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“Performance Outcomes in Empirical Management Accounting Research: Recent
Developments and Implications for Future Research”

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Performance Outcomes in Empirical Management Accounting Research: Recent Developments and Implications for Future Research

Abstract

Purpose – This paper seeks to further our understanding of the research in the area of quantitative management accounting research. The purpose of this study is: (1) to provide a synthesis and an extended discussion of the literature from the performance outcome standpoint, and (2) to foster future research in this area by identifying promising recent developments in the assessment of performance outcomes and gaps in the literature.

Design/methodology/approach – A literature analysis was adopted based on empirical studies and literature reviews published in a wide range of journals.

Findings – The overall conclusion of this study is that future management accounting research can still make progress in the measurement of performance outcomes.

Research limitations/implications – Research published in English, and the period of the past decade was emphasized to examine recent frontiers of knowledge. The results imply that increasing and simultaneous analysis of various kinds of performance outcomes could be conducted, ranging from behavioral to market-based to accounting-based to non-financial to competitive strategic to social to environmental outcomes to competitiveness of systems and relative-to-peers assessments in different settings. If possible, development of performance outcomes could be investigated with longitudinal and panel, in addition to cross-sectional, research designs. Attempts could be made to analyze the nature of causality to advance both management accounting literature and social science research.

Practical implications – This study furthers understanding of behaviorally-, organizationally- and strategically-oriented management accounting research that has played a central role in assessing to what extent people are likely to succeed with their management accounting and control systems in various settings.

Originality/value – This paper presents a theoretical framework and several examples potentially useful for both academic scholars and practitioners.

Keywords – Behavioral accounting, Contingency, Literature analysis, Organizational accounting research, Performance, Strategic management accounting.

Paper type – Research paper

1. Introduction

Over the years, empirical management accounting research has become the main approach to assess such major questions as to what extent managers are likely to succeed with their management accounting and control systems (MCS) in various settings. Since many forms of empirical research have been taken and a wide range of topics analyzed, it is not possible here to acknowledge them all. However, three traditions of research can be singled out. The first one is behavioral accounting research. The behavioral research has, among other things, analyzed the impact of budgetary control on individual performance, and how people affect budgets. Such research has analyzed individual differences, for example, in personality, motivation, and risk aversion and developed our understanding of the variability and complexity of people in relation to work and performance (for literature reviews see Birnberg *et al.*, 1990; Dunk, 2001; Greenberg *et al.*, 1994; Ryan *et al.*, 2002).

The second tradition of research comprises organizational accounting research, such as contingency analysis, which has been interested in how MCS work in organizations (cf., Ryan *et al.*, 2002). According to Otley (1980), contingency-based management accounting research was developed to assess the impact of management accounting systems in aiding effective performance. Performance outcomes have since been the dependent variable of contingency studies applying either an interaction or systems approach to research (Drazin and Van der Ven, 1985, p. 313). To a large extent, such research has analyzed the effects of various organizational, environmental, and technological settings (see, e.g. Chenhall, 2003). The third and most novel tradition of research consists of strategic management accounting research (SMA). According to Hoque (2001, 2), SMA refers to the process of identifying, gathering, choosing and analyzing accounting data for helping the management team to make strategic decisions and to assess organizational effectiveness.

During the past fifteen years, quantitative management accounting research has been the focus of a number of active developments (see Table 1). In addition to some methodological assessments and reassessments (Atkinson *et al.*, 1997; Borkowski *et al.*, 2001; Chenhall and Chapman, 2006; Dirsmith, 1998; Dunk, 2003; Gerdin and Greve, 2004, 2007; Gerdin 2005; Hartmann, 2005; Hartmann and Moers, 1999, 2003;

Luft and Shields, 2003; Moser, 1998; Selto *et al.*, 1995), several key concepts have been discussed and evaluated. These include the concept of MCS (Birnberg, 1998; Chapman, 1997; Chenhall, 2003; Dirsmith, 1998; Fisher, 1998; Ittner and Larcker, 1998; Otley and Fakiolas, 2000; Otley and Pollanen, 2000; Simons, 1995; Vagneur and Peiperl, 2000), and situational factors surrounding the use of MCS in their organizational, strategic, cultural, and environmental settings (Cadez and Guilding, 2008; Chapman, 1997; Chenhall, 2003; Fisher, 1998; Hartmann, 2000; Langfield-Smith, 1997; Roslender and Hart, 2003; Shields and Shields, 1998; Shields and Young, 1993). However, recent analysis on how to develop assessment of performance outcomes has been less extensive, the main exception being Chenhall's (2003) literature analysis, which discussed performance outcomes in part. Other such studies that also examined performance outcomes in part include those of Fisher (1998), Hartman (2000), and Shields and Young (1993). Earlier examples include the studies by Dent (1986) and Otley (1980). Shields and Young (1993) focused on behavioral budgeting research, and the others addressed contingency-based management accounting research.

[Table 1 about here]

This study seeks to further our understanding of the rather fragmented literature in the area of behaviorally-, organizationally- and strategically-oriented quantitative management accounting research. The objectives of this study are: 1) to provide a synthesis and an extended discussion of the literature from the performance outcome standpoint, and (2) to foster future research in this area by identifying promising recent developments in the assessment of performance outcomes, and gaps in the literature. The literature analysis is based on empirical studies and literature reviews published in a wide range of journals.¹

Figure 1 presents the theoretical framework of this study. It consists of the following six themes, according to which the discussion below is organized: 1. the level and nature, 2. diversity and 3. scope of performance outcomes; 4. data collection methods; 5. time perspective; and 6. samples. These themes are used to provide novel and important perspectives in this study. Whilst other themes could also be considered,

these have been selected to allow the analysis of performance outcomes from central viewpoints.

[Figure 1 about here]

In the following, for each of the themes, traditional management accounting literature will first be briefly introduced. Thereafter, in commentary sections, recent developments over the past decade will be more closely examined, followed by suggestions for future research. Finally, the Summary and conclusions section presents a synthesis of the key findings and concluding comments.

The overall conclusion of this study is that future management accounting research can still make progress in the measurement of performance outcomes. Whilst studies have traditionally contributed to the literature by the cross-sectional analysis of the behavioral effects of managers in particular, the promising recent developments and gaps in the literature can also provide fruitful directions for future research. In particular, it is suggested that increasing and simultaneous analysis of various other kinds of performance outcomes could also be conducted, ranging from accounting-based to social and environmental outcomes and relative-to-peers assessments in different settings. If possible, development of performance outcomes could be investigated with longitudinal and panel research designs and attempts could be made to analyze the nature of causality.

2. Theoretical framework

2.1 The level and nature of performance outcomes

The level and nature of performance outcomes comprise the first themes in this study's theoretical framework (see Figure 1). Otley (1980) recommended contingency analysis of performance effects at both individual and organizational levels of analysis. Chenhall (2003) has since classified the analyzed performance outcomes into the *use* or *usefulness* of management accounting systems, *behavioral* outcomes and *organizational* outcomes. The first two are related to individual level analysis, and the third one to organizational level analysis.

To date, individual level analysis has been prominent in empirical management accounting literature. A number of scholars have analyzed the use or usefulness of management accounting systems (see Chenhall, 2003 for a detailed literature review). Several scholars have also measured various behavioral outcomes. Shields and Young (1993) found in their literature analysis of 23 surveys on participative budgeting that almost all the surveys had tested behavioral outcomes. According to Hartmann (2000), to a large extent, contingency studies on accounting performance measures have also analyzed behavioral effects, especially dysfunctional outcomes. The findings of Kihn's (2005) literature analysis confirmed the high use of behaviorally-rooted performance measures in accounting research. While some studies used more than one approach or measure, a behavioral approach had been used a total of 89 times in the 100 accounting studies examined.

Some excellent examples of analyzed behavioral outcomes include: *managers' feelings of tension and anxiety* (Otley, 1978), *manager motivation and attitudes* (Merchant, 1981), *job satisfaction* (Brownell, 1982), *attitudes towards job and company and work motivation* (Mia, 1988, 1989), *attitudes towards budgeting staff* (Imoisili, 1989), *budget and overall motivation and effort level* (McInnes and Ramakrsihnan, 1990), *attainment of work group goals and job satisfaction* (Selto *et al.*, 1995), *attitudes towards supervisor and organizational commitment* (Magner *et al.*, 1995), *job-related stress, and job performance* (Shields *et al.*, 2000). Existing evidence clearly indicates that analysis of these behavioral effects is of value. Prior findings have shown that MCS in practice may have both intended and unintended effects (cf., Samuelson, 1986). Whilst the intended effects may have been functional, the unintended effects can be dysfunctional.

In contrast, analysis of organizational level performance outcomes has been quite scant in management accounting literature. As Chenhall (2003) has pointed out, studies focusing on changes in stock market measures have been rare in contingency-based MCS literature. Exceptions of studies that have, among other things, analyzed market reactions are the studies by Haka (1989) and Ittner and Larcker (2003). Likewise, relatively few studies have analyzed overall organizational performance (see, however, Abernethy and Brownell, 1999; Chenhall and Langfield-Smith, 1998;

Vagneur and Peiperl, 2000). A small number of studies have analyzed corporate or organizational performance with accounting-based measures. The following are some excellent examples: Shileds and Young (1993) and Clinton and Hunton (2001) included in their organizational performance measures measured percentage changes in *net income, stock price, return-on-investment (ROI)* and a *self-reported rating of overall performance as compared to peer organizations*. Ittner and Larcker (1997) measured *pre-tax return on assets (ROA), pre-tax return on sales (ROS), sales growth, and perceived organizational performance*; Harrison and Poole (1997) assessed *relative sales growth, profitability and ROA*; Balakrishnan et al. (1996) estimated *ROA*; and Kinney and Wempe (2002) measured *profit margin and asset turnover*. Kihn (2007) used year-end *return-on-investment (ROI)* values to test short-term profitability effects.

Commentary

Regarding the level and nature of assessed performance outcomes, there are several promising recent developments, but also underdeveloped areas and gaps in management accounting research. In the following, they are classified according to the following categories: behavioral outcomes, market-based outcomes, accounting-based outcomes, non-financial outcomes, strategic outcomes, competitiveness of systems, social outcomes and environmental outcomes. Figure 2 synthesizes these.

[Figure 2 about here]

The first element of Figure 2 is behavioral outcomes. This is because while a wide range of behavioral effects have been analyzed, empirical evidence of such effects is still rather thin. However, understanding the behavior and well-being of managers and personnel continues to be of central importance. This is important in its own right, and is likely to be evident regarding assets and profitability of organizations.¹ Therefore, future research could be directed at analyzing, for example, the level of motivation, tension, and job-related satisfaction and stress of managers, accountants and employees using, and being effected by, management accounting systems. Such

¹ For example, a manager suffering burnout is unable to improve assets or profitability.

questions could be researched in various accounting and business cycles, decision-making situations, and career stages.

Second, as Figure 2 shows, more research could be directed at analyzing organizational and corporate-level performance outcomes. Further use of stock market measures would be helpful in indicating whether or not investors expect more positive net cash flows from new MCS implementation. Third, if available, various accounting measures could also be increasingly used. As Chapman (1997, p. 202) has pointed out: "In a business setting (...) profit will still be the primary goal to be attained and so accounting cannot simply be discarded." The use of accounting measures could also aid in improving precision and objectivity of performance measurements. Accounting information audited by certified auditors such as certified public accountants or chartered accountants should, by definition, provide a reasonably verifiable and neutral presentation of a company's financial performance and financial position. The use of ROA (ROI) values can be argued as being appropriate in particular, since they are commonly-used economic indicators of organizational performance and business success (Ansoff, 1965, p. 42; Dess and Robinson, 1984, p. 267; Simons, 1987), and can be applied to various types of organizations. In addition, they allow comparisons between various kinds of industries as all organizations strive to obtain a share of the limited amount of capital in a society (Price & Mueller, 1986, p. 132). However, profitability ratios could also be complemented with economic value measures (see Ittner and Larcker, 1997 for a literature review), and/or liquidity and solvency ratios to obtain a more comprehensive picture of the economic standing of companies.

In addition to organizational level analysis of accounting-based outcomes, segmental level analysis could also be further considered. Note that many companies already release segmental reporting in response to accounting standards. United States Generally Accepted Accounting Principles (US GAAP) have included segmental reporting in Statement of Financial Accounting Standard (SFAS) 131 already since 1997, and before that in SFAS 14. Since 2005, the International Accounting Standard (IAS) 14, first published by the International Accounting Standard Committee (IASC) in 1997, has required publicly listed and some other companies in the European Union to provide segmental reporting of sales and assets according to geographical segments

and business units. The goal of segmental reporting is to aid users of financial reports in grasping a better understanding of profits and losses, risks, growth prospects, and profitability of companies.² These developments provide many opportunities to researchers.

Fourth, analysis of nonfinancial outcomes could be addressed in future research (see Figure 2). At least three approaches could be taken. First, strategic management accounting measures that seek to provide environmental (outward-looking) and long-term (forward-looking) orientations (cf., Guilding et al., 2000) could be considered. Second, specific non-financial outcomes, such as the quality of management accounting could be selected. According to Bhimani *et al.*, (2008), quality focus serves a double purpose in providing an important competitive edge for organizations. While poor quality can be quite costly, quality focus reduces costs and increases satisfaction of customers and others.

While quality has thus far often been examined as an independent variable in empirical management accounting literature, it is suggested here that it could also be examined as a dependent variable. For example, the quality of management accounting information and systems could be further analyzed (cf. Nelson *et al.*, 2005), or the quality of service could also be investigated, since management accounting can also be seen as outcomes and processes of internal services. Note that marketing scholars Parasuraman *et al.*, (1985, 1994) define service quality as the gap between customers' expectations and perceptions. They also propose several possible determinants for service quality such as access, communication, competence, courtesy, credibility, reliability, responsiveness, security, tangibles, and understanding the customer. Analysis of service quality could also take other approaches, such as the perspective of relationship quality. In network-interaction theories relationship quality concentrates on satisfaction and trust; and in the service quality tradition either on the quality of the service in the relationship context, or on all aspects of the relationship, including products or services, financial or economic aspects, interaction processes, and psycho-social aspects (Järvelin, 2001).

A third possibility is a simultaneous analysis of financial and nonfinancial performance outcomes as dependent variables. Balances scorecards (BSCs) of

integrated financial and nonfinancial measures could provide a starting point for such analysis. Note that while such measurement systems have been widely examined in previous accounting research and literature reviews, they have normally been analyzed as independent, rather than as dependent, variables. Balanced scorecard systems were developed to supplement traditional accounting measures with nonfinancial measures focused on at least the following three other perspectives: customers, internal business processes, and learning and growth (Kaplan and Norton, 1992). Further analysis of such dimensions could help in clarifying links, e.g., between financial performance and behavioral outcomes. Given that the BSC approach was originally developed to provide a means for translating an organization's vision and strategy, it could also provide a perspective on strategic performance outcomes. At the same time, it could also aid in clarifying whether or not it would be beneficial to incorporate nonfinancial metrics into performance measurement systems under various settings (cf., Ittner and Larcker, 1998, p. 223-224).

The fifth element of Figure 2 refers to the possibility that future studies could take competitive strategic outcomes of management accounting systems into consideration. So far, a study by Chenhall (2005) has used Porter's (1980, 1990) product differentiation and low cost/price strategies. Sixth, competitiveness of management accounting systems could also be examined. How can management accounting systems and practices be rated relative to those of competitors? Such analysis could aid in the planning and evaluation of management accounting systems.

The seventh element of Figure 2 consists of social outcomes. Social effects of management accounting systems are an area, of which relatively little is yet known in the field of quantitative management accounting research. However, as Hopwood (1976, p. 1) emphasized, MCS evolve and are used in "social environments of organizations." Changes in such environments can in part impact management accounting systems, and such systems can in turn in part impact social processes and human relations. An excellent example of the analysis of social outcomes is Hopwood's (1972) classic study, which, among other things, empirically analyzed how the use of budgets in managerial performance evaluation impacted *relationships with supervisors and peers*. In addition, Imoisili (1989) examined *attitudes towards*

budgeting staff, Magner *et al.* (1995) *attitudes towards supervisor*, and Greenberg and Greenberg (1997) *social utility* and Anderson *et al.*, (2002) *team performance* in activity-based costing.

Chapman and Kihn (2009) in part extended the analysis of social effects to *social responsibility*. Whilst the analysis was based on survey scores of senior managers, social reporting may provide new opportunities for scholars with an interest in archival research of social performance outcomes in the future. Whilst social reporting is voluntary, many corporations have begun to incorporate aspects of social matters in their annual reports or publish corporate responsibility reports. The aim of social reporting is to increase transparency of the impacts an organization has on the social systems within which it operates. That is, how an organization looks after its employees and other people with whom it does business (e.g., customers, creditors, borrowers, and the general public). This is of importance, because organizations have an enormous impact on such people – on employees in particular. Organizations also have a large influence in their local community, both nationally and internationally. Sustainability reports based on the Global Reporting Initiative (GRI) differentiate four areas of social reporting: labor practices, human rights, society, and product responsibility.

The eighth and final element of Figure 2 consists of environmental outcomes. Analysis of environmental performance is another rather novel area in accounting research. It has been examined in terms of the environmental impacts generated in the conduct of business, such as hazardous waste recycling, toxic releases, pollution-level in discharged water, non-compliance with environmental statutes, or environmental ratings of firms developed by external groups (for a review, see Henri and Journeault, 2009). Alternatively, perceptions of the extent to which environmental practices have led to various types of benefits (e.g., reduction in material costs, increased productivity, better relationships with stakeholders, overall company reputation) can be assessed (see Henri and Journeault, 2009). To synthesize, while the analysis of behavioral outcomes remains important, future studies could also increasingly consider various market- and accounting-based, non-financial, strategic, competitive, social and environmental outcomes.

2.2 Diversity of performance measures

A related question to the nature of performance outcomes is diversity of performance measures. Diversity of performance outcomes is the second theme in this study's theoretical framework (Figure 1). It refers to the overall variety of performance outcomes across studies and within a study. The diversity of measures related to constructs has been previously discussed as problematic in the contingency-based management accounting research, in particular, but not from the standpoint of performance outcomes *per se*. However, drawing on literature analysis of 100 accounting studies published in top accounting journals from 1987 to 2003, Kihn (2005) discovered that, overall, individual performance measures had received fairly limited attention. The main exceptions were the Mahoney and colleagues' (1963, 1965) managerial (job) performance measure, Govindarajan's (1984) organizational performance measure, and the Weiss *et al.* (1967) job satisfaction measure, all of which have been used in contingency-based research. The Mahoney *et al.* (1963, 1965) measures had been used a total of 11 times, and each of the other two measures three times. No citation was made in 63 cases. In the remaining studies, there were almost as many measurement instruments reported as papers, indicating that there has been little systematic replication in a field that would aid quantification of specific performance effects of particular variables in a wide number of situations. The great diversity of measures has made it more difficult to validate research instruments, to compare results across studies, and to achieve as coherent approach to research as in some other academic fields.

Furthermore, most individual studies have been relatively narrow in their analysis of performance effects. The vast majority of studies have reported the use of a single criterion in performance measurement (Kihn, 2005). There are several possible reasons for this. First, it may, in part, be related to model specifications. For example, researchers' theoretical interests may have deductively led to the analysis of a specific performance element. Second, observed company or industry practices may have inductively pointed to the usefulness of analyzing a specific effect. Third, the use of certain statistical methods such as regression analysis, which has been the dominant form of statistical analysis in all social science research, may also have supported testing effects of predictors on a single performance measure. While detailed analysis

of selected performance effects has been useful, it limits our understanding of various performance effects. In summary, empirical analysis of various simultaneous performance effects has mostly been fairly thin, both overall and within individual studies.

Commentary

Some studies have recently taken a more comprehensive approach to performance outcomes as can be seen in that of Anderson and Young (1999), Fogarty *et al.* (2000), Shields *et al.* (2000), Ittner *et al.* (2003), Chenhall (2005), and Chapman and Kihn (2009). These studies analyzed more complex models with multiple dependent variables using advanced statistical methods such as covariance-based structural equation modeling and partial least squares (PLS) analysis.

The Fogarty *et al.* (2000) survey illustrates the point. They took the analysis of multiple performance outcomes further by showing that burnout is directly related to a number of behavioral and attitudinal outcomes. In addition, it was found to partially mediate the influence of role conflict, role ambiguity, and role overload on job satisfaction, job performance, and turnover intentions. The findings of this study are important in analyzing such possible conditions of employees that have been a well-known phenomenon in psychology, but still less recognized in accounting literature. Furthermore, the study clarifies the links between the various types of performance outcomes.

Another excellent example is Chenhall's (2005) survey. Chenhall conducted PLS analysis to examine the role of strategic performance measurement systems (SPMS) in assisting managers develop two kinds of competitive strategy outcomes: product differentiation and low cost/prices. His model predicted that integrative SPMS would enhance the strategic competitiveness of organizations, but that their influence on strategic outcomes would be indirect through the mediating roles of alignment of manufacturing with strategy and organizational learning. Based on data from 80 strategic business units, Chenhall identified quality/delivery, flexibility and low cost/price as being components of strategic outcomes, corresponding to the product differentiation (quality/delivery/service and flexibility) and low cost/price dimensions

of Porter's (1990) generic strategies. Chenhall's findings suggested that the intervening variables either fully or partially mediated the proposed associations.

Finally, the Nelson *et al.* (2005) information systems survey on business intelligence tools analyzed the effects of, and linkages among, quality, satisfaction, and usage. They further distinguished information quality (completeness, accuracy, format, and currency), and system quality (reliability, flexibility, integration, accessibility, and response time). Their study proposes and supports several possible determinants for each of the quality constructs in data warehouse environments. A statistically significant association was also found between system quality and information satisfaction. However, linkages between the other performance outcomes explored were not significant. The findings of the study may, nevertheless, have important implications for future research on quality measurements.

In summary, there are several recent examples of surveys that have analyzed multiple performance outcomes. Some future research could also be directed at simultaneous analysis of multiple performance outcomes for the following reasons:

1. Subjects, whether organizations or individuals, can be affected in more than one way.
2. Through the use of multiple performance measures we can obtain a more complete and detailed description of various simultaneous performance effects.
3. When multiple performance measures are used, we can analyze how the various performance effects are related to each other.
4. While surveys and experiments can be expensive to implement, the cost of obtaining data on several performance variables is relatively small.

2.3 The scope of performance measurement

The third theme in our theoretical framework (Figure 1) is the scope of performance measurement. The scope of performance outcomes concerns the extent of views in considering performance outcomes ranging from absolute performance effects, to performance relative to organizational objectives, to performance relative to peers. Most accounting studies have tested various kinds of absolute, rather than relative,

performance effects (Kihn, 2005). Early organizational contingency-based research stressed the importance of measuring organizational effectiveness in relation to the objectives of the organization itself (Steers, 1977). A good example of this kind of measurement approach can be seen in Govindarajan's (1984) overall organizational measurement instrument that has been used in several studies.

Commentary

A stream of studies has started to analyze performance relative to peers. The performance measures of Brownell and Merchant (1990), Chenhall and Morris (1995), Chapman (1998), and Abernethy and Brownell (1999) provide good examples of such a line of inquiry. Govindarajan's (1984) overall performance measure has been modified to allow a relative-to-peers analysis in Chenhall and Langfield-Smith (1998), and Chapman and Kihn (2009). In addition, the measurement instrument used by Shields and Young (1993) and Clinton and Hunton (2001) include an item on relative-to-peers measurement.

As discussed in Dess and Robinson (1984), the use of subjective relative-to-peers performance measures is generally supported and encouraged when accurate objective measures of organizational performance (particularly economic ones) are not available, as is often the case with business units of multi-industry firms and small privately-owned firms and when the alternative is to remove the consideration of performance from the research design. Their findings suggest that top management teams' subjective assessments of their firms' improvement (decline) on ROA and sales relative to similar firms in their industry over a five-year time period were consistent with how the firm actually performed on these measures.

Relative-to-peers performance measurement is also useful in overcoming potentially serious problems concerning absolute performance measures, such as differing profit potentials and levels of standards, for example, in differing business units and organizations (Dess and Robinson, 1984). In addition, it can be used to simultaneous analysis of financial and nonfinancial performance effects (Kihn, 2005; Chapman and Kihn, 2009). For these reasons, future research could also be pursued along such

lines. In summary, analysis of performance does not need to be limited to absolute performance only, but performance relative-to-peers can also be considered.

2.4 Data collection methods

Data collection methods – including experiments, surveys, case (field) studies, and archival studies – comprise the fourth theme in our theoretical framework (see figure 1). Each of these methods can be useful in empirically studying whether and how MCS affect the behavior of individuals within an organization. In experiments, researchers actively manipulate and measure their independent variables, and use the principle of randomization, to control the research setting and to isolate the effects of variables that are confounded in a natural environment (Sprinkle and Williamson, 2007, 416-417). Referring to Birnberg *et al.* (1990, 35), a survey employs a standardized approach in order to collect information from sampling units to make inferences about the population. It can be conducted in person, by mail, telephone or internet. In case (field) research a scholar has direct and in-depth contact in organizational setting with members (see, e.g., Ferreira and Merchant, 1992; Anderson and Widener, 2007) and primarily relies on qualitative or quantitative analysis of interviews or observations. An archival study refers to an empirical study that uses archival data as its primary source of data, and applies quantitative methods to analyze the data (Moers, 2007).

Previous studies show that behaviorally-oriented participative budgeting studies have mostly used experiments in data collection. The results of the Greenberg *et al.* (1994) meta analysis of 40 participative budgeting studies indicate that 72.5 percent of the studies used experimental research – mostly laboratory experiments and to a lesser degree field experiments. According to them, 27.5 percent of the studies used surveys.³ Some of the surveys applied multiple source survey methods, but none applied multiple data collection methods. In contrast, prior contingency studies have mostly tended to use large scale self-rated mail surveys in data collection (for a literature review, see Chenhall, 2003).

Commentary

A stream of recent management accounting research has employed multiple data collection methods (e.g., Abernethy and Brownell, 1997; Anderson *et al.*, 2002; Banker *et al.*, 2000; Chapman, 1998; Davila, 2000; Emsley, 2000; Selto *et al.*, 1995; Shields and Young, 1994). Such a strategy has been recommended by Birnberg *et al.* (1990) to make research stronger. In particular, it can aid researchers to cross-check data collected by each method, collect information that is available only through particular techniques, and to take advantage of the strong points of each type of data (see Hopper and Hoque, 2006). For example, case or field data provides richer natural context (Kaplan, 1986), whereas laboratory experiments allow control in the lab (Hensel, 1980). Combining case or experimental data with archival or survey data improves the generalizability of findings. Self-rated or researcher-rated performance measures can be correlated with measures derived from archival sources or from laboratory experiments to enhance objectivity and precision in performance measurement.

Whether the use of multiple data collection methods is possible or not in single studies, there are nevertheless several possible improvements that future research could incorporate in regard to data collection. First, in contingency-based management accounting research, the use of experiments has been far less common than in behavioral accounting research. To the extent possible, well-designed and well-documented experiments should be used more often. Sprinkle and Williamson (2006) have outlined several avenues for future research from that perspective. Second, future surveys could attempt to collect data of potential contributing factors and use them as control variables. Third, the use of archival data has been quite rare in contingency-based research. Ideally, performance data could more often be collected from well-verified documentary sources. Note that Moers (2006) provides a discussion of common issues on and the critical use of archival data. Finally, historical analysis including longitudinal field studies could increasingly be considered as research methods. Historical research could be used either to explain the past, past events or phenomena with historical theories, or to increase understanding of them by creating historical synthesis (Heikkinen, 1974 in Näsi, 1990, p. 20). In summary, whilst each of the empirical data collection methods can be useful in collecting data about performance outcomes, the methods can also be triangulated.

2.5 Time perspective of data

The fifth theme in our theoretical framework is the time perspective of data analysis. Empirical data collection methods can be used to collect cross-sectional, longitudinal (time series) and/or panel data. Wikipedia (2009) defines these as follows: Cross-sectional data is a type of one-dimensional data set that is used to provide a snapshot of a population examined at that one point in time (i.e., without regard to differences in time). Longitudinal research involves a series of measurements taken over a period of time. It follows one subject's changes over the course of time. Panel research combines both cross-sectional and longitudinal research. It looks at multiple subjects and how they change over the course of time.

Prior empirical management accounting research has almost entirely utilized cross-sectional design. According to Donaldson (2001), cross-sectional contingency analysis of organizations and individuals has, nevertheless, provided insights into how they seek to adapt, or are in the process of readjusting, to their changing situations and contexts. In particular, the contingency-based approach has assumed that organizations change their MCS over time to fit their changing contexts in an attempt to maintain effective operations (Chenhall, 2006). The literature predicts that careful use of MCS plays an important role in aiding organizations to survive and prosper under conditions of uncertainty and change. For example, while rigid reliance on accounting has often been considered incompatible in highly uncertain situations, a more interactive and flexible use of MCS has been viewed to enable innovative strategic responses in contemporary, unstable environments (Chapman, 1998, 2005).

Commentary

Whilst cross-sectional studies are used in most branches of science, including the social sciences, they also have certain limitations. First, the exact consequences of multiple predictors may be difficult to estimate. In combination, multiple contingencies may have synergistic effects on each other that intensify the effects, or they may have opposite effects on each other that even-out certain performance outcomes (Chenhall, 2006). As an example of the latter, the Kihn (2007) survey found

that despite positive correlations, simultaneous emphasis on financial, nonfinancial, and behavioral controls did not significantly increase short-term profitability over an emphasis on financial controls only. The positive effect of behavioral controls was mostly offset by a negative effect of nonfinancial controls.

Second, cross-sectional survey design also limits investigation of the nature of causality. Note that observed statistically significant effects can suggest statistical associations consistent with the theory, but cannot indicate a causal relationship even if a causal relationship is a possibility. As Dent (1986, p. 156) pointed out, an investigation into the effectiveness of a set of organizational and MCS variables has little or no control over what managers otherwise do and experience. Furthermore, organizations may actually be able to implement particular structures and information systems because they are effective, rather than vice versa. Causality may also be reciprocal (Dent, 1986). Therefore, if an effect is observed, it is up to the researcher to justify that this was the result of a specific variable. Such justification needs to be achieved through careful design of the investigation, which is an issue that all social science researchers grapple with (Black, 1993).

Third, whilst management control systems could have various performance consequences over time, there has been a lack of dynamic historical analysis that tracks organizations (Capon *et al.*, 1990) and their management control systems as they evolve over time (cf., Hopwood, 1976, p. 1; Dent, 1986, p. 157). Some exceptions include Anderson's (1995) longitudinal analysis of cost management system changes in General Motors in 1986-1993, and Bhimani's (2003) longitudinal study on the emergence of management accounting system ethos and its influence on perceived system success in a division of Siemens in 1995-1998. Other related developments include Simons' (1990) analysis of startup, growth and large mature companies and Davila and Foster's (2005, 2007) research on MCS in early-stage startup companies. Kallunki and Silvola's (2008) and Silvola (2008) analyzed the effect of organizational life cycle stage (growth, maturity, revival) on the use of activity-based costing and on business planning, budgeting and management control techniques. Abernethy and Brownell (1999) and Chenhall and Euske (2007) have furthered understanding of the role of MACS in organizations facing strategic and

planned organizational change, respectively. Wouters and Wilderom (2008) studied a developmental approach leading to enabling performance measurement systems.

Lack of further historical analysis still limits our understanding of such questions as how unsuccessful organizations become successful, how successful organizations stay successful, how successful organizations become unsuccessful (Capon *et al.*, 1990), and what various roles management accounting systems might play in contributing to such outcomes. These questions could be further analyzed both in general, and more specifically in the contemporary contexts of alliances, acquisitions, restructurings, new management principles, and leadership styles, all of which potentially represent rapid changes.

A related issue is how management accounting systems and processes can support the development of various dynamic capabilities of people and organization. According to strategy theorists, the basic assumption of the dynamic capabilities framework is that today's fast-changing markets force firms to respond quickly and be innovative. Dynamic capabilities can aid firms in creating, adapting to, and exploiting change (see Helfat *et al.*, 2007). Important questions include how and why certain firms obtain competitive advantage in situations of rapid and unpredictable change (Teece *et al.*, 1997, p. 509), and how management accounting systems support this. Further management accounting research could aid in clarifying the questions of how and why some firms manage to become successful using their resources and capabilities, while others do not (Helfat, 2000). Strategy scholars suggest this may have to do with factors such as knowledge resources in particular (Grant, 1996), specific internal strategic and organizational processes (like product development), strategic decision making (Eisenhardt and Martin, 2000, p. 1106), and strategic positioning within the industry structure (Porter, 1980, 1990). Future management accounting research could also analyze how MCS are related to the ways in which firm capabilities emerge, develop, and change over time, and the resulting effects on firm performance.

Finally, there is also scant evidence of management accountants' performance at various business and accounting cycles. Likewise, little is known about performance outcomes during their professional careers. Simons' (1994) study on how new top managers use control systems as levers of strategic renewal is one of the few studies

that has taken a step towards that direction. Future research could make substantial contribution in analyzing these above-mentioned questions with longitudinal and panel, in addition to cross-sectional research.

2.6 Samples

The sixth theme in this study's theoretical framework is the sample of study. Sampling generally refers to selecting a subset of subjects representative of a given population. A sample refers to the subset of a population being researched. Prior accounting research that has assessed performance outcomes has mostly analyzed samples of managers, senior managers (directors), and firms (Kihn, 2005). Analysis of such samples has, of course, been highly useful in management accounting in particular. Management accounting is a field that provides information and tools for managers and other internal users of an organization to assist them in making decisions and evaluating the effectiveness of those decisions.

Commentary

The analysis of samples of managers and directors of corporations continues to be of central importance in management accounting. However, in addition to analyzing scores of financial and business unit managers, data could be increasingly collected from various types of functional managers to compare and contrast their viewpoints. For example, the viewpoints of marketing, production, logistics and/or research and development managers could be considered to make further theoretical and/or empirical contributions. Furthermore, samples of chief executive officers could be surveyed.

In addition, several other types of groups and settings are also important, yet remain under-researched and, therefore, also provide an area for some future study. For example, relatively little is still known about the performance of employees and managers of accounting and auditing firms. The performance of employees, accountants and managers of not-for-profit organizations (such as charities) has been analyzed far less (see Kihn, 2005). More research could be directed at analyzing such samples. The performance of students and academic scholars could also be analyzed

to enhance educational perspectives. Given their increasing importance in today's societies, the performance of MCS in service sector organizations, small entrepreneurial businesses, academic institutions, and multinational companies could be assessed. Finally, the performance of national and international organizations and governmental bodies, such as local and national governments and the European Union, could also be analyzed. Such samples could provide perspectives on the effectiveness of control for individuals, organizations, and societies.

3. Summary and Conclusions

Few previous management accounting studies have provided comprehensive analysis of performance outcomes (Chenhall, 2003; Dent, 1986; Otley, 1980). This study seeks to complement existing literature by providing a synthesis and an extended discussion of behaviorally, organizationally and strategically-oriented quantitative management accounting research from the performance outcome standpoint and by identifying promising recent developments and existing gaps in the assessment of performance outcomes. The period of the past decade, from 1999 to 2009, has been emphasized in particular to examine recent frontiers of knowledge.

In brief, the findings of this study suggest that most studies have traditionally contributed to the literature by analyzing, using regression analysis, a wide range of single, absolute, performance effects emphasizing behavioral effects with data collected from directors and managers. The use of cross-sectional surveys has dominated in contingency and strategic management accounting research, and the use of experiments has been common in behavioral research. Careful application of traditional research strategies on the assessment of performance outcomes has been, and can be expected to remain, useful. Whilst empirical evidence of various behavioral effects is still rather thin, our knowledge of the relationship between MCS and performance has started to accumulate through the combined efforts of the research community.

The findings also indicate that empirical management accounting research has recently become more active with several new developments, illustrated by a number of examples of empirical studies. The following new developments have furthered our

understanding of performance outcomes and provide fruitful directions for future research:

- analysis of various social, environmental and competitive strategic outcomes
- simultaneous analysis of multiple performance effects
- analysis of relative (to peers) performance effects
- the use of multiple data collection methods
- the use of more advanced statistical methods such as structural equation modeling, and
- analysis of mediating effects of various performance outcomes.

A number of gaps and under-researched yet important areas in the literature were also identified in existing management accounting research. They include:

- the analysis accounting- and market-based organizational or segmental level performance as dependent variables
- analysis of nonfinancial performance outcomes such as quality as a dependent variable
- simultaneous analysis of financial and nonfinancial performance outcomes
- analysis of competitiveness of management accounting systems as a dependent variable
- historical analysis of management accounting systems and performance. For example, what various roles management accounting systems might play in how successful organizations become and stay successful or become unsuccessful both in general and during rapid changes
- historical analysis of various performance outcomes of (management) accountants at various business and accounting cycles and during their professional careers
- analysis of how management accounting systems can support the development of various dynamic capabilities of people and organizations
- analysis of performance outcomes with longitudinal and panel research;
- analysis of specific important, but under-researched samples (such as chief executive officers, employees, accountants, students, academic scholars, accounting firms, not-for-profit organizations, service sector organizations,

- small entrepreneurial businesses, academic institutions, multinational companies, national and international organizations and governmental bodies)
- the analysis of the nature of causality.

On the bright side, those areas can be considered potentially useful for future endeavors to advance both quantitative management accounting literature and social science research. Taken together, the findings of this study suggest that future management accounting research can still make progress in the measurement of performance outcomes.

Finally, future studies could also be conducted in the subject area of this study, performance outcomes in empirical management accounting research. Elucidation of a more detailed picture of the periods and development trends would require that either the subject of study or the period of time covered or both should be more limited than has been the case in this study (cf. Näsi, 1990, p. 235). For example, the analysis of performance outcomes could comprise organizational, behavioral or strategic outcomes only, or studies published during the past five years could be the focus. Such studies could provide detailed and analytical descriptions, explanations and interpretations of more limited phenomena. Painting a more comprehensive picture would require that either the subject of study or the period of time covered or both should be more comprehensive than has been the case in this study. For example, the findings of contingency-based studies published in other fields or languages could be compared and contrasted to those of this one. Moreover, performance outcomes could be analyzed from the 1960s to the present time, or the current study could be extended to cover future time periods. Such studies could provide a more comprehensive picture of how empirical management accounting research has developed in various settings over time.

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Table 1. Some developments in quantitative management accounting research from 1995 to 2009

Methodological assessments	Assessment of management control systems	Assessment of situational factors	Assessment of performance outcomes
Selto, Renner & Young (1995) Tests of selection, interaction and systems models	Simons (1995) Levers of control	Chapman (1997) Uncertainty	Fisher (1998) Links between positive and negative outcomes
Atkinson et al. (1997) Cross-method, cross-discipline research	Chapman (1997) Different roles of MCS	Langfield-Smith (1997) Strategy	Shields & Young (1993) Consequences of participative budgeting
Dirsmith (1998) Use of multiple hybrid research methods	Birnberg (1998) A shift in emphasis from managerial control to organizational control systems	Fisher (1998) Broader set of contingency factors and their relationships	Hartmann (2000) Functional vs. dysfunctional outcomes
Moser (1998) Using experimental economics in behavioral accounting research	Dirsmith (1998) Multiple roles and facets of accounting	Shields & Young (1993), Shields & Shields (1998) Antecedents of participative budgeting	Chenhall (2003) Use or usefulness of management control systems, behavioral and organizational outcomes.
Borkowski, Welsh & Zhang (2001) Statistical power	Fisher (1998) The ambiguity and contradiction in defining a control system, financial and nonfinancial measures, complementary and substitutable MCS	Hartmann (2000) National culture, environment, strategy, task and departmental uncertainty, budget participation	
Hartmann & Moers (1999, 2003) Moderated regression analysis	Ittner & Larcker (1998) Nonfinancial measures in MCS	Chenhall (2003) Organizational, environmental, strategic, and technological settings	
Dunk (2003) Moderated regression, constructs, and measurement	Hartmann (2000) Reliance on accounting performance measures	Roslender & Hart (2003) Strategic management accounting	
Luft & Shields (2003), Gerdin & Greve (2004) Contingency fit	Otley & Fakiolas (2000) Reliance on accounting performance measures	Cadez & Guilding (2008) Strategic setting	
Hartmann (2005) Mixing a selection and an interaction form to fit, the use of a path model	Otley & Pollanen (2000) Budgetary criteria		
Gerdin (2005) Selection and interaction form to fit and a path model	Vagneur & Peiperl (2000) Performance evaluative style		
Chenhall & Chapman (2006) Theorizing and testing fit	Chenhall (2003) Management control systems		
Gerdin & Greve (2008) Contingency fit and			

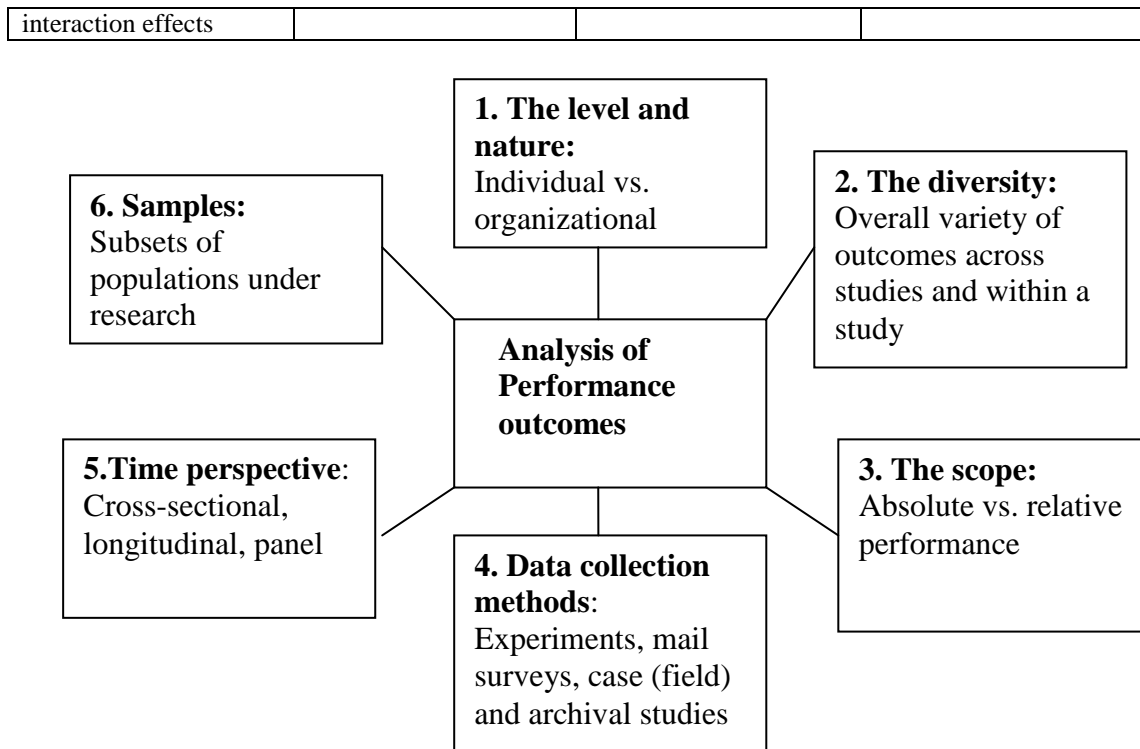


Figure 1
Theoretical framework.

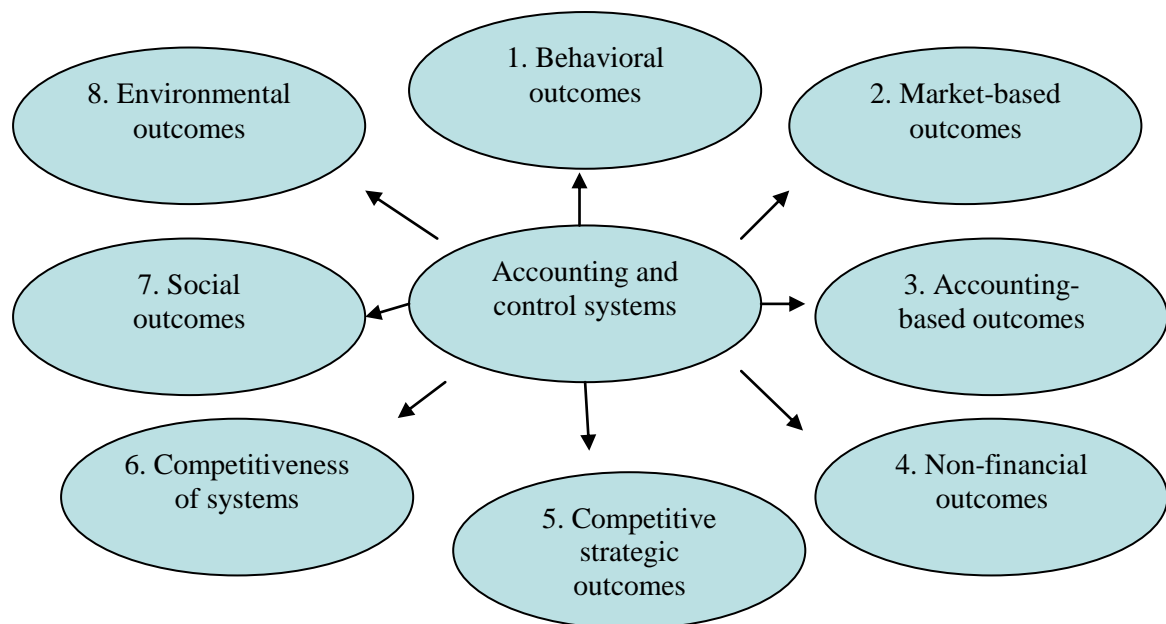


Figure 2
Possible performance outcomes of management accounting and control systems.

¹ For example, the following accounting journals were included: Accounting, Organizations and Society; Advances in Accounting Behavioral Research; Behavioral Research in Accounting; European Accounting Review; Journal of Accounting Literature; Journal of Accounting Research; Journal of Management Accounting Research; Omega; The Accounting Review; and Strategic Management Journal.

² IASB (2004), IASB (2006a), and IASB (2006b).

³ This is quite well in line with the results of Van der Stede et al. (2007), according to whom in 1982-2001 about 30 % of all published empirical management accounting research has used the mail survey method.