

THE ROLE OF TIMELY PERFORMANCE MEASUREMENT AND MANAGEMENT SYSTEM IN IMPROVING FIRM'S PERFORMANCE

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ABSTRACT

The performance measurement and management system (PMMS) developed as strategic orientation aimed at providing information to enhance the performance. It is interesting to introduce the PMMS which is externally and future oriented to overcome the weakness of traditional PMMS and for competitive advantage. Apparent gaps seem to be attributed to its various conceptualizations resulted from disjointed efforts on the development PMMS. Moreover, inherited by the scarcity of studies, evidence had been exploratory and little is known about timely PMMS and its effects on firm's performance. The finding of this study indicated that timely PMMS has a positive impact on performance in Malaysian E&E manufacturing firms.

Keywords: *Timely Performance Measurement and Management System, Firm's Performance.*

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1. INTRODUCTION

Performance measurement and management system provides information to encourage managers to think strategically about how their activities fit with other parts of the organization, and to assist them in managing their firm's operations (Lillis & Anne, 2002; Fullerton & McWatters, 2002; Ullrich & Tuttle, 2004).

The changing nature of value creation complicates of the performance measurement process whereby the focus now is on managing intangible assets which are non-financial in nature, rather than managing tangible assets which are financial in nature (Kaplan & Norton, 2001). All of them contribute as major impetus for devising and implementing a good performance measurement system for a firm which can provide what it requires in meeting its objectives. In particular, performance measurement system, which relies on short-run profit measures, is not adequate to reflect firm's effectiveness in today's business environments (Neely, 1999; Phillips, 1999).

The importance of performance measurement to the management processes in firm has been frequently noted. Much of the research has focused upon Western approaches and classifications, with reliance upon case methods (Dixon, Nanni and Vollmann, 1990). Given recent shifts in manufacturing away from more developed countries, towards newly industrialized and developing countries. In spite of similarities between developing countries in regard to their need to develop and make use of management accounting systems to further their development needs, this study has highlighted the fact that there are unique environmental factors that pertain to individual countries.

Hence, the evidence is mixed on whether the importance placed on performance measures positively affects performance (Wouters, Kokke, Theeuwes and Van Donselaar, 1999), whereas a significant association between the importance of PMMS and firm's performance (Widener, 2006). The firm's strategy must be supported by appropriate regulatory factors and the process of actual production of the organizational structure and accounting systems (Shank & Govindarajan, 1993; Jermias & Gani, 2004). There is little known about the attributes of PMMS and what distinguishes them from other PMMS (Hall, 2008). Simon and Guilding (2008) mentioned that, the studies that develop and test hypotheses concerning factors relating to strategic management accounting adoption are still incomplete, and therefore, should be encouraged. However, there are numerous studies, which have been done, but the finding of those studies was inconclusive as have noted there some researchers claim that their findings are conflicting, while others inappropriately claim that their observations are supported by previous studies. The prior study on MCS characteristics have focused mainly on MAS as a whole, e.g. (Mia & Chenhall, 1994; Mia & Patiar, 2001; Bouwens & Abernethy, 2000) and few of researchers are focused on PMMS characteristics (e.g. Chenhall, 2005; Hall, 2008).

The nature of PMMS is ranging from combinations of financial and non-financial measures, for integrative of long-term strategy and operational goals, and linking operations of different perspectives of performance and strategies. Moreover, the finding of Malina and Selto's (2001) study has supported the role of PMMS in providing an overall measure of the performance, which managers perceive as important availability and useful information for managing their firms.

Motivated by the aforementioned background, proposed theoretical framework is that attempts to answer main objectives. Firstly it attempts to unravel the various perspectives and define timely PMMS and suggest on how it could be further

developed. Secondly; employing contingency theory as underpinning theory of study. Finally; investigate the role of timely PMMS in improving the firm's performance in Malaysian E&E manufacturing firms

The paper is organized as follows: the next section presents literature review relating to the development of the proposed theoretical framework. It followed by conceptualization of timely PMMS. The lasting sections presented the conceptual framework and propositions of the current.

2. LITERATURE REVIEW

2.1. TIMELY PERFORMANCE MEASUREMENT AND MANAGEMENT SYSTEMS:

The concept of timely PMMS is defined as strategy management tool. Timely PMMS is conceptualized here as a formal system usage for providing timeliness information to managers. A unique characteristic of PMMS is the explicit link established between performance measures and firm's strategy (Kaplan & Norton, 1996). Drawing on these descriptions of PMMS, it is defined the extent to which a PMMS provides managers with timely performance information. These information requirements are the user specifications of information involved in information seeking, and refer to those qualities of information perceived by managers to be useful to facilitate their decision making.

The conceptual draws on three key literature bases and illustrates three categories of antecedents of the usefulness of performance information characteristics: environmental uncertainty perceptions, decision-maker characteristics, and work environment factors (Chenhall & Morris, 1986). Environmental uncertainty perceptions are drawn from conceptual frameworks and empirical investigations in organization's design and behavioral decision-making; decision-maker factors are drawn from the personality and cognitive psychology literature; work environment factors are drawn from theories of managerial information processing. Although the considerable emphasis has been placed on potential benefits of contingency theory applications to accounting research, relatively few empirical investigations exist examining timely PMMS. The framework suggests that user timeliness information may depend on the nature of the external environment, work conditions that decision-makers have to deal with, and the psychological disposition of the decision-maker.

According to Belkaoui (1980), timely refers to the age of information. It has two components; interval and delay of time lapse between the preparations of two successive reports. Delay is the period of time necessary to process the data, prepare the report and distribute it. Chenhall and Morris (1986) suggest that timeliness is usually specified in terms of the provision of information on request and the frequency of reporting for the systematically collected information.

Timely PMMS includes the requested information, and it arrives immediately upon request or it is the information that is provided to a decision maker, after it has been automatically fed upon receipt into the information system. It may include reports, which are provided frequently on a systematic and regular basis. Less timely PMMS may include infrequent or delayed information. However, Mia and Patiar (2001) have found that the timely of information is critical for improving the process of efficiency, and the reduction of wastage. Chia (1995) suggests that the need for timeliness information become more acute in a firm that is highly decentralized. Therefore, it would seem that timely information is positively related to a manager's performance. The manager can respond more quickly to any event with updated information reports from the PMMS.

Timely can be seen as the period within which the department manager reports to the general manager for him to manage their performance. If the time that it takes to provide the information is short, then timely is strongly practiced. There is a definite relationship between timely and PMMS, since it is very important for managers to manage performance. Therefore, effective timely provides information that is adequate and on time for the managers to make decisions. For instance daily reports provided in a firm will help managers to know what is required and what should be done when they all meet the next morning for the daily firm operational review.

This paper will adopt Chenhall and Morris (1986) conceptualizations of timeliness, which includes the following two dimensions: frequency of reporting and speed of reporting.

2.2. FIRM'S PERFORMANCE

The concept of performance is related to the survival and success of a firm. Even though literature on performance is very extensive but there is still a lack in consensus about the meaning of the term. However, the majority of the studies have used financial and non-financial indicators to measure performance (Johannessen, Olaisen and Olsen, 1999). The financial and non-financial measures can be used to operationalize firm's performance, but the use of financial measures is a more common, even, to some extent, extent in the certain firm. Further, the financial reports have been produced a daily basis. Due to limitations of financial performance mentioned above and the impact of globalizations on today's business environment, firms could rethink their current performance measurement, which more is focusing on financial to a more balanced measurement which has both financial and non-financial dimensions (Atkinson & Brown, 2001).

There is also a growing need to assess firm's performance through non-financial indicators. The reason is that financial measures only tell about a firm's past performance while non-financial measures reflect the health and wealth-creating potential of the firm (Kalafut & Low, 2001). Furthermore, Kaplan and Norton (1996) argue that measurement using only financial measures can

damage an firms capacities, and they recommend that a combination of financial and non-financial measures are better suited for evaluating performance.

2.3. TIMELY PMMS AND FIRM'S PERFORMANCE:

Performance-measurement and management systems can play a key role in improving firm's performance (Kaplan & Norton, 2001; Ittner, Larcker and Randall, 2003b; Chenhall, 2003). The studies in MAS and; Chenhall, 2003). In addition, numerous researchers claimed that timely PMMS plays an important role in assisting a firm to achieve high level of performance (Fitzgerald, Johnston, et al., 1991; Kaplan & Norton, 1992; 1996; Chenhall, 2005).

Timely PMMS can be the foundation for a strategic management tools provided that certain development guidelines are followed, appropriate metrics is identified, and key implementation obstacles are overcome (Martinsons, Davison and Tse, 1999). As well as, Campbell, Datar, Kulp and, Narayanan, (2006) find that the firm's strategically linked performance measures systematically reveal more timely information about problems with the strategy, and distinguish between problems with strategy formulation, implementation, and fit. Moreover, the timely PMMS can play a crucial role in strategy implementation by helping to translate organizational strategy into desired behavior and results, communicate expectations, monitor progress, provide feedback, and motivate employees to improve performance (Kaplan & Norton, 2001; Ittner, et al., 2003b; Chenhall, 2003; Malagueno, et al., 2010).

3. PROPOSED THEORETICAL FRAMEWORK

This paper has advanced a proposed theoretical framework attempting to answer pertinent objectives. Inherited by its little progress to date, this paper unravelled timely PMMS various conceptualization and its claimed information characteristics and subsequently, the extent of the timely PMMS. By investigating the level of timely PMMS in Malaysia it will shed lights on PMMS development. It is assumed that high level of timely PMMS will indicate the high level of frequency and speed information that is provided. Theoretically, it could infer how timely PMMS should be further developed and promoted, while practically it could assist firms in designing their timely PMMS for particular improving their firm's performance.

Based on the conceptualisation of the respective variables presented above, the propositions are developed and presented below. The proposed theoretical framework is depicted in figure 3-1.

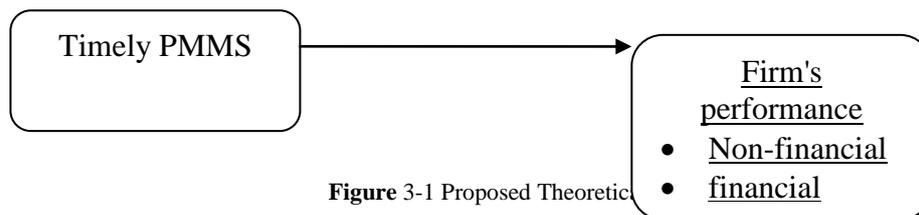


Figure 3-1 Proposed Theoretical Framework

This aspect would appear an important aspect of effective timely PMMS, as results of the association between firm's performance and its timely PMMS, which have been ambiguous; the evidence is mixed at best on whether the importance placed on the PMMS positively affects performance (Kaplan & Norton, 1992; 1996; Ittner & Larcker, 1998a; Wouters, et al., 1999). Despite, some studies have provided support for the association (Anderson, Fornell and Rust, 1997; Pavlov & Bourne, 2011).

H1. There is a positive relationship between timely PMMS and firm's performance.

H1.1. There is a positive relationship between timely PMMS and non-financial performance

H1.2. There is a positive relationship between timely PMMS and financial performance

4. RESEARCH METHODOLOGY

This study collected data on the interested relevant variables by using the questionnaire method. This method is believed to be a convenient means of collecting data from different respondents in a remarkably limited period of time and with extended geographical coverage.

4.1. POPULATION AND SAMPLING PROCEDURE

Since the proposed research is conducted in the Malaysian environment and within its manufacturing industry, the electrical and electronics (E&E) product manufacturing (high technology industry) is the targeted population being the largest sub-sector of the manufacturing sector. Manufacturing companies are selected because the adoption of PMMSs in this industry is generally commonplace. Specifically, a PMMS as one of the MCS and planning tools is widely used and common in the manufacturing sector. Furthermore, it could be argued that high level technology manufacturing is likely to be more receptive to adopting advance techniques such as a PMMS. The important economic role of the manufacturing sector implies that the overall well-being of this sector will have a large impact on the overall well-being of the Malaysian economy. Therefore, it is important to understand those factors influencing the manufacturing industry to assist in its overall performance.

4.2. MEASUREMENT OF VARIABLES

The identification of appropriate forms of measurement and the associated variables is created by undertaking an extensive review of the literature.

A 1-5 Likert scale is used for the items that measure PMMS, whereby 1 is 'not at all' and 5 is 'a great extent', and firm's performance constructs a 1-5 Likert scale is used for items, where 1 is 'very low' and 5 is 'very high'.

Timely PMMS is considered an aspect involving information, which refers to frequency and age of the information relevant to changes in the competitive environment, which includes consumer tastes, market developments and competitor activities. Its questionnaire items are adopted and modified based on the questionnaire that is developed and remarked by Chenhall and Morris (1986) as shown in table 1 below.

Table 4.1: Timely PMMS

No.	Items: in our company...
1	The PMMS frequently provides reports on a systematic basis.
2	The PMMS frequently provides reports on a regular basis.
3	The PMMS provides the information automatically upon its receipt.
4	The PMMS provides the requested information immediately upon request.
5	The PMMS provides information automatically as soon as processing is completed.
6	There is no delay between an event occurring and relevant information being reported by the PMMS.

Firm's performance is defined based on the use of financial and non-financial indicators to assess the performance of a company. The respondents is directed to indicate how well their Firm's performance compares with the industry average in last three. The survey items in each sub-construct are being developed and modified based on a thorough literature review and based on Govindarajan (1984) in order to obtain content validity. The six items in this instrument are used to measure the overall performance of a firm by means of a manager's self-evaluation.

The survey items are adopted and modified based on the questionnaire that is developed and remarked by Govindarajan (1984) as shown in table 4.2 below.

Table 4.2.: Items of performance

Non- Financial	
1	level of market share growth that this company has achieved.
2	level of sales growth that this company has achieved.
3	level of new customer acquisition that this company has achieved.
4	level of customer satisfaction that this company has achieved.
5	level of customer response time that this company has achieved.
6	level of retaining valued customers that this company has achieved.
Financial:	
1	level of return on investment (ROI) that this company has achieved.
2	level of return on assets (ROA) that this company has achieved.
3	level of return on equity (ROE) that this company has achieved.
4	level of profit margin on sales that this company has achieved.
5	level of operating income that this company has achieved.
6	level of generation of cash flow that this company has achieved.

5. DATA ANALYSIS

5.1. DESCRIPTIVE ANALYSIS

Table 5.1 presents the minimum, maximum, means and standard deviation of the PMMS and firm's performance. The table reveals that the timely PMMS in Malaysian E&E manufacturing firms are above average on timely PMMS. (mean=3.76, standard deviation=0.52). given that the scale used a 5-point scale (1 = not at all, 5 = to very great extent).

Table 5.1 shows the minimum, maximum, means and standard deviation of the two components of firm's performance (non-financial and financial). The table 5.1 reveals that the Malaysian E & E manufacturing firms have achieved non-financial performance (mean=3.64, standard deviation=0.62), higher than the level of financial performance (mean=3.46, standard deviation=0.55). given that the scale used a 5-point scale (1= very low, 5=very high), it can be concluded that Malaysian E&E manufacturing firms have achieved above average on these two components of performance.

Table 5.1: Descriptive Statistics

Variables	Minimum	Maximum	Mean	Std. Deviation
Timely PMMS	2.60	4.80	3.76	.52
Non-financial	2.20	5.00	3.64	0.62
Financial	2.17	4.50	3.46	0.55

Note: all variables used a 5-point likert scale

5.2. CORRELATION ANALYSIS

Table 5.2 reveals also that all the correlations are in the hypothesised positive relationship. The table presents also that timely PMMS are significant correlated with the two dimensions of firm's performance where the correlations range between (0.419 ≤ r ≤ 0.559, p < 0.01).

Table 5.2 : Pearson Correlations Coefficient for All Variables

Variables	TI	NF	F
Timely PMMS	1		
Non-financial	0.559**	1	
Financial	0.419**	0.635**	1

Notes: Level of significant: *p<0.05, **p<0.01, N=118.

5.3. TESTING THE HYPOTHESES

The main target of this study was to examine the relationships between timely PMMS and firm's performance. There is one hypothesis, and its resultant (2) sub-hypotheses in this study.

5.3.1. THE RELATIONSHIP BETWEEN TIMELY PMMS AND NON-FINANCIAL PERFORMANCE

Table 5.3 displays the results of multiple regression analysis of timely PMMS on non-financial performance. The regression model were significant (F=52.741, p<0.01). Timely PMMS explains 31.3% of non-financial performance variance. These results give support to the hypothesis H1.1 (timely PMMS and non-financial performance).

Table 5.3: Multiple Regression Result for the Relationship between timely PMMS and Non-financial Performance

Variable	DV: Non-financial Performance		
	Std. beta	t-value	Sig.
Timely PMMS	.559**	7.262	.000
F value	52.741**		
R2	.313		
Adjusted R2	.307		

Note: p-values for each unstandardized parameter estimate are in parentheses.

Level of significant: *p<0.05, **p<0.01.

5.3.2. THE RELATIONSHIP BETWEEN TIMELY PMMS AND FINANCIAL PERFORMANCE

Similar analysis was conducted for the relationships between timely PMMS and financial performance. Table 5.4 summarises the results of multiple regression analysis. The regression models were significant (F=24.94, p<0.01). However, the timely PMMS in explains 18% of the variance in financial performance.

These results give support to hypothesis H1.2 (timely PMMS and financial performance) was not supported.

Table 5.4: Multiple Regression Result for the Relationship between timely PMMS and Financial Performance

Variable	DV: Financial Performance		
	Std. Beta	t-value	Sig.
Timely PMMS	0.419**	4.977	.000
F value	24.766**		
R2	0.176		
Adjusted R2	0.169		

Note: p-values for each unstandardized parameter estimate are in parentheses.

Level of significant: * $p < 0.05$, ** $p < 0.01$.

The results of testing the hypotheses concerning the relationships between timely PMMS and firm's performance. These results give support to the hypotheses, positive relationship between timely PMMS and firm's performance.

6. FINDINGS

Based on the preceding section, this section further discusses the study findings. The discussion is derived from the theoretical perspective, empirical evidence and conceptual studies that are considered to be suitable for this study

The first part investigate and measure the level of timely PMMS among Malaysian E&E manufacturing firms. The results indicated that the Malaysian E&E manufacturing firms, on average, adopt a relatively high level of timely PMMS as indicated by timely information. Whereupon the average of timely PMMS are (mean 3.76).

The results of study showed that Malaysian E&E manufacturing firms, on average, achieved a relatively high level of firm's performance as indicated by non-financial and financial measures. The average of the each dimension is as follows: non-financial (mean=3.64) and financial (mean=3.46). This study suggested that Malaysian E&E manufacturing firms were achieved above average level of performance and in order to command that, overall performance is satisfactory.

This paper also attempts to identify the association of timely PMMS and firm's performance by employing contingency theory as its underpinning theory. Theoretically, it will contribute further in MAS/MCS contingency-based researches. It is hoped that it will shed some lights in relation to the timely PMMS information and strategic outcomes. By investigating on the strategic outcomes, it will reveal the implication of certain timely PMMS on the certain firm's performance. Theoretically, it could assist academic to develop PMMS for certain firm's performance that intended to be improved. For firms in turn, it will imply that to address certain performance issues, they could focus on certain timely PMMS.

In summary, the proposed study attempts to enrich the current knowledge on PMMSs, and firm's performance literatures from developing country's perspective generally. The timely PMMS is as a value of firm, which intends to improve performance.

Furthermore, the results of this study indicated that timely PMMS has a significant positive effect on non-financial performance. This consistent with a considerable body of previous studies that has indicated that timely PMMS has a positive impact on performance (Chia, 1995). From this view, the result implies that timely PMMS may enable Malaysian E&E manufacturing firms in generating timely information, in order to improve their non-financial performance.

The result of this study revealed that timeliness is significantly related to financial performance, this result is in line with a wide body of research which indicates that timely PMMS influences financial performance (Chia, 1995). The significant relationship is explainable by the fact that strong timely PMMS focuses would lead the attention to non-financial more than financial performance.

The most significant contribution of study lies primarily in its theoretical and practical implications, but it also has the ability to motivate and incite future academic endeavors. Accordingly, the findings of this study can be used as a basis for more research in the future.

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