

Differentiation Strategy, Performance Measurement Systems and Organizational Performance: Evidence from Australia

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ABSTRACT

While there is agreement on the beneficial role of non-financial performance measures in supporting strategic priorities associated with differentiation strategies, equivocal research results have emerged on the role of financial performance measures in this context. Against a background of calls for a more balanced approach to performance measurement systems, this study examines the mediating role of both non-financial and financial performance measures in the relationship between a differentiation strategic orientation and organizational performance. A path-analytical model is adopted using questionnaire data from Australian manufacturing firms. The results indicate that, firstly, firms pursuing a differentiation strategy (product flexibility or customer service focus) utilize non-financial *as well as* financial performance measures; secondly, these performance measures are associated with higher organizational performance; and thirdly, there is a positive association between a firm's strategic emphasis on differentiation and organization performance through the mediating role of non-financial and financial performance measures.

JEL classification: M1, M19

Keywords: Differentiation strategy; Performance measurement; Financial and non-financial performance measures; Organizational performance; Manufacturing firms

I. INTRODUCTION

Intense competition in domestic and international markets, more demanding, assertive customers and rapid advancement of technology (all primarily fuelled by internationalisation of business) has placed greater pressure on organizations to seek ways to achieve a sustained competitive advantage. Within the Australian manufacturing sector, it is becoming increasingly apparent that firms struggle to compete on a low cost basis, favouring strategies of differentiation (Terziovski and Amrik, 2000; Lillis 2002, Baines and Langfield-Smith, 2003). Thus, as the cost of labour becomes prohibitively high in developed countries (such as Australia) relative to developing countries, Australian manufacturing firms tend to seek competitive advantage by producing products with more valued features, such as product quality, product flexibility or reliable delivery.

A sustained competitive advantage is not, however, only about strategic choice. Both the management and accounting literatures have emphasised the importance of appropriate organizational structures and systems to support a firm's strategic priority (Porter, 1980; Miles and Snow, 1978; Bouwens and Abernethy, 2000; Abernethy and Lillis, 2001; Hoque, 2004). Indeed, successful organizations are those that implement organization structures and systems that facilitate the achievement of their strategic choices (Abernethy and Lillis, 2001). Performance measurement systems (PMS) are increasingly recognised as a vital component of organization systems that, when aligned with the firm's strategic priorities, lead to superior organization performance (Abernethy and Lillis, 2001; Hoque, 2004; Chenhall, 2005; Gosselin, 2005; Grant, 2007).

Given that empirical evidence on the appropriate design of PMSs is scant (Chenhall, 2005), we extend prior theory on the performance implications of PMSs in a number of ways. First, despite current research that suggests less accounting-centric, non-financial PMSs are more appropriate for strategies of differentiation, *vis a vis* financial, efficiency based measures (e.g., Hoque, 2004), we argue that non-financial as well as financial measures are critical to the successful implementation of a differentiation strategy. Second, since there is no *a priori* reason to expect that a firm's strategic choices will, in itself, affect organizational outcomes (Abernethy and Lillis, 2001), the model developed here explores the mediating role of PMSs. That is, our model aims to demonstrate that a firm's strategic choice is associated with organizational performance via appropriately designed PMSs. Thus, PMSs become a vital component of effective strategic management. Third, rather than (conventionally) measuring strategy on a continuum from cost leadership to differentiation, the instrument adopted here measures the firm's emphasis on different strategic priorities (Chenhall and Langfield-Smith, 1998b) which acknowledges that a strategy of differentiation can be achieved along a number of dimensions (e.g., product flexibility, quality and/or customer service). Finally, we examine PMSs within the context of the Australian manufacturing environment where there is an urgent imperative to improve the international competitiveness of this sector.

The remainder of the paper is structured as follows. In the next section, the relevant literature is reviewed and hypotheses are formulated. The research method and variable measurement is presented followed by an analysis of the results of the questionnaire data. Finally, we conclude by raising important theoretical and practical implications in the area of PMS, along with limitations and suggestions for further study.

II. THEORY DEVELOPMENT AND HYPOTHESES FORMULATION

This study aims to develop a model to understand the relationships between strategy, performance measurement systems and organizational performance. The model tests (1) the direct association between a firm's strategy and the extent of use of both financial and non-financial performance measures; (2) the direct association between the extent of use of financial and non-financial performance measures and organizational performance; and (3) the indirect path from strategy to organizational performance through the appropriate use of financial and non-financial measures.

A. Strategy and Performance Measurement Systems

Strategy is often considered as the means by which a firm achieves and sustains a competitive advantage over other firms in the industry (Porter, 1980; 1985). One of the most commonly-used strategic typologies was developed by Porter (1980; 1985), who identified two generic strategies: product differentiation and cost leadership. A differentiation strategy involves the firm creating a product or service, which is considered unique in some aspect that the customer values. Cost leadership emphasises low cost relative to competitors. Porter (1980; 1985) argued that cost leadership and differentiation strategies are mutually exclusive. However, more recent research has questioned this idea, recognising that firms may pursue elements of both types of strategy (see for example, Chenhall and Langfield-Smith, 1998b).

A number of studies have suggested that many manufacturing firms view a strategy of differentiation as a more important and distinct means to achieve competitive advantage than a low cost strategy (De Meyer et al., 1989; Kotha and Orne, 1989; Miller, 1988; Kotha and Vadlamani, 1995; Lillis, 2002; Baines and Langfield-Smith, 2003). It is argued that Porter's generic differentiation strategy has been further developed into more specific strategies, such as differentiation by product innovation, customer responsiveness, or marketing and image management, in responding to the complexity of the environment, while cost leadership remains focused on price and cost control (Miller, 1986; Perera et al., 1997; Lillis, 2002). Globalisation has led to more intense competition among manufacturing firms, with increased customer demands (Baines and Langfield-Smith, 2003); as such, a differentiation strategy provides greater scope to produce products with more valued, desirable features as a means of coping with such demands. In comparison, concentrating purely on a cost leadership strategy may no longer be appropriate to accommodate the diverse needs and demands of contemporary manufacturing organizations (Kotha and Vadlamani, 1995; Perera et al., 1997). This study, therefore, focuses on the strategy of differentiation in the manufacturing sector.

It is widely recognised that organization and management systems are designed to support the business strategy of the firm in order to achieve competitive advantage (Porter, 1980; Dent, 1990; Simons, 1987, 1990; Miles and Snow, 1978; Kaplan and Norton, 1992; Nanni et al. 1992; Waterhouse and Svendsen, 1999; Hoque, 2004; Gosselin, 2005). Concentrating more specifically on PMSs, the management and accounting literatures suggest that financial, efficiency-based performance measures are less relevant while non-financial measures are more relevant for strategies of differentiation (Porter, 1980; Govindarajan, 1988; Abernethy and Lillis, 1995; Ittner and Larker, 1997b; Perera et al., 1997; Bisbe and Otley, 2004; Hoque, 2004). With a focus on developing products with *unique* attributes/features, researchers argue that financial performance measures are incompatible with the creativity and innovation necessary for a differentiation strategy (Perera et al., 1997; Amabile, 1998; Chenhall

and Langfield-Smith, 1998b; Hoque, 2004). Relying on the work of Macintosh (1985), Abernethy and Lillis (1995) explain that in the absence of process standardisation and the need to encourage cross-functional co-operation and innovation, PMSs require a shift from narrowly focussed financial (efficiency) measures to measures that capture the critical success factors of product differentiation. These measures are likely to be non-financial and include such measures as customer service satisfaction, delivery performance, and product innovation measures.

An emerging stream of literature has argued that traditional financial accounting information should not be discarded in the context of differentiation (innovation) type strategies (Bisbe and Otley, 2004; Chenhall, 2005). Within the context of a balanced PMS, non-financial performance measures are expected to encourage innovation and creativity while financial performance measures are expected to “block innovation excesses and to help ensure that ideas are translated into effective product innovation and enhanced performance” (Bisbe and Otley, 2004, p. 710). By placing appropriate boundaries around the innovation process, financial measures can provide guidance to effective performance for firms pursuing a differentiation strategy.

The work of Simons (1995, 2000) also suggests that financial (accounting) measures can facilitate the innovation process when we consider *how* these measures are used. While financial measures used in a diagnostic (monitoring) manner may curb the innovation process, financial measures used in an interactive (opportunity seeking, learning) manner may enhance the innovation process fundamental to differentiation strategies. Although this study does not distinguish between the mode of use of financial measures, it does lay a theoretical foundation for understanding the effective use of financial performance measures in a context of firms pursuing a differentiation strategy. Finally, the ‘revival’ of financial performance measures can be further illustrated by the Balanced Scorecard (Kaplan and Norton, 1992), which incorporates the balanced use of both financial and non-financial performance measures to communicate strategic intent and motivate performance against established strategic targets (Ittner and Larcker, 1998).

Based on the above arguments, firms pursuing a differentiation strategy are likely to adopt both financial and non-financial performance measures to provide them with information needed for different aspects of operations.

H1: There is a direct positive association between a firm’s strategic emphasis on differentiation and the extent of use of financial and non financial performance measures.

B. Performance Measurement Systems and Organization Performance

Performance measurement systems are designed to provide a set of mutually reinforcing signals that direct managers’ attention to strategically important areas that translate to organization performance outcomes (Dixon et al., 1990). Recent theorising on PMSs has an increasingly strategic focus such that these systems are designed to provide a way of operationalising strategy into a coherent set of performance measures (Chenhall, 2005), guiding managers behaviour toward key organization outcomes. Within this literature (as highlighted in the previous section) there is increasing recognition of the need to develop balanced systems (Kaplan and Norton, 1996) that include both financial and non-financial performance measures.

Previous research, however, has only examined the effects of financial or non-financial performance measures on an organization’s *overall* effectiveness (e.g., Abernethy and Lillis, 1995; Perera et al., 1997; Chenhall and Langfield-Smith, 1998b;

Baines and Langfield-Smith, 2003; Hoque, 2004; Bisbe and Otley, 2004). For example, both Baines and Langfield-Smith (2003) and Hoque (2004) found a positive association between the use of non-financial performance measures and overall organization performance. Conversely, Simons (1987) found support for the different extent of usage of financial controls between defenders [cost leadership] and prospectors [differentiators], (see Miles and Snow [1978] for this alternative strategic typology. However, Simons (1987) also found that high performers from *both* strategic groups seemed to use tight controls (i.e., financial, efficiency-based measures).

As argued above, firms pursuing a differentiation strategic focus are likely to use both financial and non-financial performance measures, and therefore, it is important to examine whether financial and non-financial performance measures are associated with different aspects of organization performance. It is likely that differentiating firms will use financial performance measures to evaluate their financial performance (that is how well they have extracted profits from the market), and concurrently use non-financial performance measures to provide additional insight into their non-financial performance (that is, to measure how well they have created value for their customers). By monitoring their financial and non-financial measures, differentiating firms are more likely to achieve sustained competitive advantage in relation to both financial and non-financial dimensions of organization performance. Although there is little research that has studied performance dimensions separately, Ittner and Larcker (1997a) reported links between the use of non-financial measures and performance with respect to quality, which reinforces the following hypothesis.

H2: There is a direct positive association between a firm's extent of use of financial and non financial performance measures and financial and non-financial organization performance, respectively.

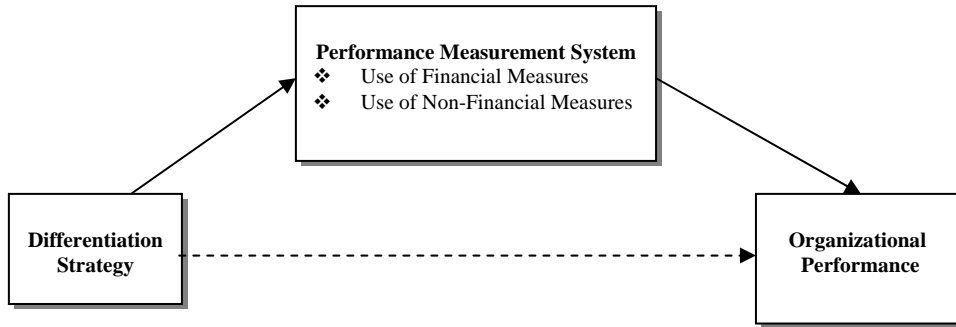
C. Strategy, Performance Measurement Systems and Organizational Performance

Notwithstanding the direct relationships outlined above (strategy and PMSs, and PMSs and organizational performance), we also hypothesise an indirect path between strategy and organization performance through the appropriate use of PMSs. That is, we expect that managers working in firms emphasising a strategy of differentiation will make use of both financial and non-financial performance measures. In turn, PMSs characterized by financial and non-financial measures are likely to be associated with enhanced organization performance because such measures are less narrowly focussed and enable managers to focus on the dual components of organization performance, creating value (e.g. innovation, flexibility) and appropriating value (e.g., profits) (Mizik and Jacobson, 2003). Thus, we do not expect a direct relationship between differentiation strategy and organization performance; these two variables are connected via appropriate use of PMSs, incorporating both financial and non-financial performance measures. The mediating effect of PMSs in the relationship between strategy and organization performance can be expressed as follows:

H3: There is an indirect positive association between a strategic emphasis on differentiation and organizational performance through the extent of use of financial and non financial performance measures.

A summary of the model is presented in Figure 1, where the solid lines represent direct relationships and the dotted line represents an indirect relationship.

Figure 1
Hypothesized model



III. RESEARCH METHOD AND VARIABLE MEASUREMENT

A. Sample Selection

A survey was administered to 200 manufacturing firms selected from the *Business Review Weekly* list of Australia's largest companies. Manufacturing firms were selected because there is evidence that, particularly in Australia, the manufacturing sector is facing substantial environmental uncertainty due to intense competition brought about by globalization. One option for manufacturing firms is to increasingly differentiate their product offerings to remain competitive. Since strategies of differentiation are the focus of this study, the Australian manufacturing sector seems quite apt. Further, the choice was made to enhance comparability with prior work in this field where the majority of work undertaken in this stream of research is in the manufacturing sector. Firms selected were either 'strategic business units' (divisions of larger corporations) or independent companies. Each company was initially contacted by telephone to identify the name of the most suitable person within each business unit, his or her job title and the business unit's current address. These people were usually the senior management accountant, financial controller, or chief executive within a business unit. The questionnaires were mailed to the appropriate person with an explanatory cover letter and a reply-paid, self-addressed envelope for the return of the questionnaire. There were 84 usable responses received from the sample of 200 business unit managers, or a favourable response rate of 42%.

The sample selected was not a true random sample, as it was drawn from Australia's largest manufacturing companies. Hence, the findings of this study should not be interpreted as a generalization to the overall population of manufacturing companies. Considering size is usually associated with resources available to implement a range of performance measures, it is likely that the sample included a greater proportion of companies employing non-financial performance measures than the total population of manufacturers (Chenhall and Langfield-Smith, 1998a; 1998b). Demographic data related to respondents' organizational position, years of experience, organization size and industry are detailed in Appendix A.

B. Variable Measurement

Data was collected using a questionnaire to measure variables specified in the hypotheses: strategic priorities, performance measurement systems and organizational performance.

1. Strategy

While another similar study (Hoque, 2004) measured strategy on a continuum from cost leadership to differentiation, this study used Chenhall and Langfield-Smith's (1998b) strategy instrument, which measures strategic priorities by using 11 strategy items identified by Miller et al. (1992). The instrument was chosen because it recognises that there may be different dimensions of a differentiation strategy. Although cost leadership is part of the measure, these items were excluded since this form of strategy was not the focus of this study. Respondents were asked to indicate the degree of emphasis that their firms had given to a range of strategic priorities over the past three years. The Likert-scale ranges from no emphasis (scored one) to high emphasis (scored seven). A principal components exploratory factor analysis was undertaken. Oblique rotation was chosen, as it is the most efficient method when it is believed that the underlying influences are correlated (Harman, 1967). This method was also used by Chenhall and Langfield-Smith (1998b) in their factor analysis of this instrument.

As a first step, items with loadings larger than 0.3 were retained. The analysis generated two factors (See Appendix B). The factors were named product flexibility (Flexible) for Factor 1 and customer service (Customer) for Factor 2. These two factors are concerned, primarily, with aspects of product differentiation and they met acceptable reliability levels for exploratory research, with Cronbach alphas of 0.74 and 0.76 respectively. This reinforces Miller's (1986) argument that there are at least two different types of differentiation strategies: one based on product innovation, design and quality, and the other based on creating an image through marketing practices.

2. Use of Financial and Non-financial Measures

A modified version of Le Cornu and Lockett's (2000) instrument was used in this study. Some items were deleted from the original list, and new items, such as Economic Value Added (EVA), working capital ratio and product profitability were added to the list. The final measure contained 37 performance items, and respondents were asked to rate the extent to which these performance measures have been used by their business units on a seven-point Likert-scale scored as never used (scored one) to always used (scored seven).

In order to test the hypotheses in this study, the 37 performance measures were separated into two categories: financial and non-financial performance measures. Classification of the measures into financial and non-financial measures was based on prior classifications by Horngren et al, (1994, pp. 890-892) and Waterhouse and Svendsen (1999). To be classified as financial, an item had to be able to be expressed in monetary terms, and/or be specifically or directly reflective of financial value rather than customer-focused factors, such as quality and flexibility. In all, 13 items were classified as financial measures and 24 items as non-financial measures. The breakdown of items into financial and non-financial is included in Appendix C. Reliability tests were also performed to examine reliability of the two sub-scales. The

financial measure sub-scale (Fin) had a Cronbach alpha of 0.76, while the non-financial sub-scale (Nonfin) had a Cronbach alpha of 0.91, indicating high reliability.

3. Organizational Performance

Organizational performance was measured using an instrument developed by Gupta and Govindarajan (1984) and Govindarajan (1988), which measures organizational performance along multiple dimensions, rather than on any single dimension. There are two parts to the measure where SBU managers are asked to rate the degree of importance of each of the performance dimensions as well as the rate their SBU's performance on the specified dimensions, using a seven-point Likert scale with anchors "significantly below average" and "significantly above average". Thus, in arriving at a measure for organizational performance, the degree of importance of each dimension was used as weights, with performance on each item being weighted by the relative importance of each item. This instrument has been widely used in prior research (see for example, Govindarajan and Fisher, 1990; Chenhall and Langfield-Smith, 1998b; Bisby and Otley, 2004; Hoque, 2004), and was developed in the context of strategy studies. The items comprising this scale were divided into two subscales, financial organizational performance, and non-financial organizational performance. The breakdown of items into these categories is shown in Appendix D.

IV. RESULTS

A. Path Analysis

Ordinary least-squares regression-based path analysis was adopted to test the hypotheses. This technique allows a dependent variable in one equation to become an independent variable in another equation, and it is often employed to test relatively simple relationships (Schumacker and Lomax, 1996). This technique was used to show the relation between strategy and PMSs, the relation between PMSs and organizational performance, and the indirect relation between strategy and organizational performance via PMSs.

The use of multiple regression requires certain assumptions of the data, especially in relation to distributional characteristics. Data screening was conducted to ascertain that the data satisfied the relevant assumptions for multiple regression. First, no evidence of multicollinearity was found by considering variance inflation factors for each variable. Second, data was tested for normality. Using Mardia's test in AMOS 4, it was found that the data approximately followed a multivariate normal distribution.

The descriptive statistics and the zero-order correlation coefficients for all the variables are presented in Tables 1 and 2, respectively.

Table 1
Descriptive statistics

Variables	Mean	S.D.	Theoretical Range		Actual Range	
			Min	Max	Min	Max
Flexible manufacturing strategy (Flexible)	4.43	1.20	1	7	1	7
Customer service strategy (Customer)	5.54	1.18	1	7	1	7
Financial Measures (Fin)	5.53	0.78	1	7	3.85	7
Non-financial Measures (Nonfin)	4.27	1.05	1	7	1.42	6.63
Financial Effectiveness (Finperf)	31.26	8.73	1	49	6	49
Non-financial Effectiveness (Nonfinperf)	22.90	7.32	1	49	3	41.33

Table 2
Correlation matrix for all measured variables

Variables	Flexible	Customer	Nonfin	Fin	Finperf	Nonfinperf
Flexible	1.00					
Customer	0.141	1.00				
Nonfin	0.406**	0.278**	1.00			
Fin	0.224*	0.212*	0.531**	1.00		
Finperf	0.038	0.285**	0.293**	0.385**	1.00	
Nonfinperf	0.526**	0.276**	0.573**	0.441**	0.496**	1.00

**Significant at .01 level, *Significant at .05 level

B. Results

Four models have been developed to test the hypotheses in this study. Models 1 and 2 report regression results for flexible manufacturing strategy, use of non-financial performance measures and non-financial organization performance (Model 1); and flexible manufacturing strategy use of financial performance measures and financial organization performance (Model 2). Models 3 and 4 report regression results for customer service manufacturing strategy, use of non-financial performance measures and non-financial organization performance (Model 3); and customer service manufacturing strategy use of financial performance measures and financial organization performance (Model 4). In each case, the regression results were used to compute the magnitudes (standardised beta coefficients) of the direct effects in the path models, and the method described by Sobel (1982) was also used to test the significance of the mediating effects.

1. Results of Hypotheses 1

Model 1 and Model 2 regressions in Table 3 and Table 5, respectively, report a positive relation between product flexibility strategy and use of non-financial performance measures (beta = 0.41, $p < .001$) and the use of financial performance measures (beta = 0.22, $p < .05$). Further, Models 3 and 4 regressions in Tables 7 and 9, respectively,

show a positive association between customer service strategy and the use of non-financial (beta = 0.28, $p < .01$) and financial performance measures (beta = 0.21, $p < .05$). These results support H1 in that SBUs pursuing a strategy of differentiation (whether via product flexibility or customer service) use PMSs characterised by both financial and non-financial performance measures.

Table 3

Model 1: Regression results for flexibility strategy and non-financial measures/performance

Dependent variable	Independent variables	Associated hypothesis	Path coefficient	<i>t</i> -value	<i>p</i> -value	Adjusted R ²
Nonfin	Flexible	H1	0.406	4.025	0.000	15.5%
Nonfinperf	Flexible	H3	0.351	3.830	0.000	41.7%
	Nonfin	H2	0.430	4.695	0.000	

Table 4

Model 1: Decomposition of observed correlations

Combination of variables	Observed correlation =	Direct effect +	Indirect effect +	Spurious effect
Flexible/Nonfin	0.406	0.406	-	-
Flexible/Nonfinperf	0.526	0.351	0.175 ¹	-
Nonfin/Nonfinperf	0.573	0.430	-	0.143

¹Significance of indirect effect (*t*-value = 3.055, $p < .01$)**Table 5**

Model 2: Regression results for flexibility strategy and financial measures/performance

Dependent variable	Independent variables	Associated hypothesis	Path coefficient	<i>t</i> -value	<i>p</i> -value	Adjusted R ²
Fin	Flexible	H1	0.224	2.080	0.041	4%
Finperf	Flexible	H3	-0.050	-0.480	0.632	13%
	Fin	H2	0.396	3.767	0.000	

Table 6

Model 2: Decomposition of Observed Correlations

Combination of variables	Observed correlation =	Direct effect +	Indirect effect +	Spurious effect
Flexible/Fin	0.224	0.224	-	-
Flexible/Finperf	0.038	-0.050	0.088 ¹	-
Fin/Finperf	0.385	0.396	-	-0.011

¹Significance of indirect effect (*t*-value = 1.82, $p < .05$)

Table 7
Model 3: Regression results for customer service strategy and non-financial measures/performance

Dependent variable	Independent variables	Associated hypothesis	Path coefficient	t-value	p-value	Adjusted R ²
Nonfin	Customer	H1	0.278	2.623	0.010	6.60%
Nonfinperf	Customer	H3	0.126	1.346	0.182	32.7%
	Nonfin	H2	0.538	5.738	0.000	

Table 8
Model 3: Decomposition of observed correlations

Combination of variables	Observed correlation =	Direct effect +	Indirect effect +	Spurious effect
Customer/Nonfin	0.278	0.278	-	-
Customer/Nonfinperf	0.276	0.126	0.150 ¹	-
Nonfin/Nonfinperf	0.573	0.538	-	0.035

¹Significance of indirect effect (t-value 2.39, p<.01)

Table 9
Model 4: Regression results for customer service strategy and non-financial measures/performance

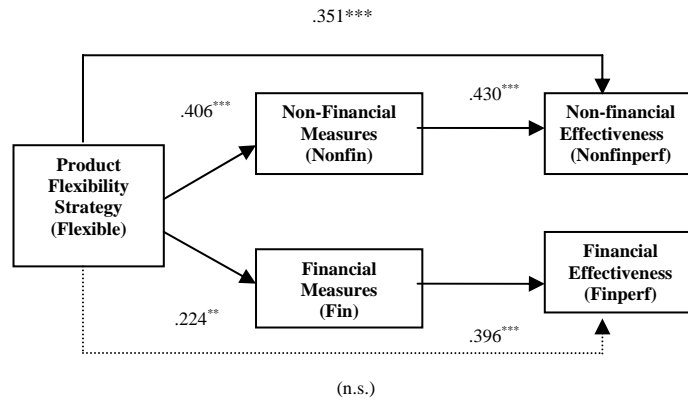
Dependent variable	Independent variables	Associated hypothesis	Path coefficient	t-value	p-value	Adjusted R ²
Fin	Customer	H1	0.212	1.967	0.053	3.3%
Finperf	Customer	H3	0.213	2.081	0.041	17.1%
	Fin	H2	0.339	3.319	0.001	

Table 10
Model 4: Decomposition of observed correlations

Combination of variables	Observed correlation =	Direct effect +	Indirect effect +	Spurious effect
Customer/Fin	0.212	0.212	-	-
Customer/Finperf	0.285	0.213	0.072 ¹	-
Fin/Finperf	0.385	0.339	-	0.046

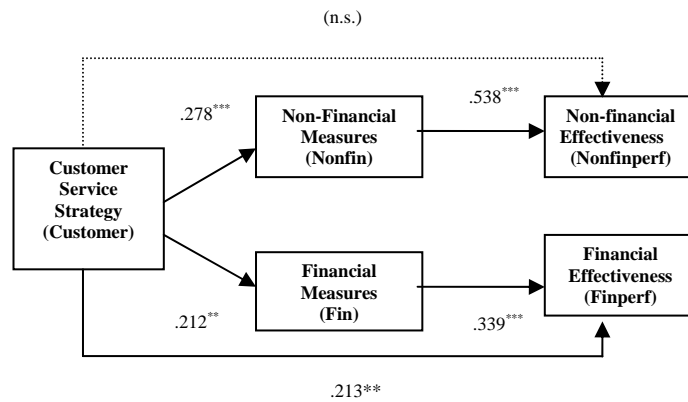
¹Significance of indirect effect (t-value = 1.69, p<.05)

Figure 2
Final path model for product flexibility strategy



***Significant at .01 level, **Significant at .05 level

Figure 3
Final path model for customer service strategy



***Significant at .01 level, **Significant at .05 level

2. Results of Hypotheses 2

Referring to Models 1 and 3 regression results presented in Tables 3 and 7, respectively, there is a positive association between the use of non-financial performance measures and non-financial organization performance in the case of both product flexibility and customer service differentiation strategy (Model 1: beta = 0.43, $p < .001$; Model 3: beta = 0.54, $p < .001$). Further, Models 2 and 4 results in Tables 5 and 9 show similarly that the use of financial performance measures were positively associated with financial performance in both strategic cases (Model 2: beta = 0.40, $p <$

.001; Model 4: $\beta = 0.34$, $p < .001$). These set of results support H2 such that the firm's extent of use of financial and non financial performance measures have a positive effect on financial and non-financial organizational performance, respectively.¹

3. Results of Hypotheses 3

The mediating effect of PMSs in the relation between differentiation strategy and organizational performance is the substance of H3. To show support (or otherwise) of H3 we need to present the decomposition of the direct and indirect effects for each model and also assess the statistical significance of the indirect effects. First, we examine the case of product flexibility strategy. Referring to Table 3 for Model 1, we note that there is a direct positive effect between product flexibility differentiation strategy and non-financial organization performance ($\beta = 0.35$, $p < .001$), but also a significant positive indirect effect between these two variables via the extent of use of non-financial performance measures ($\beta = 0.18$, $p < .01$) [See Table 4]. Although not a fully mediated model, the results support H3. In addition, Table 5 for Model 2 shows no direct effect between product flexible differentiation strategy and financial organization performance, but a significant indirect effect between these two variables via the extent of use of financial performance measures ($\beta = 0.09$, $p < .05$) [See Table 6]. This is a fully mediated model and provides support for H3. Taking these two results together it is clear that PMSs characterized by both financial and non-financial performance measure mediates the relationship between a flexible differentiation strategy and organization financial and non-financial performance.

Turning to the customer service strategy by first referring to Table 7 for Model 3, there is no direct effect between customer service differentiation strategy and non-financial organization performance, but there is a significant positive indirect effect between these two variables via the extent of use of non-financial performance measures ($\beta = 0.15$, $p < .01$) [See Table 8]. This is a fully mediated model that provides support for H3. In addition, referring to Table 9 for Model 4 the results reveal a direct effect between customer service differentiation strategy and financial organization performance, and also a significant indirect effect between these two variables via the extent of use of financial performance measures ($\beta = 0.07$, $p < .05$) [See Table 10]. Although not a fully mediated model, the results also support H3. Taking these two results together, again, there is evidence that PMSs characterized by both financial and non-financial performance measure mediates the relationship between a differentiation strategy of customer service and organization financial and non-financial performance.

V. DISCUSSION AND CONCLUSIONS

The purpose of this study was to empirically explore the relationships between differentiation strategy, performance measurement systems and organization performance within the manufacturing sector. Prior research studying the strategy/PMS link has largely assumed that the effectiveness of differentiation strategies is associated with the increased use of non-financial performance measures vis a vis financial performance measures. Our study found empirical support for the importance of using both non-financial and financial performance measures for firms pursuing differentiation strategies, such as product flexibility or customer service focus. The findings, while consistent with the conventional view that differentiators tend to place a high emphasis on the use of non-financial measures (Porter, 1980; Govindarajan and

Gupta, 1985; Hoque, 2004), also provide support for the surprising findings of Simons (1987) that differentiators also use financial measures. Dent (1990) speculated that perhaps it was the need to curb excessive risk-taking activities in the innovation process, to encourage employee learning, and/or, to assist managers in achieving their financial objectives in less certain, fluid environment, that have prompted differentiation firms to use financial measures.

Our study also found that firms use both financial and non-financial performance measures to enhance both financial and non-financial organizational effectiveness. Non-financial measures are more actionable and future-oriented, and their use can improve an organization's capabilities in future planning and strategy implementation. Financial measures, on the other hand, are direct reflections of current profitability and operating efficiency, which function as the 'dashboard' to monitor and continuously enhance the firm's financial performance (Simons, 1995). Financial measures can also be used as an indicator for future earning potential, which publicly-traded firms simply cannot afford to neglect when reporting to their stakeholders in order to attract more capital and increase public confidence. In other words, effective PMSs should provide a map that guides managers' behaviours toward critical financial and non-financial outcomes, such as, profit, cash flow, new product development and personnel development. Hence, the findings of this study support the idea that the use of both financial and non-financial measures can enhance financial/non-financial organizational performance.

Our results also develop further insights into the relationship between strategy and organization performance by exploring the mediating role of performance measurement systems. Consistent with the work of Hoque (2004), we found empirical support for an indirect effect between differentiation strategic priorities and organization performance through the use of performance measurement systems. However, whereas Hoque (2004) examined the mediating role of non-financial performance measures only, our study found support for the mediating role of both non-financial and financial performance measures in the relationship between differentiation strategies and organization performance.

Additionally, prior studies usually measure differentiation generically; however, we tested for two different dimensions of differentiation (product flexibility and customer service). By analyzing the two dimensions of differentiation strategy separately, we are able to show that in some strategic contexts, the use of an appropriately designed PMS is more important than in other contexts. For example, our results show that there is no relationship between customer service differentiation strategy and non-financial organization performance, but for the use of non-financial performance measures (i.e., it is a fully mediated model). Similarly, there is no relationship between product flexibility differentiation strategy and financial organization performance, but for the use of financial performance measures (again, a fully mediated model). This example illustrates that by examining different dimensions of differentiation strategy, the design specification for PMSs is vitally important for (i) non-financial organization performance for firms pursuing a customer service differentiation strategy and for (ii) financial organization performance for firms pursuing a product flexibility differentiation strategy. Expressed differently, a strategic emphasis on customer service is not, of itself, related to higher non-financial organization performance; non-financial organization performance is only affected through the appropriate design and use of non-financial PMSs. Similarly, a strategic emphasis on product flexibility is not, of itself, associated with high financial organization performance; financial organization performance is only affected through the appropriate design and use of a financial PMS.

These findings add to existing knowledge about the use of performance measurement systems and underscore the importance of designing more broad-based performance measure systems to include both financial and non-financial measures. While the performance measurement instrument used in this study does not equate to the use of a “balanced” performance measurement system, the results do indicate that differentiators are deriving performance benefits from more comprehensive PMSs.

Finally, our study was conducted within the Australian manufacturing sector where firms face domestic and international competition in addition to rapid shifts in customer demands. Many manufacturing firms are realizing that to remain viable, strategies of differentiation (product flexibility and customer service) may be a more viable option than strategies based on efficiency and price. Our study further demonstrates that differentiation strategies, designed with appropriate PMSs could further enhance the competitive position of Australian firms.

There are a few limitations in this study worth noting. Although we designed our study specifically to examine Australian manufacturing firms, interpreting our results beyond that domain should be done so with caution. Both the strategy and performance measurement systems instruments used here are still relatively new in the literature, and could be refined in future studies. Researchers could further test the relationship between cost leadership and PMS variables. A limitation associated with the measurement of PMSs was the focus on the ‘use’ of the performance measure. It is possible that the reported lack (or low level) of use could either mean the measures were not available, or were available, but not found to be useful. Further research is required to improve this measure. Another limitation is that the use of self-assessed performance has been criticized due to the potential for bias, and therefore, the results must be interpreted in light of this potential bias. Further, there may have been variables omitted from the model in this study that in fact moderate, or mediate, the relationship between use of performance measures and organizational performance. Anecdotal evidence would suggest that not all organizations experience improved performance through the development of performance measures, indicating the need for further research, which identifies potential mediating or moderating variables. Finally, the path model *implies* causality. We are unable to assess the possibility of alternative causal directions among some of the variables. Future research could consider the use of longitudinal data, or carefully designed experiments, with causes clearly preceding effects in time, to enable causal statements to be made. Longitudinal data could also be useful in helping researchers determine the nature of any ‘lags’ between changes in the use of non-financial performance measures, and financial organizational performance.

Despite the above limitations, the results of this study add to the scant empirical findings that have used mediation approach to test the relationship between differentiation strategy, the design of performance measurement systems, and their impact on organizational performance. In particular the study highlights that in an environment where manufacturing firms are attempting to find ways to compete successfully in a globalised world, product differentiation strategies can lead to improved organizational performance through appropriately designed, balanced PMSs that include both financial and non-financial measures. Our findings challenge the traditional notion that non-financial performance measures are more ‘suitable’ for differentiation strategy, and this finding is consistent with the call from other researchers, such as Chow and Van der Stede (2006). Drawn from Emerson’s ‘Blended Value Proposition’ (2003), the results of this study imply that the value of using both financial and non-financial performance measures is in itself non-divisible, and indeed a blend of both elements is more appropriate. On this note, future research could focus

on how to optimize the blend rather than maximize the performance in any single performance dimension, which is also the essence of the Balanced Score Card. Finally, although substantial research exists on external reporting for corporate social responsibility and sustainability development issues, little attention has been devoted to these issues in the management accounting research literature. Thus, there is an imperative for researchers to improve PMS by incorporating performance measures, such as TruEVA (Repetto & Dias, 2006), into the (internal) management control system model to investigate how PMS could assist managers in making appropriate (external) environmental and social responsible decisions.²

ENDNOTES

1. Additional analyses were undertaken to assess the effect of the use of non-financial performance measures on financial performance to test the argument that by paying increased attention to non-financial performance measures improved financial performance can result. In the analysis, this path was not significant. This is perhaps because of the cross-sectional research design's inability, in measuring all variables at a single point in time, to pick up any 'lags' between non-financial and financial performance.
2. We thank a reviewer for raising this point.

REFERENCES

- Abernethy, M.A., and A.M. Lillis, 1995, "The impact of manufacturing flexibility on management control system design", *Accounting, Organizations and Society*, 20: 241-258.
- Abernethy, M.A., and A.M. Lillis, 2001, "Interdependencies in organization design: A test in hospitals", *Journal of Management Accounting Research*, 13: 107-129.
- Amabile, T., 1998, How to kill creativity, *Harvard Business Review*, Sept-Oct, 76-87.
- Baines, A. and K. Langfield-Smith, 2003, "Antecedents to management accounting change: A structural equation approach", *Accounting, Organizations and Society*, 28: 675-698.
- Bisbe, J., and D. Otley, 2004, "The effects of the interactive use of management control systems on product innovation", *Accounting, Organizations and Society*, 29: 709-737.
- Bouwens, J., and M. Abernethy, 2000, "The consequences of customization on management accounting system design", *Accounting Organizations and Society*, 25: 221-241.
- Chenhall, R.H., 2005 "Integrative strategic performance measurement systems, strategic alignment of manufacturing, learning and strategic outcomes: An exploratory study", *Accounting, Organizations and Society*, 30: 395-422.
- Chenhall, R.H., and K.M. Langfield-Smith, 1998a, "Adoption and benefits of management accounting practices: An Australian study", *Management Accounting Research*, 9: 1-19.
- Chenhall, R.H., and K.M. Langfield-Smith, 1998b, "The relationship between strategic priorities, management techniques and management accounting: An empirical investigation using a systems approach", *Accounting, Organizations and Society*, 23 (3): 243-264.
- Chow, C., and W. Van der Stede, 2006, "The use and usefulness of nonfinancial performance measures", *Management Accounting Quarterly*, 7: 10-15.

- De Meyer, A., J. Nakane, J.G. Miller, and L. Ferdows, 1989 "Flexibility: the next competitive battle: The manufacturing futures survey", *Strategic Management Journal*, 10 (2): 135-144.
- Dent, J.F., 1990, "Strategy, organizations and control: Some possibilities for accounting research", *Accounting, Organizations and Society*, 15: 3-24.
- Dixon, J., A. Nanni, and T. Vollman, 1990, *The New Performance Challenge: Measuring Operations for World-Class Competition*, Homewood, IL: Dow Jones Irwin.
- Emerson, J., 2003, "The blended value proposition: Integrating social and financial returns", *California Management Review*, 45/4, 35-51.
- Gosselin, M., 2005, "An empirical study of performance measurement in manufacturing firms", *International Journal of Productivity and Performance Management*, 54(5/6): 410-438.
- Govindarajan, V., 1988, "A contingency approach to strategy implementation at the business-unit level: Integrating administrative mechanisms with strategy", *Academy of Management Journal*: 828-853.
- Govindarajan, V., and J. Fisher, 1990, "Impact of output versus behaviour controls and resource sharing on performance: Strategy as a mediating variable", *Academy of Management Journal*, 33: 259-285.
- Govindarajan, V., and A. K. Gupta, 1985, "Linking control systems to business unit strategy: Impact on performance", *Accounting, Organizations and Society*, 10 (1): 51-66.
- Gupta, A.K., and V. Govindarajan, 1984, "Business unit strategy, managerial characteristics and business unit effectiveness at strategy implementation", *Academy of Management Journal*, 27 (1): 24-41.
- Grant, J., 2007, "Advances and challenges in strategic management", *International journal of Business* 12(1): 11-32.
- Harman, H.H., 1967, *Modern Factor Analysis*, Chicago: University of Chicago Press.
- Horngren, C.T., G. Foster, and S. Datar, 1994, *Cost Accounting: A Managerial Emphasis*, Englewood Cliffs, NJ: Prentice-Hall International, Inc.
- Hoque, Z., 2004, "A contingency model of the association between strategy, environmental uncertainty and performance measurement: impact on organizational performance", *International Business Review*, 13: 485-502.
- Ittner, C.D., and D.F. Larcker, 1997a, "Product development cycle time and organizational performance", *Journal of Marketing Research*, 34: 13-23.
- Ittner, C.D., and D.F. Larcker, 1997b, "Quality strategy, strategic control systems, and organizational performance", *Accounting, Organizations and Society*, 22 (3/4): 293-317.
- Ittner, C.D., and D.F. Larcker, 1998, "Innovations in performance measurement: Trends and research implications", *Journal of Management Accounting Research*, 10: 205-238.
- Kaplan, R.S., and D.P. Norton, 1992, "The balanced scorecard – Measures that drive performance", *Harvard Business Review*, (Jan.-Feb): 71-79.
- Kaplan, R.S., and D.P. Norton, 1996, "Using the balanced scorecard as a strategic management system", *Harvard Business Review*, (Jan.- Feb.): 75-85.
- Kotha, S., and D. Orne, 1989, "Generic manufacturing strategies: A conceptual synthesis", *Strategic Management Journal*, 10(3): 211-231.
- Kotha, S., and B.L. Vadlamani, 1995, "Assessing generic strategies: an empirical investigation of two competing typologies in discrete manufacturing industries", *Strategic Management Journal*, 16: 75-83.

- Le Cornu, S., and P. Lockett, 2000, "Strategic performance measurement: An empirical examination of the association between competitive methods and performance measures", *Conference Proceedings*, Accounting Association of Australia and New Zealand (AAANZ) Conference, Hamilton Island.
- Lillis, A., 2002, "Managing multiple dimensions of manufacturing performance – an exploratory study", *Accounting, Organizations and Society*, 27: 497-529.
- Macintosh, N. B., 1985, *The Social software of Accounting and Information Systems*, New York: Wiley.
- Miles, R.W., and C.C. Snow, 1978, *Organizational Strategy, Structure, and Process*, New York: McGraw-Hill.
- Miller, D., 1986, "Configurations of strategy and structure: Towards a synthesis", *Strategic Management Journal*, 7: 233-249.
- Miller, D., 1988, "Relating Porter's business strategies to environment and structure: Analysis and performance implications", *Academy of Management Review*, 31 (2): 280-308.
- Miller, J.G., A. De Meyer, and J. Nakane, 1992, *Benchmarking Global Manufacturing – Understanding International Suppliers, Customers and Competitors*. Homewood, Illinois: Irwin.
- Mizik, N., and R. Jacobson, 2003, "Trading off between value creation and value appropriation: The financial implications of shifts in strategic emphasis", *Journal of Marketing*, 67: 63-76.
- Nanni, A.J., J.R. Dixon, and T.E. Vollman, 1992, "Integrated performance measurement: Management accounting to support the new manufacturing realities", *Journal of Management Accounting Research*, 4 (Fall): 1-19.
- Perera, S., G. Harrison, and M. Poole, 1997, "Customer-focused manufacturing strategy and the use of operations-based non-financial performance measures: A research note", *Accounting, Organizations and Society*, 22 (6): 557-572.
- Porter, M.E., 1980, *Competitive Strategy*, New York: Free Press.
- Porter, M.E., 1985, *Competitive Advantage*, New York: Free Press.
- Repetto, R., and D. Dias, 2006 "The true picture?" , *Environmental Finance*, July-August, 44-45.
- Schumacker, R.E., and R.G. Lomax, 1996, *A Beginner's Guide to Structural Equation Modelling*, NJ: Lawrence Erlbaum Associates.
- Simons, R., 1987, "Accounting control systems and business strategy: An empirical analysis", *Accounting, Organizations and Society*, 12: 357-374.
- Simons, R., 1990, "The role of management control systems in creating competitive advantage: New perspectives", *Accounting, Organizations and Society*: 127-143.
- Simons, R., 1995, *Levers of Control*, Cambridge, MA: Harvard Business School Press.
- Simons, R., 2000, *Performance Measurement and Control Systems for Implementing Strategy*. Upper Saddle River: Prentice Hall.
- Sobel, M.E., 1982, "Asymptotic confidence intervals for indirect effects in structural equation model", In S. Leinhardt (Ed.), *Sociological methodology 1982* (pg. 290-312). Washington, DC: American Sociological Association.
- Terziovski, M., and S. Amrik, 2000, "The adoption of continuous improvement and innovation strategies in Australian manufacturing firms", *Technovation*, 20: 539-552.
- Waterhouse, J.H., and A. Svendsen, 1999, *Strategic Performance Monitoring and Management: Using Non-financial Measures to Improve Corporate Governance*, Canada: Canadian Institute of Chartered Accountants.

Appendix A
Sample demographic statistics

Classification	Number	Percentage
	50	60%
Division	31	37%
Others	3	3%
Total Sample	84	100%
Industry Classification	Number	Percentage
Food and beverages	10	12%
Wood and paper products	3	4%
Chemical products	2	2%
Metal industry	10	12%
Machinery and equipment	5	6%
Textile, printing	1	1%
Non-metallic, minerals	3	4%
General construction	3	4%
Transportation	5	6%
Utilities, telecommunications	3	4%
Wholesale, retail, distribution	22	26%
Financial service	2	2%
Mining	6	7%
Others	9	10%
Total Sample	84	100%
Position of Respondent	Number	Percentage
Chief accountant / group controller	44	53%
Administrative manager	7	8%
General manager	11	13%
Senior Management Accountant	11	13%
Other	11	13%
Total Sample	84	100%
Size of Organization	Number	Percentage
No. of Employees		
0-200	20	24%
201-500	13	15%
501-1000	10	12%
1001-2500	18	21%
2500 +	23	28%
Total Sample	84	100%
	Mean	
No. of Years in the Current Position	7.3	

Appendix B

Factors analysis of Chenhall and Langfield-Smith's (1998b) strategic priorities scale

Strategies	Factors	
	1	2
<u>S1- Product Flexibility ($\alpha = 0.74$)</u>		
Provide high quality products*	0.403	-0.345
Provide unique product features	0.674	-0.009
Make changes in design and introduce new products quickly	0.891	0.212
Make rapid volume and/or product mix changes	0.655	-0.025
Product availability (broad distribution)*	0.454	-0.301
Customize products and services to customers' needs	0.629	-0.115
<u>S2- Customer Service ($\alpha = 0.76$)</u>		
Provide fast deliveries	0.016	-0.848
Make dependable delivery promises	-0.141	-0.941
Provide effective after-sale service and support	0.315	-0.586

* = items deleted when confirmatory factor analysis was undertaken

Appendix C

Financial and non-financial performance measures
(based on Le Cornu and Luckett's (2000) instrument)

Respondents were asked to indicate the extent of use of the following performance measures.

Financial Measures:

Return on investment
Budget variance analysis
Divisional profit
Working capital ratio
Cash flow return on investment
Shareholder value added measures
Product profitability
Capital expenditure
Customer profitability
Percentage sales from new products
Inventory turnover
Sales revenue
Operating profit

Non-financial Measures:

Customer satisfaction
Customer acquisition
Response time
Technology utilisation
Percentage of market share
Level of brand recognition

Employee training
Employee attitudes
Employee performance (e.g. labour efficiency and productivity)
Team performance
Measures of rework
Measures of scrap
Measures of returns
Measures of defect rates
Ongoing supplier evaluation
Community relations
Environment, health and safety
After-sales service
New product introductions vs competitors
New product innovation
New product lead time/time to market
On-time delivery
Process productivity

Appendix D

Financial and non-financial organizational performance
(based on Gupta and Govindarajan (1984) instrument)

Respondents were asked to indicate the degree of importance of the following items in evaluating their business unit's performance and indicate the unit's performance relative to the industry average.

Financial items

Return on investment
Profit
Cash flow from operations
Cost control

Non-financial items

Development of new products
Sales volume
Market share
Market developments
Personnel developments
Political-public affairs

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