complained more when their organization used a high level of subjectivity to assess their performance and reward them (e.g. bias in bonus awards and uncertain criteria used to determine rewards). Once employees perceive a close link between their efforts and performance targets, they may extend their efforts to enhance performance ([Langfield-Smith, Thorne, & Hilton, 2006](#)). For example, when sales managers perceive that they will receive valuable rewards for achieving performance targets, such as customer satisfaction, they may investigate information relating to customer needs and expectations ([Bangchokdee, 2008](#)), which is then used in negotiating and contracting for goods or services delivered to the customer as expected. As a result, these managers may achieve high performance. That is, linking rewards to performance targets may lead to improvements in managerial performance ([Sprinkle, 2003](#)).

Prior studies on reward systems (compensation schemes) (e.g. [Chong & Eggleton, 2007](#); [Guymon, Balakrishnan, & Tubbs, 2008](#); [Sprinkle, 2000, 2003](#); [Webb, Williamson, & Zhang, 2013](#)) have relied on agency theory and goal-setting theory. Proponents of agency theory argue that the effort-inducing effect of a reward system induces a first-best effort on the part of subordinates to improve their performance. For example, prior studies (e.g. [Banker, Lee, & Potter, 1996](#); [Banker, Lee, Potter, & Srinivasan, 2001](#); [Chow, 1983](#); [Church, Libby, & Zhang, 2008](#); [Farrell, Kadous, & Towry, 2008](#); [Sprinkle, 2000](#)) have found that a reward system can affect individuals' performance by inducing a higher level of effort (i.e. effort-inducing effect). [Farrell et al. \(2008\)](#) suggest that performance is a function of effort. They argue that greater effort leads to greater performance. [Chong and Eggleton \(2007\)](#) argue that a reward system motivates employees to exert greater effort to improve their performance.

In contrast, proponents of goal-setting theory argue that reward systems are motivational because they encourage individuals to commit themselves to higher performance goals, which in turn enhance their task performance ([Chen, Jermias, & Lee, 2013](#); [Fatseas & Hirst, 1992](#); [Wright, 1992, 1994](#)). A study by [Chen et al. \(2013\)](#) reveals that when employees are contracted based on more challenging but attainable goals (i.e. goal achievability), feedback increases their level of effort, which has a significant positive effect on their task performance. Taken together, the existing theories and empirical evidence suggest that the use of a reward system is more likely to enhance subordinates' managerial performance. Thus, the following hypothesis is tested:

H7. There is a positive relationship between a reward system and managerial performance.

2.8. Reward system and BSA information

As noted, the information generated by an MCS plays two main roles: a decision-influencing role and decision-facilitating role ([Baiman, 1982](#); [Narayanan & Davila, 1998](#)). In the decision-influencing role, information is used for performance evaluation and motivational purposes. In the decision-facilitating role, information is used to enhance managerial decision making. One of the objectives of a reward system is to motivate individuals to exert effort to improve their managerial performance. [Sprinkle \(2000\)](#) finds that the use of a reward system improves individuals' performance by motivating them to increase the duration and intensity of their effort. He finds that the decision-influencing role of a reward system not only motivates individuals to work longer on a managerial task, but also serves to enhance the quality of the attention they devote to the task. Indeed, incentive-contracting studies find that the use of a reward system can encourage and motivate truthful managerial reporting by managers ([Chow, 1983](#); [Chow, Cooper, & Waller, 1988](#)). Thus, a reward system can motivate managers to focus on key aspects of the organization ([Kaplan & Norton, 1992](#)) and may influence the extent to which managers use

accounting information in making decisions ([Chow, Deng, & Yuen, 2006](#); [van Veen-Dirks, 2010](#)). Once managers have the information related to achieving targets, they are more likely to use appropriate information, such as BSA information, for making better decisions to enhance performance ([Eldenburg & Krishnan, 2008](#); [Sprinkle, 2000, 2003](#)). Hence, we posit that the decision-influencing role of a reward system will motivate managers, which in turn triggers an information need in highly motivated managers, who will exert greater effort to gather BSA information to facilitate their managerial decisions. Thus, we postulate that reward system is positively related with BSA information, which leads to the following hypothesis:

H8. There is a positive relationship between reward system and the use of BSA information.

2.9. BSA information and managerial performance

Accounting information is one of the most important components in the organizational planning and control system and it plays a decision-facilitating role in enhancing managerial performance ([Sprinkle, 2003](#)). This study focuses on managers' use of BSA information to facilitate their decision-making processes. BSA information can be internal to the organization (e.g. operations, finance, marketing, and human resources) or external to the organization (e.g. economic conditions, customer taste, and competitors); financial or non-financial (e.g. output rate and machine efficiency); historical (e.g. last year's profit); or future oriented (e.g. expected price and expected sales volume). Prior studies find that a major function of the decision-facilitating role of accounting information is to support the needs of management in planning and controlling decisions ([Abernethy & Bouwens, 2005](#); [Chenhall & Morris, 1986](#); [Tiessen & Waterhouse, 1983](#)). Further, empirical evidence finds that managers' use of BSA can enhance managerial performance, subject to an appropriate "fit" existing between contextual variables such as environmental and task uncertainty and the design of the management accounting system ([Chong, 1996](#); [Mia, 1993](#); [Mia & Chenhall, 1994](#)). Thus, we expect the appropriate use of BSA information will enhance individuals' managerial performance. Therefore, we test the following hypothesis:

H9. There is a positive relationship between BSA information and managerial performance.

3. Research method

3.1. Data collection and participants

The participants in our study were department managers in charge of sales, production, accounting, marketing, and operations in their organization operating in Vietnam. To select the participants, we first obtained from the Department of Planning and Investment and the Businessperson Association in Vietnam a list of 2787 working department managers' email addresses. Second, we selected 710 managers at random from the list to participate in the study. We invited each of these managers individually to participate by sending a letter emailed to them, along with a link to the web-based questionnaire. The letter explained the purpose of the study, contained assurance of confidentiality of the managers' identity and the information they would provide, as well as an offer to provide them a summary of the results if they completed the option for this attached to the letter. The above procedure for our data collection was used following [Smith \(2003\)](#). Of the 710 managers we invited to participate in the study, 152 (i.e. 21.4%) completed the questionnaire. Following relevant prior studies in management and accounting ([Grafton, Lillis, & Widener, 2010](#); [Hall, 2008](#); [Smith, 2003](#)), this response rate is considered acceptable.

Table 1
Sample demographics.

		Frequency (n = 152)	%
Department managers	Production	38	25.0
	Marketing	44	28.9
	Operations ^a	39	25.7
	Others	31	20.4
Experience	<3 years	46	30.3
	3 to <6 years	56	36.8
	6 to <9 years	14	9.2
	≥9 years	36	23.7
Gender	Female	50	32.9
	Male	102	67.1
Number of employees	10 to 50 employees	42	27.6
	51 to 100 employees	29	19.1
	101 to 200 employees	21	13.8
	201 to 300 employees	12	7.9
	>300 employees	48	31.6
Education	College	11	7.2
	Bachelor	106	69.7
	Master	34	22.4
	PhD	1	0.7
Age	21–30	26	17.1
	31–40	95	62.5
	41–50	19	12.5
	>50	12	7.9

^a Operations managers are often responsible for multiple functions, such as financial, human resource, production, sale and marketing.

We investigated the possibility of non-response bias as follows. First, we conducted a Mann–Whitney *U* test to compare differences in the medians of key variables between early and late groups of responses,⁴ and found no significant differences in medians for any variables between these groups ($p > 0.05$). Second, we ran a Pearson's Chi-square (χ^2) test to explore differences between the two groups of responses in sample demographics (e.g. industry, age, gender, education, firm size, ownership, department). The results (not presented) demonstrated that there were no significant differences between the two groups of responses ($p > 0.05$). We also tested common method bias by conducting a multiple-factor-method test, following the procedures outlined by Chin, Thatcher, and Wright (2012) and Liang, Saraf, Hu, and Xue (2007). The results indicated that common method bias was not a concern.

The descriptive statistics for sample demographics are presented in Table 1. The majority of respondent firms were from Ho Chi Minh, the most dynamic city in Vietnam. Of 152 respondents, 102 (67.1%) were male and 50 (32.9%) were female.

The respondents held managerial positions in different departments: production (25%), marketing (28.9%), operations (25.7%), and others (20.4%). They answered the questions relating to the variables of the study, such as transformational-leadership style, comprehensive PMS, reward system, managers' use of BSA information, and managerial performance.

3.2. Variable measurement

To enhance the validity and reliability of our study, all variables of interest were measured by instruments that had been previously developed and used in the literature. *Transformational-leadership style* was measured by using an eight-item scale developed by Avolio, Bass, and Jung (1999). This instrument requires survey participants to rate their superiors' leadership style on a seven-point Likert scale. *Comprehensive PMS* was measured by using three statements developed for this study through an extensive literature review (see Epstein, 2008; Hall, 2008; Kaplan & Norton, 1992; Kunz & Pfaff, 2002). Respondents indicated the extent to which their firm used comprehensive PMS on a seven-

⁴ Late responses are those received after the final-round reminder emails had been sent to the participants.

point Likert scale, ranging from 1 “not used at all” to 7 “used to a great extent” on three dimensions: (1) financial performance measures (e.g. meeting revenue budget, cost, and profit targets); (2) non-financial performance measures (e.g. meeting desired goals such as retaining existing customers, attracting new customers, improving product/service quality, on time delivery of products/services, and maintaining employee turnover/satisfaction); (3) other performance measures for product, service, and process innovation. *Reward system* was measured by four items adapted from Schulz et al. (2010), Chow, Shields, and Wu (1999), and Shields and Young (1993). Respondents were asked to indicate on a seven-point Likert scale (1 “strongly disagree” to 7 “strongly agree”) the following statements that applied to their company: (1) rewards are directly tied to individual performance; (2) rewards are directly tied to performance measures; (3) people's rewards increase as their performance increase; and (4) individuals whose performance ranks in the top 25% receive higher rewards than those in the bottom 25%. *BSA information* was measured by a six-item, seven-point Likert-type scale originally developed by Chenhall and Morris (1986). The respondents rated the extent to which they use each item in their decision making (from 1 “not used at all” to 7 “used to a great extent”). *Managerial performance* was measured by an instrument developed by Mahoney, Jerdee, and Carroll (1963), which has been used in many prior studies (e.g. Burkert, Fischer, & Schäffer, 2011; Cheng, 2012; Hammad, Jusoh, & Ghazali, 2013; Lau & Martin-Sardesai, 2012). Respondents rated their performance on a 7-point Likert-type self-evaluation scale (from 1 “very poor” to 7 “excellent”) for eight functional dimensions: planning, investigating, coordinating, evaluating, supervising, staffing, negotiating, and representing.

We included four control variables: age, education, gender, work experience of managers in the departments, and size of company. Managers' work experience was measured by the number of years the managers have worked with the organization. The size of company was based on the number of employees.

4. Results

4.1. Measurement model

The partial least squares (PLS) approach was employed to assess the psychometric properties of the theoretical model and proposed hypotheses. PLS is suitable for this study because it requires a relatively small sample size and makes minimal data assumptions (Wold, 1985). Data analysis was conducted using WarpPLS version 5.0. The measurement properties of the various scales were examined using the statistics from the PLS measurement model. The factor loadings for each variable were examined. As presented in Table 2, all items loaded were above the recommended minimum cut-off of 0.50 (Hulland, 1999).

Scale internal reliability was investigated using Fornell and Larcker's (1981) measure of composite reliability and Cronbach's (1951) alpha. Table 2 demonstrates that the composite reliabilities are 0.899 (transformational-leadership style), 0.919 (BSA information), 0.947 (reward system), 0.839 (comprehensive PMS), and 0.901 (managerial performance). The Cronbach's alpha scores for each variable were higher than the recommended benchmark of 0.70 (Hair, Black, Babin, Anderson, & Tatham, 2006). These results suggest a satisfactory scale internal reliability.

In their test for construct validity, Xu, Ryan, Prybutok, and Wen (2012, p. 4) state that “the items within one construct should demonstrate relatively high correlation (convergent validity), whereas the items from different constructs should be characterized by low correlation (discriminant validity).” Convergent validity of the variables was assessed by examining the statistics for average variance extracted (AVE). The AVE is 0.500 or greater for each scale. Table 3 demonstrates that the AVE are 0.726 (transformational-leadership style), 0.809 (BSA information), 0.904 (reward system), 0.797 (comprehensive PMS), and 0.734 (managerial performance), which demonstrates adequate

Table 2
Combined loadings, composite reliability, Cronbach's alpha, and average variance extracted from the PLS model.

Items	TLS	BSA	RS	PMS	MP
TLS1	0.713	−0.022	−0.099	0.056	0.006
TLS2	0.706	−0.016	0.044	−0.074	0.223
TLS3	0.716	−0.217	0.125	−0.114	0.030
TLS4	0.632	0.064	−0.011	−0.300	0.005
TLS5	0.787	0.104	−0.210	0.191	−0.155
TLS6	0.805	0.002	−0.185	0.665	−0.101
TLS7	0.764	0.038	0.081	−0.037	0.094
TLS8	0.670	0.044	0.311	−0.199	−0.081
BSA1	−0.058	0.771	0.089	0.010	−0.061
BSA2	−0.055	0.851	0.002	−0.001	−0.113
BSA3	0.074	0.769	−0.041	0.031	−0.104
BSA4	0.051	0.853	−0.015	−0.079	0.090
BSA5	0.085	0.824	−0.015	−0.002	−0.095
BSA6	−0.102	0.777	−0.018	0.048	0.289
RS1	0.058	0.097	0.894	−0.021	−0.017
RS2	0.093	0.022	0.927	−0.073	−0.073
RS3	−0.050	−0.019	0.925	−0.032	0.091
RS4	−0.106	−0.103	0.869	0.134	−0.001
PMS1	0.179	0.061	0.066	0.724	−0.244
PMS2	−0.036	−0.015	0.063	0.860	0.063
PMS3	−0.124	−0.039	−0.127	0.802	0.152
MP1	0.130	−0.233	−0.099	−0.166	0.766
MP2	−0.106	0.104	−0.009	0.038	0.790
MP3	−0.099	−0.031	−0.008	0.051	0.827
MP4	−0.258	0.125	0.034	−0.003	0.804
MP5	0.001	−0.076	0.022	−0.113	0.801
MP6	0.072	−0.253	0.014	−0.068	0.748
MP7	0.262	0.120	−0.009	0.104	0.518
MP8	0.153	0.384	0.055	0.268	0.543
CR	0.899	0.919	0.947	0.839	0.901
CA	0.871	0.893	0.925	0.711	0.873
AVE	0.528	0.654	0.818	0.636	0.538

TLS = Transformational-leadership style; PMS = Comprehensive performance measurement system; RS = Reward system, BSA = BSA information; MP = Managerial performance.

convergent validity (Chin, 1998; Hair, Anderson, Tatham, & Black, 1998). Discriminant validity was assessed by comparing the square root of the AVE statistics with the correlations among the latent variables (Fornell & Larcker, 1981; Chin, 1998). Table 3 demonstrates that the square root of AVE for each variable is greater than those of the off-diagonal elements. The results generally provide strong support for the construct reliability, as well as for the convergent and discriminant validity of the scales.

Table 3
Correlation matrix and square root of average variances extracted.

Variable	TLS	BSA	RS	PMS	MP	Age	Education	Gender	Experience	Size
TLS	0.726									
BSA	0.338 (p < 0.001)	0.809								
RS	0.351 (p < 0.001)	0.339 (p < 0.001)	0.904							
PMS	0.530 (p < 0.001)	0.287 (p < 0.001)	0.519 (p < 0.001)	0.797						
MP	0.579 (p < 0.001)	0.521 (p < 0.001)	0.414 (p < 0.001)	0.423 (p < 0.001)	0.734					
Age	−0.049 (p < 0.547)	0.167 (p = 0.040)	0.111 (p = 0.174)	−0.075 (p = 0.356)	0.111 (p = 0.172)	1.000				
Education	−0.030 (p = 0.715)	−0.003 (p = 0.996)	0.010 (p = 0.903)	−0.019 (p = 0.812)	0.106 (p = 0.195)	0.128 (p = 0.115)	1.000			
Gender	0.082 (p = 0.314)	0.181 (p < 0.025)	−0.046 (p = 0.574)	0.027 (p = 0.741)	0.075 (p = 0.358)	0.155 (p = 0.056)	0.135 (p = 0.098)	1.000		
Experience	0.001 (p = 0.986)	0.124 (p = 0.128)	−0.005 (p = 0.956)	−0.062 (p = 0.450)	0.144 (p = 0.077)	0.516 (p < 0.001)	0.090 (p = 0.268)	0.027 (p = 0.743)	1.000	
Size	0.018 (p = 0.829)	−0.030 (p = 0.718)	0.027 (p = 0.737)	−0.113 (p = 0.167)	0.076 (p = 0.354)	−0.018 (p = 0.826)	−0.009 (p = 0.915)	0.081 (p = 0.323)	−0.049 (p = 0.548)	1.000

Note: Square roots of average variance extracted (AVEs) shown in diagonal indicated with bold text.

TLS = Transformational-leadership style; PMS = Comprehensive performance measurement system; RS = Reward system, BSA = BSA information; MP = Managerial performance.

Table 4
PLS results for the structure model: path coefficients, p-values, and r-squared.

Variable	TLS	BSA	RS	PMS	R ²
TLS					
BSA	0.283 (p < 0.001)		0.184 (p = 0.010)	0.113 (p = 0.077)	0.218
RS	0.172 (p = 0.015)			0.444 (p < 0.001)	0.300
PMS	0.541 (p < 0.001)				0.292
MP	0.342 (p < 0.001)	0.355 (p < 0.001)	0.170 (p = 0.010)	0.085 (p = 0.145)	0.563

TLS = Transformational-leadership style; PMS = Comprehensive performance measurement system; RS = Reward system, BSA = BSA information; MP = Managerial performance.

4.2. Structural model

The structural model was assessed based on WarpPLS. Bootstrapping (with 100 samples), and was conducted to evaluate the statistical significance of each path coefficient because PLS makes no distributional assumptions (Chin, 1998). The results of the structural model, which are presented in Table 4 and Fig. 2, were used to test our hypotheses. Note that the results of the hypotheses tests were obtained after controlling for age, education, gender, work experience and size of company. It is worth noting that, with the exception of education, all other control variables were not statistically significant. Thus, it can be concluded that age, work experience, and gender do not have an influence on managerial performance. Our results demonstrate that only education positively influences managerial performance.

The results presented in Table 4 and Fig. 2 indicate that there are positive and statistically significant relationships between the following variables: (1) transformational-leadership style and managerial performance ($\beta = 0.342, p < 0.001$), (2) transformational-leadership style and comprehensive PMS ($\beta = 0.541, p < 0.001$), (3) transformational-leadership style and reward system ($\beta = 0.172, p < 0.015$), and (4) transformational-leadership style and use of BSA information ($\beta = 0.283, p < 0.001$). These results support H1, H2, H3 and H4.

The results presented in Table 4 and Fig. 2 reveal the relationship between comprehensive PMS and reward system is positive and statistically significant ($\beta = 0.444, p < 0.001$), thus supporting H5. However, the results reveal that the relationship between comprehensive PMS

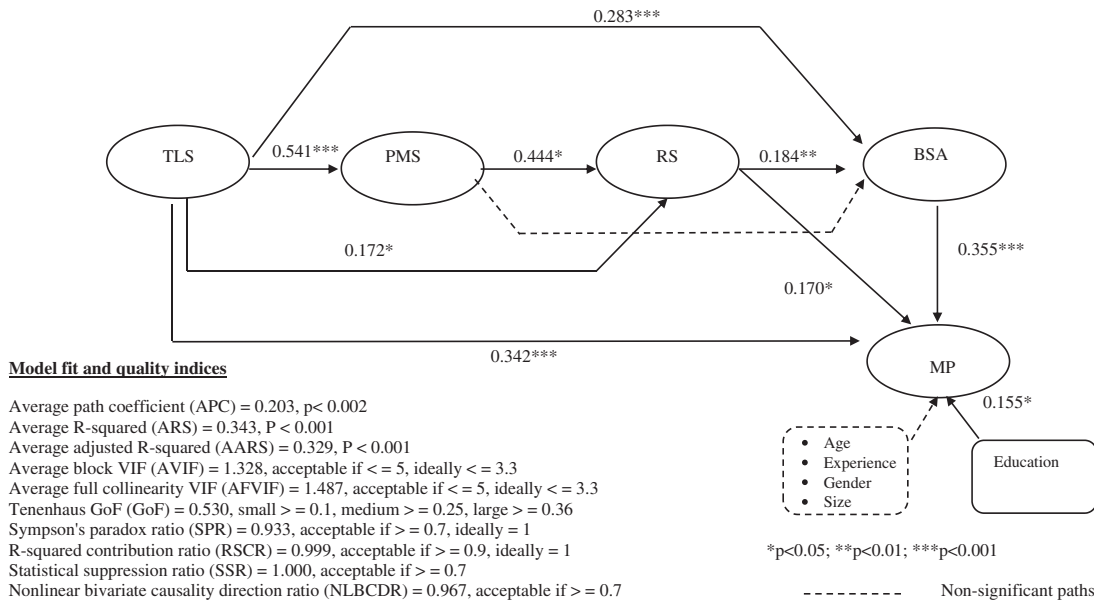


Fig. 2. Path coefficients of the structural model.

and BSA information is not statistically significant ($\beta = 0.113$, $p < 0.077$). Thus, H6 is not supported.

The results presented in Table 4 and Fig. 2 indicate that the relationship between reward system and managerial performance is positive and statistically significant ($\beta = 0.170$, $p = 0.016$), thus H7 is supported. In addition, the results reveal that there is a positive and significant relationship between reward system and the use of BSA information ($\beta = 0.184$, $p < 0.010$), providing support for H8. Finally, the relationship between the use of BSA information and managerial performance is also positive and significant ($\beta = 0.355$, $p < 0.001$), thus supporting H9.

4.3. Supplementary analyses

To provide evidence on the mediating roles of MCS use in the relationship between transformational-leadership style and managerial performance, we conducted further analyses to ascertain the magnitude and the statistical significance of the indirect effects. For statistical inferences, we used the bootstrap confidence interval method in lieu of the more traditional Baron and Kenny (1986) mediation tests because the bootstrapping method is considered superior (see Cole, Walter, & Bruch, 2008; Preacher & Kelley, 2008, 2011). Preacher and Kelley (2008, p. 886) propose that “bootstrapping provides the most powerful and reasonable method of obtaining confidence limits for specific

Table 5 Results of indirect effects based on PROCESS for SPSS version 2.15 (see Hayes, 2013).

	<i>b</i> (SE)	LL 95% CI	UL 95% CI
Path (1): TLS–PMS–MP	= 0.028 (0.033)	–0.032	0.101
Path (2): TLS–PMS–RS–MP	= 0.029 (0.015)	0.007	0.067 ^a
Path (3): TLS–PMS–BSA–MP	= 0.006 (0.018)	–0.031	0.040
Path (4): TLS–PMS–RS–BSA–MP	= 0.016 (0.011)	0.002	0.045 ^a
Path (5): TLS–RS–MP	= 0.012 (0.012)	–0.004	0.048
Path (6): TLS–RS–BSA–MP	= 0.007 (0.007)	–0.002	0.028
Path (7): TLS–BSA–MP	= 0.067 (0.032)	0.013	0.140 ^a
Sum of indirect effects	= 0.166 (0.045)	0.084	0.262

Note. LL = lower limit; CI = confidence interval; UL = upper limit; bootstrap sample size = 5000.

^a The indirect effects are significant at the 95% level of significance.

indirect effects under most conditions.” The significance of the indirect effects was assessed by using PROCESS for Statistical Package for the Social Sciences (SPSS) version 2.15 originally developed by Hayes (2013). The results are presented in Table 5.

As shown in Table 5, it is worth noting that three paths: Path (2), Path (4), and Path (7) have confidence intervals that do not contain zero value. Thus, we can be confident that genuine mediation effects exist (Field, 2013; Preacher & Kelley, 2011) for these paths. The indirect effects are significant at the 95% level of significance, as indicated when the lower and upper levels of the confidence intervals do not include zero values. Path (2): TLS–PMS–RS–MP has a coefficient of 0.029, which is significantly positive because the bootstrap confidence interval is above zero (0.007 to 0.067). Path (4): TLS–PMS–RS–BSA–MP has a coefficient of 0.016, which is significant because the bootstrap confidence interval is above zero (0.002 to 0.045); thus suggesting that comprehensive PMS, reward system and BSA information significantly mediate the relationship between transformational-leadership style and managerial performance. Path (7): TLS–BSA–MP has a coefficient of 0.067 and bootstrap confidence interval entirely above zero (0.013 to 0.140). For all other paths (Paths 1, 3, 5, and 6), mediation effects do not exist because the bootstrap confidence interval straddles zero.

5. Discussion and conclusion

Our study aimed to investigate in a single study the effect of transformational-leadership style on the three MCS design choices, namely comprehensive PMS, reward system, and reliance on BSA information and managerial performance. We note that to date, there are no studies that examine the influence of leadership style on the choices of the three MCS design. Abernethy et al. (2010) examine the influence of leadership style on the choice of PMS design without considering its potential effect on reward system, BSA information and managerial performance. This is despite the recognition of the influence of leadership styles on the use BSA information for managerial attitudes and performance (see Hopwood, 1974; Otley, 1978), and the importance of the interdependency of PMS and reward system (see Widener et al., 2008). Further, while Widener et al. (2008) find a complementarity relations among choice between PMS and reward system, they do not consider the potential effect of the reliance on BSA information and managerial

performance. Our study also aimed to address a call by Franco-Santos et al. (2012, p. 96) to conduct more research on the effect of comprehensive PMS on reported performance because “the results of this body of literature are inconclusive.”

Our results demonstrate that a transformational-leadership style has a direct and positive effect on managerial performance. For a MCS, transformational-leadership style positively affects the use of BSA information and comprehensive PMS, but does not affect the reward system. The results suggest that the use of comprehensive PMS for the purpose of the reward system is less important when the transformational-leadership style is employed (Abernethy et al., 2010). Our findings improve understanding of how mediators intervene in the relationship between transformational-leadership style and managerial performance (see Franco-Santos et al., 2012; Hopwood, 1974). Specifically, our supplementary analyses reveal that transformational-leadership style has a partial indirect effect on managerial performance via three mediators: comprehensive PMS, reward system, and BSA information.

Our study makes the following contributions to the existing literature. First, we provide insight into how transformational-leadership styles can rely on the decision-influencing and decision-facilitating roles of MCS information for the purpose of improving employees' performance evaluation, motivation, and managerial decision-making. Specifically, our findings demonstrate that transformational leaders motivate and inspire followers (i.e. managers) by relying on information from the MCS for performance-evaluation and reward purposes, and the use of BSA information to facilitate their managerial decision-making processes. In turn, the use of BSA information has an effect on managerial performance. Second, the findings of our study extend those of Abernethy et al. (2010) and Widener et al. (2008) by examining in a single study the influence of leadership style on choice of comprehensive PMS, reward-system design, and managers' use of BSA information in making decisions. Specifically, our findings demonstrate that the connection between transformational leaders and managerial performance is positive and directly related. Our supplementary analyses reveal that this positive relationship between transformational leadership style and managerial performance is attributed to the mediating effects of the decision-influencing role and decision-facilitating role of MCS. The decision-influencing role includes the following paths: TLS–PMS–RS–MP and TLS–RS–MP. In contrast, the decision-facilitating role consists of the following path: TLS–BSA–MP. In addition, the combination of both the decision-influencing role and decision-facilitating role of MCS includes the following path: TLS–PMS–RS–BSA–MP. Finally, our study explores the adoption of a “Western” MCS in a transitional economy such as Vietnam. The findings of our study add to the list of studies that have examined the effectiveness of adopting a “Western” MCS to enhance organizational decision-making processes (Anderson & Lanen, 1999; Doan et al., 2011; O'Connor et al., 2004). The results of our study suggest that the adoption of effective “Western” MCS design choices can enhance managers' performance across national boundaries (i.e. enterprises operating in a transitional economy such as that of Vietnam). This result has important implications for companies in the Anglo-American block (e.g. Australia, United Kingdom, United States) that wish to establish a business in a transitional economy in the Asian block (e.g. Vietnam).

The findings of our study should be interpreted in light of several limitations. First, the measurements of all variables of the study were based on a single questionnaire; therefore, associations between variables may be somewhat overestimated. Second, the use of convenience sampling to collect data is prone to sampling bias through under- or over-representing subgroups of enterprises (Kumar, 2006). Necessary steps of the survey should be conducted to reduce sampling bias. A related issue to the sample is the use of the small sample size in this study. Numerous researchers (see Bentler & Bonnet, 1980; Guadagnoli & Velicer, 1988; Zimmerman, Eason, & Gowan, 1999) have commented on and criticized the problems associated with the use of a small sample size for structural equation modeling. For example, Zimmerman et al.

(1999, p. 135) note that a “small sample estimate often results in non-convergence, improper solutions, and estimate parameter instability.” We overcame the issue of the small sample size (Wold, 1985) by using PLS because it is a regression-based technique. PLS is a technique of latent variable modeling that requires a relatively small sample size and requires ten cases for the most complex regression (Chin, 1998; Vandenbosch, 1999). In our study, the most complex regression was that of managerial performance as the dependent variable with five independent variables, suggesting a minimum sample size of 50 cases. Third, prior studies (e.g. Prien & Liske, 1962; Thornton, 1968) argue that the use of self-rated scales (e.g. managerial performance) is likely to generate higher mean values (higher leniency error) and a restricted range (lower variability error) in the observed scale. Future research may improve the validity of the construct by using 360° feedback (from the superior, self, co-workers, subordinates, and customers) to assess managerial performance (Fletcher & Baldry, 2000). Fourth, our path (structural) model implies causality. However, the survey method employed in our study allows for the examination of statistical associations at one point in time. The various statements about the direction of relationships proposed in this study can only be made in terms of the consistency of the results with the effects proposed in the theoretical discussions. The use of a different research method, such as a longitudinal field study, would be appropriate to investigate systematically the theoretical causal relationships proposed in our study. Fifth, given that all the responses of this study came from the same manager to a set of survey items, the potential problem of common method biases may exist.⁵ We conducted the Harman's one-factor test to verify the extent to which common method variance was a concern. A factor analysis was conducted on all items measuring the eight variables. We obtained a five-factor solution using the criterion of eigenvalue greater than one. The result of our factor analysis explained 64.61% of the variance. The first factor accounted for only 34.40% of the variance. Given that no single factor emerged explaining the majority of the variance, we conclude that common method variance does not seem to be a significant threat to our results obtained. Finally, future studies should consider further factors that might affect the relationships examined in this study (e.g. culture and ownership types) in the research model to enrich the literature on leadership styles, comprehensive PMS, reward system, use of BSA information, and managerial performance.

Appendix A. Survey questionnaire

A.1. Transformational leadership style

Please indicate, by placing an appropriate number from 1 to 7 in the right column, the extent to which the following leadership behaviors represent your superior.

Not at all	Sometimes					Frequently, if not always
1	2	3	4	5	6	7
1.	Displays power, confidence and ethics					
2.	Centers on value, beliefs and a sense of mission					
3.	Arouses subordinates' awareness about what is really important					
4.	Talks positively about the future					
5.	Has subordinates' respect					
6.	Makes subordinates feel proud of the group					
7.	Emphasizes the collective mission					
8.	Talks enthusiastically about what needs to be accomplished					

⁵ Common method biases are problematic because they are one of the principal sources of measurement error (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). It has been argued that measurement error threatens the validity of the conclusions about the relationships between measures and has both a random and a systematic component (Nunnally, 1978). For a critical review of the literature and recommended remedies for common method biases, see Podsakoff et al. (2003).

A.2. Comprehensive performance measurement system

Please indicate, by placing an appropriate number from 1 to 7 in the far right column, the extent to which **your company** uses these performance measures to **assess your performance as the manager of your department**.

	Not used at all		Average use				Used to a great extent	
	1	2	3	4	5	6	7	
1. Financial performance (e.g. measures for financial aspects of managerial performance such as meeting targets including revenue budget(s), cost targets, and where applicable profit targets).								
2. Non-financial performance (e.g., meeting the desired goal of (1) retaining existing customers, (2) attracting new customers, (3) improving quality of product/-service quality, (4) on time delivery of products/-services, and (5) maintaining employee turnover/satisfaction).								
3. Other performance measures for product, service and process innovation.								

A.3. Reward system

This part relates to the reward system of your company. A reward system consists of processes, practices and systems that are used to provide levels of pay and benefits to employees.

Please indicate the extent to which **you disagree or agree** with each of the following statements **applied to your company** by placing an appropriate number from 1 to 7 in the far right column.

	Strongly disagree		Neutral				Strongly agree	
	1	2	3	4	5	6	7	
1. Rewards are directly tied to individual performance								
2. Are directly tied to performance measures								
3. People's rewards increase as their performance increase								
4. Individuals whose performance ranks in the top 25% receive higher rewards than those in the bottom 25%								

A.4. BSA information

This part relates to managerial use of accounting information in decision-making process.

Please indicate the extent to which **you use accounting information** for making decisions **at work** by placing an appropriate number from 1 to 7 in the far right column for each of the following items.

	Not used at all		Average used				Used to a great extent	
	1	2	3	4	5	6	7	
1. The information that relates to future events (e.g. expected material price or expected sales volume for next year)								
2. The information that relates to probability estimated (e.g. probability of an increase in material price)								
3. Non-economic information (e.g. customer preferences, employee attitudes and competitive threats)								
4. Information on broad factors external to your company (e.g. economic conditions, population growth, GDP growth rate)								
5. Non-financial production (e.g. output rate, scrap levels, machine efficiency, employee absenteeism)								
6. Non-financial market information (e.g. market size, market growth)								

A.5. Managerial performance

Managerial performance is defined as the extent to which managers have accomplished their functions effectively.

Please indicate **your own performance** by placing an appropriate number from 1 to 7 in the far right column for each of the following **functional dimensions**.

	Very poor		Poor		Below average		Average		Above average		Very good		Excellent	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Planning														
2. Investigating														
3. Coordinating														
4. Evaluating														
5. Supervising														
6. Staffing														
7. Negotiating														
8. Representing														

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