



Research in management accounting innovations

Management
accounting
innovations

An overview of its recent development

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Abstract

Purpose – The purpose of paper is to present a review of the literature on management accounting innovations (MAIs). Specifically, it explores recent developments in research on MAIs and offers suggestions for future research. The review differs from existing reviews by its specific focus on MAIs and the recent time period covered. In this paper, MAIs refer to the adoption of “newer” or modern forms of management accounting systems such as activity-based costing (ABC), activity-based management, time-driven ABC, target costing, and balanced scorecards.

Design/methodology/approach – The paper presents a review of findings from journal articles published in 22 notable accounting journals.

Findings – The review finds that research on MAIs has intensified during the period 2000-2008, with the main focus on exploring the extent to which a host of organizational and environmental factors influence the implementation and use of MAIs in organizations. In addition, research on MAIs indicates the dominant use of sociological theories and increasing use of empirical/field studies.

Research limitations/implications – A literature review using a given set of accounting journals and search words used to identify relevant articles may overlook literature within the scope of the review. The paper concludes the importance of more research on MAIs by offering some directions for future research.

Originality/value – The paper’s specific focus on MAIs and the recent time period offer the reader useful insights on management accounting research and theory.

Keywords Management accounting, Innovation, Accounting research

Paper type General review

1. Introduction

A considerable number of scholars have conducted reviews on management accounting and control research, within a particular timeframe and scope[1]. The purpose of this paper is to extend these reviews, particularly by Hesford *et al.* (2007), Ittner and Larcker (1998b), Otley *et al.* (1995), Scapens and Bromwich (2001), Selto and Widener (2004), Shields (1997) and Young and Selto (1991). Building upon these reviews in general, and more specifically Shields’ (1997) analytical framework, this paper reports findings from

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a literature search of the use of management accounting innovations (MAIs). The paper explores recent developments in research on MAIs and presents suggestions for future research. Table I summarizes the attributes of existing reviews and illustrates how the current review differs from existing reviews by its specific focus on MAIs and the recent time period covered.

Table I gives that Young and Selto (1991) reviewed empirical research on cost management topics published prior to 1990. Their review centered around a framework that outlines several interrelated variables in order to explain the productivity paradox. Otley *et al.* (1995) presented research on management control systems (MCS) covering the period between 1954 and 1995. They focused on the MCS literature and categorized various managerial aspects into closed or open systems and rational or natural systems perspectives. Ittner and Larcker (1998b) captured the trend of research on performance measurement innovations such as economic value measures, non-financial measures, and performance measurement initiatives in government agencies prior to 1997. They selected articles that were mainly based on surveys conducted by consulting firms and government agencies.

Selto and Widener (2004) presented wider coverage, but limited themselves to articles on conventional management accounting topics and topics that are prominent in professional finance and accounting literatures. Their review involved 14 management and accounting research journals and seven professional magazines and journals, in order to identify the divergence between management accounting research topics and practice issues. Other reviews, however, did not rely on a specific area of management accounting. For example, Shields' (1997) review focused on articles published by North Americans during the period of 1990-1996. His review was confined to only to six leading academic accounting journals[2].

Scapens and Bromwich (2001) explored research published in *Management Accounting Research (MAR)* journal between 1990 and 1999. They also briefly compared the state of the research of those articles to the North American papers reviewed by Shields (1997). Hesford *et al.* (2007) analyzed management accounting articles in ten journals published between 1981 and 2000. They observed the evolution of the research in this field and examined the articles' citations to reveal the influential individuals, topics, methods, and sources of disciplines.

Overall, the above existing reviews have provided an overview of the state of the management accounting literature and encapsulated the research done in the past towards identifying future directions. The earliest article was published in 1954, and was reviewed by Otley *et al.* (1995) and the latest is reviewed by Selto and Widener (2004) and Hesford *et al.* (2007), both of which concluded their reviews in 2000. The current review addresses the timeframe issue by including research on MAIs published until December 2008. As the business environment and technology are changing rapidly across the world, we believe that the time period between 2000 and 2008 could reveal many innovative accounting issues, hence, our coverage up to 2008.

In this paper, MAIs refer to the adoption of "newer" or modern forms of management accounting and control systems (MACS) such as activity-based costing (ABC), activity-based management (ABM), time-driven ABC, target costing, and balanced scorecards (BSC).

With regard to this definition, the term is generally equated with the newness of an idea. For example, Abernethy and Bouwens (2005) perceive MAIs as either new

Author	Title	Journal	Scope	Coverage	Timeframe
Young and Selto (1991)	New manufacturing practices and cost management: a review of the literature and directions for research	<i>JAL</i>	Modern cost management	Empirical study	Prior to 1991
Otley <i>et al.</i> (1995)	Research in management control: an overview of its development	<i>British Journal of Management</i>	Management control	Literature which sees management control as practical activity of managers	1954-1995
Shields (1997)	Research in management accounting by North Americans in the 1990s	<i>JMAR</i>	General	Research published by North Americans	1990-1997
Itrner and Larcker (1998b)	Innovations in performance measurement: trends and research implications	<i>JMAR</i>	Modern performance measures	Surveys by consulting firms and government organizations	Prior to 1998
Scapens and Bromwich (2001)	Management accounting research: the first decade	<i>MAR</i>	General	Research published in <i>MAR</i> , compared with Shields (1997)	1990-1999
Selto and Widener (2004)	New directions in management accounting research: insights from practice	<i>AMA</i>	Conventional management accounting topics and prominent topics in professional finance and accounting literature	Research journals and professional publications	1996-2000
Hessford <i>et al.</i> (2007)	Management accounting: a bibliographic study	<i>Handbook of Management Accounting Research</i>	General	Management accounting articles	1981-2000
Current review	Research in management accounting innovations: an overview of its recent development	N/A	MAIs	Both qualitative and quantitative research	1926-2008

Table I.
Summary of selected
prior reviews

systems or the redesign of an existing system. Within innovation studies, the term requires different interpretations particularly when referring to organizational context. An innovation is perceived when it is invented or regarded as novel whether it is adopted or not (Zaltman *et al.*, 1973), or when an idea or procedure is first used (Becker and Whisler, 1967), implemented (Evan and Black, 1967), or becomes successful (Mohr, 1969).

Through this review, we intend to make an incremental contribution to the management accounting literature by exploring likely trends and the state of the research on MAIs. In the literature, there are existing reviews focusing on individual MAIs[3], therefore the current paper seeks to provide additional findings on specific MAIs practices as well as on the overall analysis of MAIs.

The rest of the paper is organized as follows. Section 2 outlines the review method used. Section 3 discusses the topics, research settings, research methods, theories and findings of the literature review. Finally, Section 4 provides concluding remarks and suggestions for future research.

2. Review method

As given in Table II, the current review involves 22 leading accounting journals, namely, *ABACUS*, *Accounting and Business Research (ABR)*, *Accounting, Auditing & Accountability Journal (AAAJ)*, *Accounting and Finance (AF)*, *Accounting Horizon (AH)*, *Accounting, Organizations and Society (AOS)*, *Advances in Management Accounting (AMA)*, *Behavioral Research in Accounting (BRIA)*, *British Accounting Review (BAR)*, *Contemporary Accounting Research (CAR)*, *Critical Perspectives on Accounting (CPA)*, *European Accounting Review (EAR)*, *Journal of Accounting and Economics (JAE)*, *Journal of Accounting & Organizational Change (JAOC)*, *Journal of Accounting Education (JAED)*, *Journal of Accounting Literature (JAL)*, *Journal of Accounting Research (JAR)*, *Journal of Cost Management/Cost Management (CM)*, *Journal of Management Accounting Research (JMAR)*, *MAR*, *Review of Accounting Studies (RAS)*, and *The Accounting Review (TAR)*. These journals are widely accepted prestigious international refereed journals in the accounting field and articles published in them are subject to a rigorous, double blind review process.

The articles on MAIs were searched using the term “management accounting innovation”. The search was targeted on the articles published in a number of online databases[4]. Table II reports the result of the database search. As can be seen from the table, the search found 666 articles on MAIs, published during the period of 1926-2008, both years inclusive[5].

For the purpose of the analysis, articles on financial accounting, corporate finance and research method topics, book reviews, and committee reports and discussions were omitted. The remaining articles were then examined to identify those that are centered on contemporary and specific formal techniques (Bisbe *et al.*, 2007), such as the BSC, benchmarking, ABC and ABM, total quality management (TQM), target costing, and value-chain management. For organizational and employees’ performance measurement, selection was based on the use of non-financial measures or a combination of both financial and non-financial measures. Eventually, we identified 89 articles for further analysis, on the grounds that they are widely cited articles[6] and they are published in prestigious, international refereed journals. Further, these articles also represent topics within the scope of the paper, namely, MAIs. Research on MAIs falls

Journals	Web site	Coverage	Articles retrieved from database search	Articles selected	Rank
ABACUS	http://blackwellpublishing.com/journal.asp?ref=0001-3072	1965-2008	4	2	15
<i>Accounting and Business Research</i> ^a	www.abr-journal.com	1973-2008	2	1	20
<i>Accounting and Finance</i> ^a	http://blackwell-synergy.com/loi/acfi	1979-2008	7	3	12
<i>Accounting Horizons</i>	http://aaahq.org/pubs/horizons.htm	1987-2007	12	3	10
<i>Accounting, Auditing & Accountability Journal</i>	http://emeraldinsight.com/info/journals/aaaj/aaaj.jsp	1988-2008	115	7	2
<i>Accounting, Organizations and Society</i>	http://elsevier.com/wps/product/cws_home/486	1976-2008	15	9	8
<i>Advances in Management Accounting</i> ^a	http://info.emeraldinsight.com/products/books/series.htm?id=1474-7871	2003-2007	4	3	16
<i>Behavioral Research in Accounting</i> ^a	http://aaahq.org/abo/BRIA/BRIAHOME.HTM	1991-2008	9	6	11
<i>British Accounting Review</i> ^a	http://baa.group.shef.ac.uk/publications/bar.htm	1988-2008	4	2	17
<i>Contemporary Accounting Research</i> ^a	http://caaa.ca/CAR/	1991-2007	3	1	19
<i>Critical Perspectives on Accounting</i>	http://elsevier.com/wps/product/cws_home/622813	1990-2008	7	1	13
<i>European Accounting Review</i>	http://eaa-online.org/tr/default.asp?id=JEKEJ	1992-2008	26	1	5
<i>Journal of Accounting & Organizational Change</i>	http://info.emeraldinsight.com/products/journals/journals.htm?id=jaoc	2005-2008	17	3	7
<i>Journal of Accounting Education</i>	http://elsevier.com/wps/product/cws_home/840	1983-2008	1	1	21

(continued)

Table II.
Database search results

Table II.

Journals	Web site	Coverage	Articles retrieved from database search	Articles selected	Rank
<i>Journal of Accounting Literature</i>	http://cba.ufl.edu/fsoa/faculty/jal.asp	1982-2006	4	0	18
<i>Journal of Accounting Research</i>	http://blackwellpublishing.com/journal.asp?ref=0021-8456&site=1	1963-2008	67	5	3
<i>Journal of Cost Management/Cost Management</i> ^a	http://ria.thomson.com/ESStore/detail.aspx?ID=ZMCM	1992-2008	20	11	6
<i>Journal of Management Accounting Research</i> ^a	http://aaahq.org/mas/JMAR/JMAR.cfm	1992-2007	32	16	4
<i>Management Accounting Research</i> ^a	http://elsevier.com/wps/product/cws_home/622911	1993-2008	13	8	9
<i>Review of Accounting Studies</i>	http://springer.com/business/accounting/journal/11142	1996-2008	5	0	14
<i>The Accounting Review</i>	http://aaahq.org/pubs/acctrev.htm	1926-2008	299	6	1
Total			666	89	

Notes: ^a As the search was conducted on journals published in online databases, earlier issues of some journals were not included; these journals are *ABR* (whose coverage starts from Volume 4 onwards), *AF* (Volume 19), *AMA* (Volume 11), *BRIA* (Volume 3), *BAR* (Volume 20), *CAR* (Volume 8), *CM* (Volume 6), *JMAR* (Volume 4) and *MAR* (Volume 4)

into two categories: first, research that focuses on MAIs in general; and second, research that focuses on a specific aspect of MAIs, such as ABC/ABM or the BSC.

Large numbers of articles found from the database searches are from *TAR*, *AAAJ*, *JAR*, and *EAR* journals, the top four ranked journals. However, relatively few of these were selected for the review. This is probably due to the implementation of the search operation of certain online databases that identify the articles when the words “management”, “accounting”, and “innovation” are found individually in the text. The journals *ABACUS*, *ABR*, *JAED*, *JAL*, *RAS*, and *CAR* appear to publish a very small number of articles on MAIs research. This seems to be, because these journals place more emphasis on quantitative and empirical studies and less on management accounting topics. However, other generalist accounting journals, such as *AOS*, *BRIA*, *JAOC*, and *AH*, place more equal weight on qualitative and quantitative management accounting research. They contain a relatively large number of articles in this area, with most of them reflecting the scope of MAIs defined earlier. With regard to the journals that pertain to other disciplines, *AF* seems to have some publications on MAIs, but none were found in *JAE*.

As expected, accounting journals specific to management accounting contain a larger number of MAIs studies. From the table, *JMAR* publishes more articles in this area than its counterpart, *MAR*. *JMAR* provides the largest number of articles selected for the review, as it tends to focus on performance measurement systems and activity-based systems topics. It was also found during the search that field research methods have been discussed and encouraged in *JMAR* (Ahrens and Dent, 1998; Baxter and Chua, 1998; Kaplan, 1998), although like other US-based journals, this journal is dominated by quantitative studies.

With regard to the practitioner journals, *CM* publishes more research on MAIs than *AMA*. Further, compared with the other journals, the articles from *CM* discuss more diverse management accounting practices, focusing on practical insights and experiences from case studies.

Appendix summarizes the attributes of the studies that form this review. The table in the Appendix comprises nine columns headed author/year, article title, journal, article type, key issues addressed, setting, theory, research method, and key findings. For the article type, articles were categorized according to whether they were a case study, empirical, experimental, descriptive, conceptual, practical insight, or review. Theories used by the researchers were based on the framework by Shields (1997): economic theories, psychological theories, sociological theories, organizational behavior theories, production and operations management theories, and strategic management theories. The classification of research methods is done following Shields (1997) of mathematical analytic, survey, archival, laboratory experimentation, case/field study, literature review, and multiple research methods.

3. Findings

This section discusses the findings from our literature review and briefly compares them with previous reviews. The topics, research settings, theoretical frameworks, methods used, and results in the sample articles are summarized and analyzed.

3.1 Topics

As mentioned above, the articles for the review are categorized into two groups: MAIs in general; and MAIs as specific practices. Table III reports the frequency of topics in

Table III.
Distribution of topics

Topics	Frequency
MAIs in general	18
MACS	63
Organizational/manufacturing performance measures	17
Employees' performance measures	11
ABC and activity-based cost management	19
Balanced-scorecard	8
Strategic management accounting	3
Value-based management	3
Benchmarking	1
Target costing	1
<i>Operations management</i>	8
TQM	5
Lean manufacturing	2
Supply chain management	1
Total	89

the articles, which gives that 18 articles are on management accounting practices as a whole, while 71 are specific to 11 practices of MACS and operations management.

As can be seen from Table III, the reviewed articles are dominated by research on the innovation of MACS. Research within this area concentrated on non-financial measures of organizational and manufacturing performance measurement (17 articles), employees' performance measures (11), and ABC and ABM (19). Other contemporary techniques of MACS in the reviewed articles are BSC (eight), strategic management accounting (three), value-based management (three), benchmarking (one), and target costing (one). The articles on operations management include TQM (five), lean manufacturing (two), and supply chain management (one).

While Shields (1997) found few articles on non-financial performance measures, the current review observed an increase in research in those areas, especially in and following 1998. This is consistent with Hesford *et al.* (2007), which reported significant shifts in the control literature from budgeting and organizational control to performance measurement and evaluation topics. We find that, in the sampled articles, studies from earlier years generally discuss the importance and performance consequences of non-financial measures. In more recent years, research tends to examine the way in which non-financial measures are being designed and used to improve performance (Banker *et al.*, 2000; Bouwens and van Lent, 2006; Burney and Widener, 2007; Cavalluzzo and Ittner, 2004; Chenhall, 2003, 2005).

Research on ABC/ABM received considerable attention and concentrated on implementation and contextual issues such as top management's support and resource constraints (Agbejule, 2006; Al-Omiri and Drury, 2007; Argyris and Kaplan, 1994; Baird, 2007; Briers and Chua, 2001; Chenhall, 2004). Our review also reveals an inconclusive debate on the mixed results in previous studies regarding the adoption of ABC/ABM, despite their widely claimed benefits. The articles under review attempted to identify various variables that are associated with the adoption, use, and effectiveness of ABC/ABM. Recently, Kaplan and Anderson (2007) introduced a new innovation of ABC, namely time-driven ABC to overcome the subjectivity and complexity of conventional ABC. In their revised model, time is used to drive costs directly from resources to cost

objects, thus skipping the activity-definition stage and allocation of resource costs to activities in conventional ABC (Kaplan and Anderson, 2007). However, empirical study is needed to provide evidence on the applicability and benefits of this new model.

In contrast to ABC/ABM, the other innovation by Kaplan and Norton (1992, 1996a, b, 2001), the BSC, has been much less researched. This may be because its application does not explicitly indicate the use of BSC, but the use of financial and non-financial information or, by other terms. According to Malmi (2001), the determination of a measurement system as a BSC is always far from clear. The BSC has similar attributes to France's Tableaux de Bord (Lebas, 1994), and is often supplemented with other management techniques (Ax and Bjørnenak, 2005). Researchers usually presume a BSC when it involves both financial and non-financial measures; however, France's Tableaux de Bord also constitutes the same elements of performance measures. The distinctive features of the BSC are that it should contain some version of the original four perspectives: built from financial and non-financial measures, the measures are derived from organizational strategy and impose cause-and-effect relationships (Chenhall, 2005; Malmi, 2001).

Overall, the current review agrees with Shields (1997) that recent research tends to extend the topics that have already been studied. Researchers are inclined to focus on popular tools in MACS, which could lead to lack of diversity in the topics being studied. In the current review, it is noted that research in value-based management, benchmarking, life cycle costing, and target costing have received little attention in management accounting research (Hesford *et al.*, 2007; Selto and Widener, 2004; Shields, 1997). Perhaps, an extensive review that provides more coverage of published articles could be conducted for future research to verify this inference.

Despite the continuing concern about the correspondence of management accounting practices to manufacturing technology, not many studies incorporate discussion of different operations management techniques in accounting journals. TQM and just-in-time (JIT) are common operations management techniques tested in management accounting literature, whereas lean manufacturing, supply chain management, business process reengineering and theory of constraints are relatively rarely discussed. Ittner and Larcker (2001) suggest that research on the interface between accounting and operations management has been substantially reduced due to increased interest in "new" topics such as BSC, intangible assets, and economic value added. This underdeveloped body of research means that many research topics are as yet unexplored, and conflicting results remain unresolved (Ittner and Larcker, 2001).

3.2 Settings

Table IV reports the distribution of research settings in the sampled articles. The classification of the settings is based on Shields (1997). From the table, research in MAIs is centered on the manufacturing industry (29 articles), comprising the production and services activities of manufacturing companies. Another single industry setting is services (six) which comprises retailing, banking, financial services, hotels, and health care, whereas specific industry (two) comprises telecommunications and the airline industries.

The 13 studies that were conducted in multiple industries almost exclusively involve survey and archival methods. Six studies were conducted in the public sector and nine employed generic settings[7]. Research in inter-organizational, international,

QRAM
7,4

514

Table IV.
Distribution of settings

Topics	Frequency
<i>Single industry</i>	
Manufacturing	29
Service	6
Specific industry	2
Multiple industries	13
Generic	9
Public sector	6
Inter-organizational	2
International	1
Multinationals	1
Specific country	1
No setting or other settings	19
Total	89

and multinational companies are not well represented in this sample, consistent with Shields (1997). The 19 studies that do not involve research settings are conceptual/practice-oriented papers.

Heavy emphasis on the manufacturing industry is consistent with the traditional involvement of management accounting practices (Scapens and Bromwich, 2001; Shields, 1997). Studies in manufacturing settings mainly related to cost management and management control such as ABC and ABM, performance measures and quality-related measures as well as operations management tools (Agbejule, 2006; Chenhall, 2004). Further, the current review shows that research on MAIs places similar emphasis on non-manufacturing settings. Performance measurement initiatives and ABM are widely studied in service industry and public sector organizations (Cavalluzzo and Ittner, 2004; Hussain and Hoque, 2002; Lapsley and Wright, 2004; Webb, 2004). This indicates that innovations of management accounting are also applicable to non-manufacturing settings, which might be explained by the high intensity of competitive pressures in the service industry (Hussain and Hoque, 2002) and public sector reform (Lapsley and Wright, 2004).

3.3 Theories

Table V provides the distribution of theories used in the articles reviewed. There are 18 articles which are based on sociological theories, 13 articles based on economic theory, 11 articles on contingency theory, and nine articles based on organizational behavior perspectives. Other articles rely on production and operations management (two articles), strategic management (one), psychology (one), or a combination of multiple theories (13). The remaining two articles are based on Simon's levers of control.

Within these 89 articles, there are a number that do not explicitly indicate the theory used; with most of them developing hypotheses from the findings of prior research. These articles generally use survey methods, although some are conceptual papers. According to Scapens and Bromwich (2001), theory is implicit in many studies, and they suggest the underlying theories should be inferred from the content of the papers. However, as expected, 19 articles in practitioner or professional journals are not grounded in any theoretical framework.

Theories	Frequency
Sociology ^a	18
Economics	13
Contingency theory	11
Organizational behavior	9
Production and operations management	2
Psychology	1
Strategic management	1
Economics and organizational behavior	3
Organizational behavior and sociology	2
Economics and sociology	2
Economics and POM	1
Economics and contingency theory	1
Organizational behavior and POM	1
Organizational behavior and psychology	1
Sociology and psychology	1
Strategic management and contingency theory	1
Others	2
No explicit theory	19
Total	89

Notes: ^aShields (1997) put in contingency theory under the category of sociology, it is believed that contingency theory is more aligned to organizational theories; considerable accounting research has used contingency theory to study the linkage between MCS and contextual factors (Chenhall, 2003). As a result, this theory is listed as a separate item

Table V.
Distribution of theories

In MAIs research, sociology theories are derived from institutional theory, theory of translation, actor-network theory, innovation diffusion theory, stakeholder theory, structuration theory, trust theories, and enabling vs coercive formalization. Economic theories mainly involve principal-agent relationships with some articles based on classical utility theory, production cost economics, and Marxian economics.

Research grounded in organizational behavior is associated with motivational theories namely goal theory, expectancy theory, and X and Y theory. Research based on production and operation management theories incorporates quality and production process layout, whereas strategic management deals with strategy typologies and strategy process. Psychology theories include conflicts and social psychology.

Shields (1997) notes that half of the studies from North America were built on economics theory. The current review, however, indicates that research in MAIs is also heavily sourced from other disciplines, namely sociology, organizational behavior, and contingency theory. As the current review is on MAIs, sociology theories such as institutional theories and innovation diffusion theories prevail. These theories are mainly used in diffusion and adoption studies to identify the factors that influence the phenomenon. In addition, theories which stem from alternative management accounting positions (Baxter and Chua, 2003) have received a particular emphasis in the sampled articles.

With regard to management accounting change, the alternative approach emphasizes research in a micro-context and recognizes the influence of individuals. Old institutional economics and new institutional sociology are notable for analyzing the process, especially in field studies. Nevertheless, these theories are restricted to the

abstract process of stability and change (Burns and Scapens, 2000) and the notion of isomorphism (DiMaggio and Powell, 1983; Meyer and Rowan, 1977). They appear to overlook technical rationality and implementation outcome. As a result, Lounsbury (2008) highlighted institutional rationality as a new direction for research to move away from conventional neo-institutionalism. The institutional frameworks have further developed to embrace organizational diversity, for instance, the concept of institutional entrepreneurship that explores the roles of powerful actors that bring about change (Garud *et al.*, 2007).

3.4 Research approach

Table VI gives the distribution of research methods used in the sampled articles. The most frequent method used is survey (30 articles), followed by case study/field study and conceptual/practical insight (18 articles each), multiple research methods (eight), and archival methods (six). Other methods are experimentation (four), mathematical analytic (three), literature review (one), and action research (one).

It appears from our review that quantitative methods, which include surveys, experimentation, and mathematical analysis, are dominant in these articles. The survey method is employed in descriptive studies particularly to identify factors that influence the degree of adoption of management accounting practices and the reason they were used, apart from the extent of financial and non-financial information that was utilized. Explanatory-based studies using the survey method seek to find the optimal relationship between the implementation of various practices and outcome variables and contextual variables (Abernethy and Bouwens, 2005; Libby and Waterhouse, 1996; McGowan and Klammer, 1997; Shields, 1995). However, survey methods are often associated with controversies of bias, response rate, collection procedures, and inconsistency of findings with theories and previous research. As the survey method is imperative in management accounting research, researchers need to follow guidelines on appropriate survey procedures (Neuman, 2000; Sekaran, 2003). For example, to improve the response rate, Dillman (1983) suggested the use of total design method (TDM), which focuses on the design and the procedures of a survey. According to Dillman, among the principles of TDM in the design of an instrument are to avoid questions on the cover page and last page; the first question should apply to everyone; questions should be interesting and easy to answer; and the most-interesting and topic-related questions should be placed first, followed by potentially objectionable questions and finally, demographic information. For implementation procedures,

Research method	Frequency
Survey	30
Conceptual/practical insight	18
Case study/field study	18
Multiple research methods	8
Archival	6
Experimentation	4
Mathematical analytic	3
Literature review	1
Action research	1
Total	89

Table VI.
Distribution of research
methods

Dillman (1983) suggests appropriate content for the cover letter with printed mailing date, individual names and addresses, and signed by the researcher with a blue ballpoint using sufficient pressure. He suggests a postcard follow-up reminder be sent one week after the first mail-out, after three weeks a second cover letter and questionnaire to non-respondents, and after seven weeks another cover letter and replacement questionnaire.

Mathematical analysis primarily involving modeling was used in testing the principal agent relationship associated with compensation and determination of the effect of multiple cost drivers (Banker and Potter, 1993; Datar *et al.*, 2001). In contrast to the other research methods, this method is relatively rare in this review. Archival method involves the collection of both quantitative and qualitative data. Quantitative data is related to firms' financial and non-financial information retrieved from the firms' databases and public databases. Qualitative data is obtained from publications and firms' documents. The reviewed articles based on quantitative archival research, mathematical analysis, and experimentation come almost entirely from North American journals and their authors are affiliated mainly with North American institutions. This might be due to the education system, especially in research programs. The doctorate program in the USA is more rigorous, consisting of coursework, comprehensive examinations, internship, and a thesis. For the first two years normally, the students need to complete coursework on accounting subjects, research methods, and various quantitative research tools such as statistics and econometrics before commencing their research. In the UK and Australia, usually there are little or no course components in many universities and the program tends to be shorter than in the USA.

On the other hand, qualitative/case study papers appear mostly in UK journals such as *AOS* and *MAR* (Selto and Widener, 2004). In this review, the percentage of case study/field study research is seen to be increasing in comparison to Shields' review of 1997. Case study/field study methods are paramount in understanding MAIs and change. As the response to change is unique to different organizations, these methods can explore many avenues depending on the research questions and theory chosen. In the sampled articles, case study/field study research is centered on the implementation of management accounting practices, ranging from the reasons for their design and adoption, to the multiple aspects of application and implementation processes (Agbejule, 2006; Emsley, 2008; Hussain and Hoque, 2002; Tuomela, 2005).

While a survey is likely to reveal an individual's perception of predetermined variables, a case study primarily involves a vast abstract area of social reality (Morgan and Smircich, 1980; Yin, 1994). The reliability of data could be improved through field studies whereby the information obtained from one source (e.g. interview) could be supported by information from other sources (e.g. documentation analysis and survey). To further enhance external validity and reduce observer bias, Yin (1994) suggested multiple cases be studied. Normally, the difficulty of this method is the aggregation of findings as they are fragmented to particular settings. Nevertheless, the case study/field study is often exploratory in nature and presents alternative perspectives (Yin, 1994) and the findings could suggest emergent variables to be tested empirically.

In innovation action research, researchers are actively involved in organizations to implement an idea, with their role as change agent in creating something new (Kaplan, 1998). As opposed to the case study/field study that investigates existing practices, the innovation action researcher is experiencing the development process, which may

add new insights to the literature. In this review, action research by Liu and Pan (2007) reported on the implementation of ABC from technical, behavioral, and organizational perspectives, from which they have identified new internal barriers to change.

Conceptual papers in this review are similar to the framework studies defined by Hesford *et al.* (2007). Such studies involve the development of new conceptual frameworks to provide new perspectives, and are drawn from multiple information sources and the authors' own synthesis (Hesford *et al.*, 2007). Practical insight, on the other hand, is not associated with theoretical testing; instead, it encompasses the description of management accounting practices that are usually based on practical experience. This type of research normally appears in applied research and practitioner literature and adopts an informal research style that does not rely on theory (Shields, 1997).

3.5 Results of prior research

This section briefly discusses the results of prior research studies on MAIs in general and articles on BSC, TQM, ABC and ABM, organizational/manufacturing, and employees' performance measures. The review of the findings will focus on these practices as they are relatively dominant in the sampled articles. Appendix summarizes the key issues addressed and the key findings of the 89 articles reviewed.

3.5.1 MAIs in general. There are a number of studies on MAIs that consider different management accounting practices as a whole. These articles analyze the development of management accounting practices, individual perceptions of innovation and change, accounting lag, the determinants and trends of adoption, the processes of change, and the unbundling of management accounting models.

Two articles by Kaplan provide the review on the development of management accounting before and after 1984. In the article published in 1984, Kaplan concluded that the traditional cost accounting models prior to 1984 are no longer adequate for new organizations with advanced manufacturing technology and competitive business environments. Subsequently, we witnessed the development of ABC and BSC which were reported in Kaplan's article published in 1994. Kaplan documented how ABC, operational control systems, and BSC were initially documented, elaborated, and disseminated through publications for the period of 1984-1994.

Similarly, Bjørnenak and Olson (1999) followed the development of management accounting literature to understand the changes in the characteristics of management accounting models. They unbundled the models into scope and systems dimensions, and found that contemporary management accounting models have experienced significant changes such as increased user-involvement and use of non-financial, external, disaggregated, and *ex ante* data.

Studies on the determinants of MAIs and change found various organizational, technical, and economic factors that influence the diffusion and adoption of these practices. The prevailing factors found in prior studies are global competition and changes in technology (Waweru *et al.*, 2004), performance gap (Lin and Yu, 2002), organizational structure (Abernethy and Bouwens, 2005; Cavalluzzo and Ittner, 2004), top management support (Cavalluzzo and Ittner, 2004), and the influence of government (Lapsley and Wright, 2004). Contradictorily, Libby and Waterhouse (1996) found that organizational structure, size, and competition did not predict changes in management accounting systems.

With regard to the use of management accounting systems, Libby and Waterhouse (1996) found a high rate of change in sampled organizations where the practices that support decision making and control were favored by the organizations. Their study however does not indicate specific management accounting practices being implemented in the organizations. Szendi and Elmore (1993) drew a distinction between contemporary and traditional management accounting practices. They found that new management accounting techniques are being adopted while traditional systems are being maintained, thus suggesting that management accounting is in a transitional stage. The inclination of organizations towards new management accounting techniques has been explained by Emsley *et al.* (2006). They suggest that management accountants whose behavior is innovative cognitive in style are more likely to initiate radical changes to the practices of their organizations.

3.5.2 Balanced scorecard. The articles on BSC found in this review generally focus on the design and use of BSC. A conceptual paper by Kaplan and Norton (2001) suggests the strategy map in BSC could manifest the critical elements and their linkages between the organization's strategies. However, as discussed by Johanson *et al.* (2006), an organization adopting a BSC approach might face dilemmas in implementation and employee mobilization, one-size-fits-all problems, the time dimension, and various organizational logistics.

Notwithstanding, both articles agree that the BSC is a holistic and balanced performance management approach, but might be subject to various interpretations and modifications to adapt to different settings. This is consistent with Funck's (2007) study which shows how the BSC is modified to meet the needs of different logistics in the public healthcare environment. He found that the concept of balance[8] is being translated as a balance between the four BSC perspectives; top-down control is mixed with a decentralized design and places less importance on the cause and effect relationship. In addition, Ax and Bjørnenak (2005) observe that the BSC has been integrated with other administrative innovations and made to appear attractive by what they describe as a "fashion-setting" process.

With regard to the use of the BSC, Malina and Selto (2001) found that managers respond positively to BSC measures by reorganizing resources and activities in order to improve performance in those areas. Tuomela (2005) found, in his case company, that the BSC was used for diagnostic and interactive control purposes and had specific implications for beliefs systems and boundary systems. Joseph (2008) observed that the BSC is used to implement stakeholder-based management strategy by addressing stakeholder issues while providing long-term growth and profitability. The BSC has also been used for capital investment decision making in a health care organization using a matrix approach (Lyons *et al.*, 2003).

Other studies on the BSC outside the domain of MAIs are by Davis and Albright (2004) and Hoque and James (2000). A quasi-experimental study by Davis and Albright (2004) found that the improvement in financial performance after the implementation of a BSC resulted in financial performance superior to non-BSC implementing organizations. Similarly, Hoque and James (2000) found from their survey that organizational performance increased with increased usage of BSC type measures. They also reported that BSC adoption is positively associated with the firm size and early product life cycle stage, but not with a firm's market position.

Overall, empirical studies on the BSC are limited, despite the BSC's widespread benefits (Ittner and Larcker, 1998b, Malmi, 2001). In particular, Davis and Albright (2004) regarded research on the benefits of the BSC as lacking though it is the primary research question in this area (Ittner and Larcker, 1998b).

3.5.3 TQM and management accounting. Similar to BSC, research on the relation between TQM and management accounting in this review is relatively limited. One stream of studies focuses on cost of quality and quality-related outcomes. For example, using a survey, Dunk (2002) wrote that quality performance is significantly associated with product quality and environmental accounting. Emsley (2008) studied two manufacturing plants of an organization and found the different ways the plants developed Juran's cost of quality techniques resulted in different outcomes. A descriptive study by Sjoblom (1998) indicates the wide use of non-financial quality indicators, because they are good proxies for financial impact, timelier, more reliable, and more relevant.

The other stream is related to the management accounting system in a TQM setting. First, Gurd *et al.* (2002) suggest the factors that reduce the accounting lag following the implementation of TQM are management commitment, strong leadership, education, and training programs. Second, Ittner and Larcker (1995) documented the association between TQM and non-traditional performance measures and reward systems.

Similarly, previous research reported that changes in management accounting are necessary for manufacturing practices. For example, Hoque and Alam (1999) observed that the management accounting system in their case organization changed to become more decentralized and project-oriented to fit in with TQM. However, research on the effect of the interaction between manufacturing practices and management accounting system on performance has produced mixed results. While, Abernethy and Lillis (1995) found that the association between these two practices affects performance, Ittner and Larcker (1995), Perera *et al.* (1997) and Sim and Killough (1998) found no positive association with performance. Abernethy and Lillis (1995) suggested that the different results are due to other factors that are not tested, such as the dynamic nature of organizations that experience different phases of change.

3.5.4 ABC and management. By and large, ABC/ABM research falls into four groups, namely descriptive studies to identify the extent of ABC/ABM adoption, the benefits of ABC/ABM and its effect on managers' and employees' satisfaction, factors influencing the adoption of ABC/ABM, and factors affecting the successful implementation of ABM.

Studies have shown that ABC/ABM generate the characteristics of information that are superior to traditional systems (McGowan, 1998), but would be less beneficial in the presence of information asymmetry (Mishra and Vaysman, 2001). The expected benefits, however, depend on the interaction of behavioral and cognitive conflict factors (Chenhall, 2004). The implementation of ABC/ABM is found to improve firm performance (Banker and Potter, 1993; Ittner *et al.*, 2002) and increased manager and employee satisfaction (Swenson, 1995; McGowan and Klammer, 1997).

Several studies attempted to investigate the determinants of the adoption of ABC/ABM. The dominant factors for the adoption of ABC/ABM reported are the institutional isomorphism (Agbejule, 2006; Malmi, 1999), technical efficiency of the system (Al-Omiri and Drury, 2007; Baird, 2007; Malmi, 1999), firm size (Baird, 2007; Brown *et al.*, 2004; Krumwiede, 1998), and top management support (Brown *et al.*, 2004).

With regard to the adoption of ABC/ABM, Baird (2007) and Bhimani *et al.* (2007) found the rates are varied in different countries. Bhimani *et al.* (2007) surveyed companies in seven countries namely Canada, France, Germany, Italy, Japan, the UK, and the USA. They found that half of the respondents in the USA and the UK were using ABC across units; while in France, more than half were using ABC in the majority of units. A high abandonment rate, however, was found amongst Japanese and Italian respondents. In Australia, Baird (2007) reported that the percentage of adoptions of activity management practices (Gosselin, 1997) in public sector organizations were higher than in the non-adopters. Comparing the survey results with Baird *et al.* (2004), the adoption rate of activity analysis is higher in public sector than private sector organizations. As he found that the adoption of activity cost analysis and ABC were lower in public sector organizations, Baird (2007) suggests that these organizations were using the practices more for improving processes for efficiency and effectiveness, than for determining the costs of goods and services.

In an earlier period, Shields (1995) found a moderate level of success of ABC implementation in US companies, of which most had realized a financial benefit from the system. Different levels of ABC success were also reported in other studies not included in this review. For example, Innes and Mitchell (1995) and Innes *et al.* (2000) found that success was considered high by respondents from UK companies, with the majority of them believing in the financial benefit received from ABC. However, a comparison of the two studies shows that the use and interest in ABC fell, with a higher rate in 1999 for companies that had not considered ABC or had rejected ABC. A review by Gosselin (2007) also concluded that the complexity of ABC has weakened the interest of many organizations to adopt it. He suggested that the level of actual adoption is indeed lower than the results from survey studies. Gosselin (2007) stated that this is due to the use of management accounting managers as survey respondents, which may not represent the perceptions of other managers, and because of the unclear definitions of ABC in the surveys, which leads to confusion of what is actually ABC.

3.5.5 Organizational/manufacturing performance measures. Research into organizational/manufacturing performance measures can be categorized into several prevalent issues. Studies have found that non-financial measures of customer satisfaction (Ittner and Larcker, 1998a) and the use of both financial and non-financial measures in compensation contracts (Said *et al.*, 2003) are the leading indicators for financial performance.

A conceptual paper by Cote and Latham (2004) emphasized the need to incorporate quality-related measures in performance measurement systems. Using a survey, Maiga and Jacobs (2005) proved that the importance of quality-related measures in MCS will influence quality performance and subsequently financial performance and customer satisfaction. In addition, clear definition and measurable goals are also crucial in affecting quantity and quality performance (Verbeteen, 2008).

A second type of research is on the attributes of performance measures within manufacturing contexts. According to Kaplan (1983), in order for manufacturing firms to remain competitive, the firms' management accounting systems should be able to support new manufacturing strategies. Specifically, firms need to strengthen measures on quality, inventory cost, productivity, new product technologies, discounted cash flows, and incentive schemes. Further, Banker *et al.* (1993) found that firms that

implement JIT, TQM, and teamwork practices may need to report manufacturing performance to their shop floor workers to improve their employees' morale.

Two other articles showed that non-financial performance measures are used in tandem with manufacturing strategies. A survey by Fullerton (2003) found that JIT firms use more non-financial performance measure and reward systems, as well as TQM measurement tools, than non-JIT firms. Particularly, the extensive use of subjective non-financial measures within firms using quality-based strategies may lead to higher performance (Van der Stede *et al.*, 2006).

A third research stream is related to the design and use of non-financial measures. In banking firms, the design and use of performance measures are influenced by institutional forces of coercive, mimetic, and normative aspects, together with economic constraints (Hussain and Hoque, 2002).

A fourth type of research suggests the use of non-financial measures to influence the behavior of managers and employees. For example, Webb (2004) reported that the use of strategic performance measurement systems has a positive impact on managerial commitment to improve performance. When comprehensive reporting systems and incentives tied to goals are involved, managers tend to spend more time working on non-financial measures than on financial areas (Ullrich and Tuttle, 2004). Another study suggests that to motivate the employees to improve goal-congruence effort, less distorted performance measures, and higher cash bonuses must be maintained (Bouwens and van Lent, 2006).

3.5.6 Employees' performance measures. Studies of incentive systems mostly attempted to determine the optimal incentive and mechanisms that result in positive outcomes. The use of non-financial measures (Banker *et al.*, 2000) and financial controls (Kihn, 2007) were found to be associated with improved firm performance. Organizational trust can be improved through gain-sharing systems (Chenhall and Langfield-Smith, 2003) and employee creativity can be improved by placing emphasis on quantity measures in creativity-weighted pay schemes (Kachelmeier *et al.*, 2008). To encourage innovation, Kennedy and Schleifer (2007) proposed a team performance measurement system that balances innovation and empowerment with control. In addition, the controllability of measures (Ghosh, 2005) and job-relevant information (JRI) and role ambiguity (RA) (Burney and Widener, 2007) were found to have a moderating effect on the relationship between performance measurement systems and performance. According to Ittner *et al.* (1997), the weight placed on the choice of non-financial measures over financial measures depends on the level of regulation, the implementation of innovation-oriented strategy, and strategic quality initiatives.

In conclusion, the summary of the findings on the five topics implies a likely pattern of research in the sampled articles. Although it represents only a fraction of the management accounting literature, one could illuminate the debate in those topics, and identify an area for future research. In the next section, we suggest some opportunities for future research.

4. Conclusions and future research

This paper presents a review of the literature on MAIs over the past ten years. Innovation in this paper is signified by advanced MACS practices and operations management techniques. In a nutshell, research on MAIs has focused on design and implementation aspects. Within the implementation-based research, descriptive studies

generally identified the extent of adoption and use of MAI practices. Meanwhile, empirical and field studies usually sought to explain various factors associated with implementation and the outcome of an innovation.

This review includes prestigious accounting journals from North America, Europe, and Australia, wherein a diversity of research methods and theoretical frameworks used are apparent. There is increasing use of field studies using sociology theories in MAIs research. Sociology theories such as institutional theory and actor-network theory provide alternative perspectives to research by recognizing individual's power and highlighting the transition process of innovations.

Our review suggests a number of gaps in the existing literature. With regards to the evolution of these practices, it is plausible to conclude that the innovations seem stagnant, with research tending to extend the existing practices. Certain management accounting practices such as ABC/ABM and performance measurement systems have received considerable attention in the literature, involving various technical, behavioral, and sociological aspects. Therefore, a comprehensive review of these studies is needed to provide an overall understanding of what is known from the literature and to reach consensus on conflicting findings.

On the other hand, studies on target costing, benchmarking, value-based management, and life-cycle costing are still lacking. Whether management accounting practices are keeping pace with operations management techniques, research is needed to conform to different techniques. In relation to what is known about TQM and JIT setting, management accounting systems have improved with more emphasis given to non-financial information.

In the current review, most studies on MAIs were published after 2000, a period which has not been covered in prior reviews. This might indicate that research in this area has intensified during this period. However, from an analysis of prior studies, we find that research in this field is experiencing a slow pace of development whereby novel ideas are rather rare. A few new frameworks and techniques, for example, the measure network and time-driven ABC, mostly appear in practitioner journals.

In addition, previous reviews report on studies of management control topics in general and performance measurements in particular. The current review provides additional input by focusing on studies that incorporate research on MAIs such as BSC, ABC/ABM, and non-financial measures of performance, which have received increasing attention by researchers in recent years.

Further, recent research in management accounting is proliferating, as observed by Hesford *et al.* (2007). They found that the number of management accounting articles has increased especially after the introduction of new accounting journals. Therefore, the challenge to researchers is to find unexamined research questions which are worth researching. Ideas could come from existing literature and managers' perceptions (Foster and Young, 1997), or from observing changes in the environment. The other challenge is to determine whether research and theoretical assumptions reflect real practice. This ever-debated issue comes to the conclusion that research studies seem to emphasize aspects of the topic that are different to the needs of practitioners (Foster and Young, 1997; Johnson and Kaplan, 1987; Selto and Widener, 2004).

Innovation in management accounting systems is important particularly to organizations subject to globalization. Research in this area could assist organizations by suggesting optimal contexts, while enhancing the understanding of real practice

within the theoretical domain. The following subsections attempt to identify some areas for future research pertaining to MAIs.

4.1 Environmental uncertainty

In today's global market, managers need to be responsive to environmental change and maintain a proactive MCS. In a similar vein, researchers may formulate a dynamic model of environmental uncertainty to be incorporated in management control and operations management research. Environmental uncertainties encompass the organization's industrial, economic, technological, competitive, and customer environment (Gordon and Narayanan, 1984). However, now-a-days, recent global issues such as oil price fluctuation, soaring commodities prices, climate change, scarcity of natural resources, and political and economic uncertainties may exert pressure on business. Therefore, research could be conducted to explore how these contemporary factors affect an organization's strategies as well as MCS innovations and supply chain management.

4.2 Information technology

Similarly, advances in information and communication technology could significantly shape ways of doing business. The practice of management control may change as varying aspects of a firm become integrated via information technology (Dechow *et al.*, 2007). Research to further investigate the changing roles of MCS could be preceded by incorporating different information technology applications.

It can also be suggested that research on the interrelationship of different management accounting practices and information systems might be conducted. However, a clear boundary should be established between management accounting practices and accounting information systems. This is due to accounting software that seems to embrace the functions of management accounting practices related to cost management and management control (Granlund and Mouritsen, 2003; Lodh and Gaffikin, 2003). It is expected that these functions might gradually diminish the visibility of particular management accounting practices. Perhaps, future research is needed in this area to further investigate this issue.

4.3 Control package

Extensive research has been carried out to study the link between MCS and organizational characteristics, research which has been mainly based on contingency theory (Chenhall, 2003). Prior literature has identified the contextual factors that affect the use and usefulness of MCS such as environmental dimensions, technology, size, strategy, and organizational structure (Bruns and Waterhouse, 1975; Chapman, 2005; Chenhall and Morris, 1986; Dent, 1990; Granlund and Mouritsen, 2003; Hartmann and Moers, 1999). Studies have also examined the various tools of MCS, for example, budgeting, economic value added, costing systems, financial and non-financial performance measures, and the BSC (Abernethy and Stoelwinder, 1991; Biddle *et al.*, 1998; Davis and Albright, 2004; Gosselin, 1997; Henri, 2006a, b; Ittner *et al.*, 2003; Merchant, 1981; Otley, 1999).

However, considering separately certain components of MCS of an organization could lead to model underspecification (Chenhall, 2003; Dent, 1990; Langfield-Smith, 1997). The reliability of such findings could be questioned as the results might also be

affected by other control systems excluded from the study. Thus, it is important for future studies to incorporate a broader set of control practices (Chenhall, 2003).

Another area of possible research is the interface between TQM and BSC. Firms that have TQM in place need to implement a BSC to identify appropriate multidimensional, non-financial, and financial information, to signal the managers the focus for their day-to-day work, as well as to motivate and reward employees (Hoque, 2003). However, the emphasis placed on employee satisfaction in TQM (Hoque, 2003) while BSC is generally hierarchically orientated (Modell, 2009) could be examined to determine whether the two systems are complementary or in conflict with each other. Subscribing to Hoque's (2003) suggestion, the optimal progression for an organization adopting BSC followed by TQM, or vice versa could be investigated, as well as how they fit with contingent factors.

Other integration which could be analyzed is between formal and informal control systems. While formal control has been widely researched, research on informal control practices is still lacking. Informal controls could be organizational culture (Langfield-Smith, 1997) and organizational structure (Otley, 2003). Other factors that might act as informal controls, including trust of the organization and between the organization's members and job security, could be investigated. In addition, examination of the interaction between the formal control system and other areas, such as corporate governance, human resource management, internal control, and financial management, is also worthwhile.

However, because there are many unlimited elements inside and outside organizations that can impose control, Malmi and Brown (2008) call for researchers to define the domain of control that they wish to study. A MCS, according to Malmi and Brown (2008), pertains to all the devices and systems used by managers to direct employees' behavior consistent with organization's objectives and strategies. In this case, they suggest that researchers need to be analytical in deciding the MCS, because a system used to support decision making that does not monitor employees' goal congruence and behavior is not a MCS, but an accounting system. Further, they propose the conditions to regard MCS as a package when the systems are recognized discretely and generally established by different interest groups at different times.

A special issue to address the MCS as a package was published in *MAR*, Volume 19, Issue 4 in 2008. In essence, one of the issues discussed in these articles is the factors that shape MCS packages. Specifically, in different types of organizations, accounting practices and organizational structures (Kennedy and Widener, 2008), functional demands (Sandelin, 2008), perceptions of trust (Langfield-Smith, 2008b) as well as social, technical, institutional, and economic structures (Van der Meer-Kooistra and Scapens, 2009) influence the design and use of various MCS packages. Malmi and Brown (2008), however, observed that different conceptualizations of MSC used in the papers may result in difficulties in establishing consistent findings. Therefore, in the editorial, Malmi and Brown (2008) construct a typology of MSC packages to classify the different types of control that could be incorporated in future studies.

4.4 Management accounting change and innovation

In explaining management accounting change, research could also draw on theories of innovation diffusion. The innovation diffusion approach provides a different view of management accounting studies, taking the perspective of the potential adopter to show

that firms will not always attempt to imitate resources that produce a competitive advantage (Powell, 1995). Aspects being studied using this approach are efficiency, the characteristics of innovation, and the role of propagators (Ax and Bjørnenak, 2007). However, in the management accounting field, this approach is relatively lacking, with only a brief discussion on the process of adoption and diffusion (Firth, 1996). Alternatively, future research could be also founded on Birkinshaw *et al.* (2008) framework that spans the invention to the implementation of novel management activities, termed management innovation. This area was studied from an institutional perspective, fashion perspective, cultural perspective, and rational perspective, which are dominant in the literature (Birkinshaw *et al.*, 2008).

The researcher could also consider a study using triangulation of theories to capture different dimensions of a phenomenon. Complementing different theories could provide more comprehensive understanding of the study (Hopper and Hoque, 2006; Lounsbury, 2008). For example, the principles of innovation diffusion theory that emphasize the effectiveness of innovation could be complemented by institutional theory that presumes social legitimization. Similarly, different views could also be applied to understand management innovation, for instance by focusing on the contextual dynamics of institutional, fashion and rational perspectives in the different phases of the management innovation process. As well, researchers could examine the recent management tools utilized in practice such as financial application for problem solving. Neural networks systems as well as time series analysis are starting to be used for forecasting, budgeting, and cost determination (Brown *et al.*, 1995; Vellido *et al.*, 1999).

In conclusion, this paper adds to our understanding of MAIs by describing the attributes of management accounting practices and operations management research. However, because our review involves a small sample size, caution must be exercised, as the findings might not be generalized to the management accounting literature as a whole, due to several limitations. First, regarding the types of publications included in the review, this paper focuses only on 22 international accounting journals as mentioned earlier in the paper; the issue of MAIs has been discussed in other international and local accounting journals as well as in handbooks, edited books, and professional and academic magazines. This paper also does not include publications from other management subject areas such as operations and logistic management, human resource management, and public sector management where many accounting scholars have contributed papers. There are many articles on MAIs published in the journals searched that are not included in the review. Second, a keywords search was used in selecting the articles for this review, which means that certain other articles that also discussed MAIs may not be listed in the search results (two examples are Ashton (2007) and Malmi and Ikäheimo (2003)). Nevertheless, this paper has provided a number of questions to be considered in further investigations.

Notes

1. The review papers on management accounting, *inter alia* Elnathan *et al.* (1996), Hesford *et al.* (2007), Ittner and Larcker (1998b, 2001), Langfield-Smith (2008a), Otley *et al.* (1995), Scapens and Bromwich (2001), Selto and Widener (2004), Shields (1997), and Young and Selto (1991).
2. They are: *TAR*, *AOS*, *CAR*, *JAЕ*, *JAR*, and *JMAR*.

3. For example, Ahire *et al.* (1995) on TQM, Ansari *et al.* (2007) on target costing, Elnathan *et al.* (1996) on benchmarking, Gosselin (2007) on ABC, Ittner and Larcker (2001) on value-based management and Langfield-Smith (2008a) on strategic management accounting.
4. The search was conducted on the online databases that host the above-mentioned journals, which are ABI/INFORM Global (Proquest), APAFT (Informit), Emerald Fulltext, Expanded Academic ASAP Informaworld, JSTOR, Science Direct (Elsevier), and Wiley Interscience Journals.
5. Although we covered the same period as previous reviews, focus was mainly on studies in 2000-2008 period.
6. We used "Google Scholar" for identifying most widely cited articles.
7. A generic setting involves a general, abstract, or simplified setting for analytic modeling or experimental hypothesis testing (Scapens and Bromwich, 2001; Shields, 1997).
8. Funck (2007) argued that the concept of balance between measures in Kaplan and Norton's (1996a, b) publications and the hierarchy between the four perspectives was perceived as contradictory.

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Further reading

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Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Jones (1962)	Accounting innovation and the psychology of change	TAR	Conceptual	People's reaction to change and how managers deal with resistance	No setting	No explicit theory	Conceptual	People's negative reaction is due to personal and group attitudes and organizational condition. Overcoming resistance through preventive and curative actions.
Hicks (1978)	An examination of accounting interest groups' differential perceptions of innovations	TAR	Empirical	The extent to which differences occur among accounting interest groups' perceptions of the need for and future rate of adoption of accounting innovations	Different accounting profession	Sociology	Survey	Accounting academics perceive a greater need for adoption and future rate of adoption of innovations. System effects are determinants of the rate of change. The system effects of accounting academics are oriented towards a greater need for change than those of CPAs and financial executives.
Kaplan (1984)	The evolution of management accounting	TAR	Practical insights, review	The development of cost accounting and managerial control practices and their relevance to the changing nature of industrial competition in the 1980s	No setting	No explicit theory	Practical insights	The traditional cost accounting model is no longer adequate for new organizations and manufacturing technology. Problems of evaluating performance.
Dunk (1989)	Management accounting lag	ABACUS	Conceptual	Develops a framework to explain why changes in management accounting systems may have tended to lag behind changes in manufacturing operations	No setting	Sociology	Conceptual	A major cause of accounting lag in organizations is the perceived greater complexity and lesser relative advantage, compatibility, trialability, and observability of administrative (see technical) innovations

(continued)

Table AI. Management accounting innovations in general

Table AI.

Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Szendi and Elmore (1993)	Management accounting: are new techniques making in-roads with practitioners?	<i>JAE</i>	Empirical	Trends in the adoption of new managerial accounting techniques by manufacturing firms	Survey to practitioners	No explicit theory	Survey	New techniques are being adopted while traditional systems are being maintained; suggesting management accounting is in a transitional stage
Foster and Ward (1994)	Theory of perpetual management accounting innovation lag in hierarchical organizations	<i>AOS</i>	Conceptual	The causes of resistance to MA innovation in hierarchical organizations	No setting	Sociology, organizational behavior	Conceptual	Developed perpetual MAI lag theory that suggests the disruptions to internal labor market operations within a hierarchical organization caused by MAIs may slow innovation adoption
Kaplan (1994)	Management accounting (1984-1994): development of new practice and theory	<i>MAR</i>	Practical insights, review	The development of ABC, operational control systems and BSC	No setting	No explicit theory	Practical insights	Describes how these practices were initially documented, elaborated, and disseminated through publications. Suggests academics have close interaction with implementing organizations
Firth (1996)	The diffusion of managerial accounting procedures in the People's Republic of China and the influence of foreign partnered joint ventures	<i>AOS</i>	Empirical	The diffusion of MA practices; amount of diffusion and factors associated with the spread of accounting ideas	Interorganizational (joint venture)	Sociology	Survey	Chinese enterprises involved in joint ventures with foreign firms made more changes in management accounting system than those which were not

(continued)

Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Libby and Waterhouse (1996)	Predicting change in management accounting systems	<i>JMAR</i>	Empirical	The extent of MACS change and its relationship between organizational and contextual variables	Manufacturing	Contingency theory	Survey	The MACS that support decision making and control changed more frequently than components that support planning or directing, or product costing Organizational size, structure, and intensity of competition did not predict changes in management accounting systems
Granlund and Lukka (1998)	It is a small world of management accounting practices	<i>JMAR</i>	Empirical	The forces of convergence and divergence in management accounting practices around the world	Multiple industries	Sociology	Multiple methods	Prominent drivers of convergence include global competition, the application of advanced information system and software packages, transnational institutions, global consultancy industry, and globally applied textbooks
Björmenak and Olson (1999)	Unbundling management accounting innovations	<i>MAR</i>	Conceptual	Elements of management accounting models (ABM, BSC, life-cycle costing, target costing, and strategic management accounting) design by unbundling the models	No setting	Generic framework	Conceptual	The new models represent important changes in the type of elements or design characteristics that have been used previously

(continued)

Table AI.

Table AI.

Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Reid and Smith (2000)	The impact of contingencies on management accounting system development	MAR	Empirical	Whether contingency theory is applicable to small firms as well as to large firms	Multiple industries (micro-firms)	Contingency theory	Multiple methods (interviews and survey)	Cash flow crisis, funding shortage, and innovation corresponded with information system development. Three firm types identified: adaptive, stagnant, and running blind. Production systems, technology uncertainty, strategy, and the market determine the organizational form of the small firm. MAS complexity is explained by sub-unit interdependence, market dynamics, and work methods
Lin and Yu (2002)	Responsibility cost control system in China: a case of management accounting application	MAR	Case study	Why business enterprises in a developing country like China adopt innovative accounting practices, and how these practices can be effectively applied under the specific Chinese business environment	Manufacturing	Sociology	Field study	The responsibility cost control system is an effective tool for cost control. Economic shock and performance gap are necessary conditions for the diffusion of such practices. The professional qualification of management teams and a balance between decentralization and centralization in business administration structure influence implementation success

(continued)

Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Cavalluzzo and Ittner (2004)	Implementing performance measurement innovations: evidence from government	AOS	Empirical	The factors influencing the implementation, use, and perceived benefits of results-oriented performance measurement system	Public sector	Economics, sociology	Survey	Top management commitment, decision-making authority by users, and training have significant positive influences on measurement system development and use. The difficulties in selecting and interpreting performance metrics are the major impediment MAIs are mainly originated in the private sector. Adoption by public sector organizations is largely affected by government influence
Lapsley and Wright (2004)	The diffusion of management accounting innovations in the public sector: a research agenda	MAR	Empirical	The manner and means of diffusion of MA practices in public sector and the obstacles to their adoption	Public sector	Sociology	Survey	Increased use of contemporary management accounting techniques. Increasing global competition and changes in technology affect management accounting change. Lack of resources, "no need for change" attitude and fear of change inhibit the change
Waweru <i>et al.</i> (2004)	Management accounting change in south Africa: case studies from retail services	AAAJ	Case study	The processes of MAS change and the rationales for such change processes	Retailing	Contingency theory	Field study	(continued)

Table AI.

Table AI.

Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Abernethy and Bouwens (2005)	Determinants of accounting innovation and implementation	ABACUS	Empirical	The determinants of accounting innovation	Manufacturing	Contingency theory	Survey	A positive relation between the influence on management accounting systems design and decentralization. When subordinates are actively involved in designing and implementing these systems, acceptance is significantly increased
Emsley <i>et al.</i> (2006)	Effect of cognitive style and professional development on the initiation of radical and non-radical management accounting innovations	AF	Empirical	The effects of adaptive/innovative cognitive style, and professional development on the initiation of radical and non-radical innovations by individual management accountants	Survey to management accountants	Psychology	Multiple methods (survey and interviews)	Management accountants with more innovative cognitive styles are more likely to initiate radical changes organizational practices. However, organizations should balance innovators and adaptors to balance radical and non-radical changes

Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Itner and Larcker (1995)	TQM and the choice of information and reward systems	JAR	Empirical	The association between TQM, the choice of information and reward systems, and the impact of these choices on organizational performance	Manufacturing	POM	Survey	TQM is associated with greater use of non-traditional performance measures and reward systems. Less extensive formal quality program, greater reliance on non-traditional performance measures and reward systems are associated with higher performance (continued)

Table AII.
Total quality
management

Table AII.

Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Sjblom (1998)	Financial information and quality management – is there a role for accountants?	AH	Descriptive	The usefulness of cost of quality and quality-related financial information for quality management	Manufacturing	No explicit theory	Survey	Financial information can be used to flag quality problems, to select and prioritize quality improvement projects, and to choose corrective action. However, non-financial quality indicators are widely used because of good proxies for the financial impact, timelier, more reliable, and more relevant
Dunk (2002)	Product quality, environmental quality and performance	AAAJ	Empirical	The extent of product quality and the implementation of environmental accounting positively affect quality performance	Manufacturing	POM	Survey	Product quality and the implementation of environmental accounting significantly affect quality performance

(continued)

Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Gurd <i>et al.</i> (2002)	Factors impacting on accounting lag: an exploratory study of responding to TQM	BAR	Descriptive	The responses of accounting systems to TQM implementations and factors that encourage or inhibit accounting lag following an innovation	Multiple industries	Organizational behavior	Multiple case studies – assume site visit	Management commitment, strong leadership, education and training programs and customer focus reduce accounting lag, and fear of change will increase accounting lag The two plants developed Juran's cost of quality technique in significantly different ways
Emsley (2008)	Different interpretations of a "fixed" concept: examining Juran's cost of quality from an actor-network perspective	AAAJ	Case study	Why introducing a "fixed" management accounting technique, such as Juran's cost of quality, results in different outcomes in two manufacturing plants of an organization	Manufacturing	Sociology	Case study	

Table AII.

Table AIII.
Value-based management

Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Reilly and Reilly (2000)	Using a measure network to understand and deliver value	<i>CM</i>	Conceptual	Measuring the extent to which a firm creates value for stakeholders using the measure network	Manufacturing	No explicit theory	Conceptual	The measure network represents the relationship between a firm's business and management processes and stakeholders' goals
Bourguignon (2005)	Management accounting and value creation: the profit and loss of reification	<i>CPA</i>	Conceptual	The process by which value creation is reified	None	Economics	Conceptual	Value creation is commonly reified through its objectification, which prevents dispute and maintains social domination
Ezzamel <i>et al.</i> (2008)	Manufacturing shareholder value: the role of accounting in organizational transformation (OT)	<i>AOS</i>	Case study	The role of accounting calculations in constructing shareholder value within the context of OT in the work organization	Manufacturing	Economics	Case study	Accounting metrics enable a process of translation and control with regard to realizing share price targets

Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Banker and Potter (1993)	Economic implications of single cost driver systems	<i>J/MAR</i>	Conceptual	The impacts of single and multiple cost driver systems on optimal expected profits of monopoly and oligopoly firms	Generic	Economics	Mathematical analytic	Monopolist and oligopoly firms can expect higher profit using multiple cost driver system
Shields (1995)	An empirical analysis of firms' implementation experiences with ABC	<i>J/MAR</i>	Empirical	The degree of behavioral, organizational, and technical factors associated with the success of ABC implementation	Multiple industries (firms using ABC)	Contingency theory	Survey	Variation in the degree of success and financial benefit. Behavioral and organizational implementation variables are associated with ABC success
Swenson (1995)	The benefits of activity-based cost management to the manufacturing industry	<i>J/MAR</i>	Empirical, descriptive	The association between ABC implementation and manager's satisfaction with cost management systems. Also, how ABC is used for decision making	Manufacturing	No explicit theory	Survey	Significant satisfaction with cost management systems following ABC implementation. Example of the use of ABC for decision making
McCowan and Klammer (1997)	Satisfaction with activity-based cost management implementation	<i>J/MAR</i>	Empirical	The association between employees' satisfaction with ABC implementation and behavioral, situational, and technical variables	Multiple industries (manufacturing and service)	Contingency theory	Survey	Behavioral, situational, and technical variables correlate positively with users' satisfaction with ABM implementation
Krumwiede (1998)	The implementation stages of ABC and the impact of contextual and organizational factors	<i>J/MAR</i>	Empirical	The impact of contextual and organizational factors on ten stages of ABC implementation process	Manufacturing	Sociology	Survey	ABC adoption stage is influenced by the firm's potential for cost distortions, firm size, and job shop. In general, top management support, training, and information technology are among the factors that affect the higher level of implementation stages
McCowan (1998)	Perceived benefits of ABM implementation	<i>AH</i>	Empirical	Preparers' and users' perceptions on the benefits of ABM implementation	Multiple industries (manufacturing and service)	No explicit theory	Survey	Greater benefits of ABM in terms of accounting information characteristics, but ABM information is less accessible. Preparers respond more favorably than users to ABM implementation

(continued)

Table AIV.
Activity-based
costing/activity-based
management

Table AIV.

Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Mälni (1999)	ABC diffusion across organizations: an exploratory empirical analysis of Finnish firms	<i>AOS</i>	Empirical	The forces of innovation diffusion in MA during its various phases. The applicability of Abrahamson's typology in MAI	Manufacturing	Sociology	Survey, archival, interviews	Efficient choice explains the earliest adoptions; fashion-setting influences the take-off stage. Subsequent diffusion is explained both by mimetic behavior and efficient-choice behavior and efficient-choice ABC provides less benefit than traditional costing method to owners due to information asymmetry
Mishra and Vaysman (2001)	Cost-system choice and incentives – traditional vs ABC	<i>JAR</i>	Conceptual	The benefits of ABC relative to traditional costing, considering information asymmetry, and managerial incentives	Generic	Economics	Mathematical analytic	ABC provides less benefit than traditional costing method to owners due to information asymmetry
Itner <i>et al.</i> (2002)	The association between ABC and manufacturing performance	<i>JMAR</i>	Empirical	Impact of extensive use of ABC on operational and financial performance	Manufacturing	Economics	Survey	Extensive use of ABC associated with improvements in quality and cycle time, thus reducing manufacturing cost, but not in ROA
Sisaye (2003)	Process innovation and adaptive institutional change strategies in management control systems: ABC as administrative innovation	<i>AMA</i>	Conceptual	The process of diffusion of innovation, and how it impacts the successful adoption and implementation of MAIs	None	Organizational behavior	Conceptual	Process innovation framework: mechanistic, organic, organizational development (OD), and OT to understand MAI
Brown <i>et al.</i> (2004)	Technological and organizational influences on the adoption of ABC in Australia	<i>AF</i>	Empirical	The organizational and technological factors that influence the initial adoption of ABC and movement through the stages of adoption	Multiple industries (manufacturing and service)	Sociology	Survey	When ABC is integrated into OD or OT, the technical and administrative innovation aspects of ABC can be utilized to manage the operating activities Top management support, internal champion support, and organizational size influence the initiation of interest in ABC. Organizational factors (see technological factors) are the main drivers for progression through adoption decision stages

(continued)

Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Chenhall (2004)	The role of cognitive and affective conflict in early implementation of activity-based cost management	<i>BRIA</i>	Empirical	The effect of the relationship between cognitive and effective conflicts with ABM behavioral implementation factors on the usefulness of ABM	Manufacturing	Organizational behavior and psychology	Survey	Association between ABM behavioral implementation factors and cognitive conflict affect beneficial outcomes
Agbejule (2006)	Motivation for ABC implementation: administrative and institutional influences	<i>JAC</i>	Case study	How different motives for change may affect ABC implementation and determine the factors affecting implementation success at different stages in two business units (FIMT-H and FIMOT) of a company	Manufacturing	Sociology	Multiple case studies	The motivation for change is classified as coercive for FIMT-H, and normative and economic for FIMOT. Management support, education, and information technology significantly affect implementation
Baird (2007)	Adoption of activity management practices in public sector organizations	<i>AF</i>	Descriptive, empirical	The extent of adoption of each level of activity management and the factors that affect the adoption	Public sector	Sociology	Survey	The adoption of activity cost analysis and ABC is less prevalent in the public sector, while the adoption of activity analysis is to the same extent as the private sector. Decision usefulness of cost information and size are associated with adoption
Liu and Pan (2007)	The implementation of ABC in China: an innovation action research approach	<i>BAR</i>	Innovation action research	Key success factors of ABC implementation	Manufacturing	Contingency theory	Action research	Top management support, top-down culture, hierarchical command, and communication structure, involvement of professionals identified as success factors for ABC implementation

(continued)

Table AIV.

Table AIV.

Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Al-Omiri and Drury (2007)	Organizational and behavioral factors influencing the adoption and success of ABC in the UK	CM	Descriptive	The organizational and behavioral factors influencing the adoption and non-adoption of ABC and its success	Multiple industries	Contingency theory	Survey	Key influences on adoption are deficiencies of existing costing system and the changing environment; non-adoption is mainly related to the perceived benefits of ABC not justifying the cost of adoption. Major determinants of success are widespread support, adequate training, managers' understanding, and knowledge
Bhimani <i>et al.</i> (2007)	ABC: how far have we come internationally?	CM	Descriptive	The extent of ABC adoption in Canada, France, Germany, Italy, Japan, the USA, and the UK	International	No explicit theory	Survey	Significant difference in the rate, speed, extent, and perceived success of ABC implementation across countries
Kaplan and Anderson (2007)	The innovation of time-driven ABC	CM	Practical insight	How time-driven ABC overcomes the pitfalls of conventional ABC	Generic	No explicit theory	Practical insight	Time-driven ABC is easier and faster, and avoids the subjective activity of surveying tasks. It uses a time equation to drive cost directly from resources to cost objects
Alcouffe <i>et al.</i> (2008)	Actor-networks and the diffusion of management accounting innovations: a comparative study	MAR	Case study	The diffusion of the Georges Perrin method and ABC in France	Specific country – France	Sociology	Archival, interviews	Problematic, interassessment, enrolment, and mobilization explain the processes of diffusion

Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Free (2008)	Walking the talk? Supply chain accounting and trust among UK supermarkets and suppliers	<i>AOS</i>	Case study	The relationship between trust and category management practice between a large UK retailer and a multinational supplier	Inter-organizational (retailers and suppliers)	Sociology	Longitudinal case study	Trust constructs can reflect institutional phenomena (system trust) and personal and interpersonal forms of trust. The diffusion of category management was assisted by calculative practices that promote trustworthiness and enhanced system trust

Table AV.
Supply chain
management

Table AVI.
Organisational/
Manufacturing
performance measures

Author/ year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Kaplan (1983)	Measuring manufacturing performance: a new challenge for managerial accounting research	TAR	Conceptual	Why American manufacturing is being outpaced by foreign firms	None	No explicit theory	Conceptual	Suggests more flexible measurements to manage manufacturing processes of quality, inventory cost, productivity, new product technologies, discounted cash flows, and incentive schemes
Banker <i>et al.</i> (1993)	Reporting manufacturing performance measures to workers: an empirical study	JMAR	Empirical	Whether the choice of manufacturing performance reporting system is influenced by firm's manufacturing practices	Manufacturing	Organizational behavior	Survey	Reporting of manufacturing performance measures to shop floor workers positively related to the implementation of JIT, TQM, and teamwork practices. Employee morale positively related to JIT, TQM, and teamwork practices and the provision of shop floor performance information
Itner and Larcker (1998b)	Innovations in performance measurement: trends and research implications	JMAR	Review, descriptive	Research on emerging performance measurement practices	None	No explicit theory	Literature review, archival	Research on the use and performance consequences of EVA, non-financial performance measures and BSC, and performance measurement initiatives in government agencies. Suggests directions for future research

(continued)

Author/ year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Itner and Larcker (1998a)	Are nonfinancial measures leading indicators of financial performance? An analysis of customer satisfaction	JAR	Empirical	The value relevance of customer satisfaction	Telecommunication	Economics and POM	Archival	Customer satisfaction measures are positively associated with future accounting performance and economically relevant to the stock market; reflected partially in current accounting book values
Thor (2000)	The evolution of performance measurement in government	CM	Case study	How performance measurement is used in government-agency	Government agency	No explicit theory	Longitudinal case study	Performance measures used in government agency
Hussain and Hoque (2002)	Understanding non- financial performance measurement practices in Japanese banks: a new institutional sociology perspective	AAAJ	Case study, descriptive	How institutional factors influence the design and use of non-financial performance measurement systems in four Japanese banks	Service (Banking)	Sociology	Case study	The influence of institutional forces: economic constraints, regulatory control, accounting standards or legislation, management's strategic focus, bank size, competition, and organizational tendency to copy best practices from others
Fullerton (2003)	Performance measurement and reward systems in JIT and non-JIT firms	CM	Descriptive, empirical	The differences in the performance measurement and reward systems in JIT and non-JIT firms	Manufacturing	No explicit theory	Survey	JIT firms use more non- financial performance measures and reward system. They use more TQM measurement tools than non-JIT firms

(continued)

Table AVI.

Table AVI.

Author/ year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Said <i>et al.</i> (2003)	An empirical investigation of the performance consequences of nonfinancial measures	JMAR	Empirical	The implications of non-financial performance measures being included in compensation contracts, and the fit with operational and competitive factors	Multiple industries	Economics and contingency theory	Archival	Financial and non-financial measures lead to higher ROA and market returns. Non-financial measures are associated with innovation-oriented and quality-oriented strategies, length of the product development cycle, industry regulation, and level of financial distress. Association between non-financial measures use and firm performance is contingent on firm's operational and competitive characteristics
Cote and Latham (2004)	Relationship quality: a critical link in management accounting performance measurement systems	AMA	Conceptual	To build a model that links the quality of inter-organizational relationships to financial and non-financial outcomes	Generic	POM and organizational behavior	Conceptual	A model of relationship quality that incorporates relationship constructs that drive a series of financial and non-financial performance outcomes. The mediating variables in the model are commitment and trust <i>(continued)</i>

Author/ year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Ulrich and Tuttle (2004)	The effects of comprehensive information reporting systems and economic incentives on managers' time-planning decisions	<i>BRIA</i>	Experimental	How comprehensive control systems influence managers as they allocate their time among multiple areas of responsibility	Generic	Economics	Experiment	Subjects planned to spend more time working on non-financial areas and less time on the financial area when reporting multiple areas of performance. Incentives tied to achieving goals in all areas
Webb (2004)	Managers' commitment to the goals contained in a strategic performance measurement system	<i>CAR</i>	Experimental	The effect of perceived cause-effect strength of SPMS on managerial commitment to assigned performance goals	Service (financial service)	Organisational behavior	Experiment	Positive impact of SPMS on goal commitment. Impact of SPMS on goal commitment mediated by manager's self-efficacy and goal attractiveness
Liedtka (2005)	Analytic hierarchy process and multi-criteria performance management systems	<i>CM</i>	Practical insight, case study	How AHP is applied in designing and implementing performance measures	Airline	No explicit theory	Case study	Four techniques in implementing the AHP. The AHP-based performance scores correlate highest with annual stock market return, indicating that it links strategy to shareholder wealth most accurately

(continued)

Table AVI.

Table AVI.

Author/ year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Maiga and Jacobs (2005)	Antecedents and consequences of quality performance	<i>BRIA</i>	Empirical	The influence of MCS on quality performance, and consequently on financial performance and customer satisfaction	Manufacturing	Economics and organizational behavior	Survey	MCS factors associated with quality performance. Quality performance is: positively associated with financial performance and customer satisfaction; and mediates the relationship between MCS, performance, and customer satisfaction
Bouwens and van Lent (2006)	Performance measure properties and the effect of incentive contracts	<i>JMAR</i>	Empirical	How performance measure properties and cash bonuses impact the efficacy of incentive contracts in selecting a qualified workforce and motivating employees to provide goal-congruent effort	Multiple industries	Economics	Survey – by third party	Less noisy or distorted performance measures and higher cash bonuses are associated with improved employee selection and better- directed effort
Van der Stede <i>et al.</i> (2006)	Strategy, choice of performance measures, and performance	<i>BRIA</i>	Empirical	The relationship between quality-based manufacturing strategy and the use of different types of performance measures	Manufacturing	Contingency theory	Survey	Objective and subjective non-financial measures associated with higher firm performance. Quality-based strategies firms use more objective and subjective non- financial measures and have higher performance when using more extensive PMS based on subjective measures

(continued)

Author/ year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Verbeeten (2008)	Performance management practices in public sector organizations: impact on performance	<i>AAAJ</i>	Empirical	Whether performance management practices affect performance in public sector organizations	Public sector organization	Economics and organizational behavior	Survey	Defining clear and measurable goals is positively associated with both quantity performance (efficiency, production targets) and quality performance (accuracy, innovation, employee morale) Building on existing performance-measurement experience of employees, their professionalism, and allowing experimentation with measures contribute to the enabling nature of a PMS
Wouters and Wilderom (2008)	Developing performance-measurement systems as enabling formalization: a longitudinal field study of a logistics department	<i>AOS</i>	Case study, empirical	How the development process of designing and implementing a performance-measurement system affects the extent to which the PMS will be perceived by employees as enabling	Manufacturing	Sociology	Field study (longitudinal case study, action research, and survey)	

Table AVI.

Table AVII.
Employee performance
measures

Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Itner <i>et al.</i> (1997)	The choice of performance measures in annual business contracts	TAR	Empirical	The factors influencing the relative weights placed on financial and non-financial performance measures in CEO bonus contracts	Multiple industries	Economics	Archival	Use of non-financial measures increases with the level of regulation, the extent to which a firm follows an innovation-oriented strategy, the adoption of strategic quality initiatives, and the noise in financial measures
Ezzamel and Willmott (1998)	Accounting, remuneration, and employee motivation in the new organization	ABR	Case study	The role of accounting in developing remuneration systems in management practices change (de layering and multiskilling, team working, and employee empowerment)	Manufacturing	Organizational behavior	Case studies	In the event of organizational change, accounting was deployed to discredit an earlier reward system and facilitate launching of a new reward system
Banker <i>et al.</i> (2000)	An empirical investigation of an incentive plan that includes nonfinancial performance measures	TAR	Empirical	Whether non-financial performance measures are leading indicators of financial performance. Whether increased emphasis on non-financial indicators in incentive compensation improves performance	Service (hotel)	Economics	Archival	Customer-satisfaction measures are associated with business unit revenues and operating profit, but not with operating costs. Incentive plans that include non-financial measures improve financial and non-financial measures
Datar <i>et al.</i> (2001)	Balancing performance measures	JAR	Conceptual	The optimal weights to apply to performance measures in a compensation contract	Generic	Economics	Mathematical analytic	The optimal contract weights of performance measures to maximize congruity between an agent's compensation and a firm's outcomes

(continued)

Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Chenhall and Langfield-Smith (2003)	Performance measurement and reward systems, trust, and strategic change	<i>JMAR</i>	Case study	The history of strategic change and the development of performance measurement and gain-sharing reward system	Manufacturing	Psychology and sociology	Field study (case study and archival)	Gain-sharing systems support the development of continuous improvement and encourage organizational trust, but inhibit personal trust The outcome effect increased with the controllability of a manager's performance measure, and more so for non-financial measures. Controllability assessment of outcome measures prior to actual evaluation reduced the outcome effect across all measures
Ghosh (2005)	Alternative measures of managers' performance, controllability, and the outcome effect	<i>BRIA</i>	Experimental	Whether the degree of outcome effect using financial and non-financial performance measures is dependent on measures' controllability	Retailing	Economics	Experiment	Criteria for evaluating measurement alternatives. Major limitation of market measures is controllability, whereas for summary financial measures it is congruence. The quality of combinations-of-measures systems is potentially highly varied (continued)
Merchant (2006)	Measuring general managers' performances: market, accounting and combination-of-measures systems	<i>AAAJ</i>	Review	How to choose a measure or set of measures for the purposes of evaluating and rewarding general managers' performance	None	Sociology, economics and organizational behavior	Literature review	

Table AVII.

Table AVII.

Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Burney and Widener (2007)	Strategic performance measurement systems, JRI, and managerial behavioral responses – role stress and performance	<i>BRIA</i>	Empirical	The relation between an SPMS and individual behavioral responses. JRI (i.e. RA and role conflict)	Multiple industries (survey on managers)	Economics and organizational behavior	Survey	SPMS positively affects performance through its relations with JRI and RA. When SPMS is closely linked to strategy, higher levels of JRI and lower levels of role conflict and RA are observed. Performance is higher when RA is lower
Kachelmeier et al. (2008)	Measuring and motivating quantity, creativity or both	<i>JAR</i>	Experiment	The effects of performance-based compensation schemes that are contingent on explicit measures of quantity, creativity, or both	Generic	Economics	Experiment	Combining quantity and creativity measures in a creativity-weighted pay scheme results in creativity-weighted productivity scores significantly lower than quantity incentives alone
Kennedy and Schleifer (2007)	Team performance measurement: a system to balance innovation and empowerment with control	<i>AMA</i>	Conceptual	The influence of performance measurement on innovation. Propose a team measurement system that seeks to balance innovation and empowerment with control	Generic	Organizational behavior	Conceptual	Assessment of TPMS impact on innovation and empowerment. Four categories of metrics in the TPMS framework provide a broad view of team performance: financial measures, operational measures, project effectiveness index, and team effectiveness index

(continued)

Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Köhn (2007)	Financial consequences in foreign subsidiary manager performance evaluations	<i>EAR</i>	Empirical	Financial impacts of using multiple forms of controls in managerial performance evaluations	Multi-nationals (manufacturing)	Organizational behavior and sociology	Survey, archival	Emphasis on financial controls improves short-term profitability more than non-financial or behavioral controls, and is even higher than simultaneous emphasis of all controls. Perceived environmental changes moderate the relationship between emphasis on non-financial controls and short-term profitability

Table AVII.

Table AVIII.
Balanced scorecard

Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Kaplan and Norton (2001)	Transforming the BSC from performance measurement to strategic: part 1	<i>AH</i>	Conceptual	BSC framework for describing value-creating strategies that link intangible and tangible assets	Generic	Strategic management	Conceptual	Developing strategy map and applying BSC in non-profit and government organizations
Malina and Selto (2001)	Communicating and controlling strategy: an empirical study of the effectiveness of the BSC	<i>JMAR</i>	Empirical, descriptive	Whether BSC is an effective organizational communication and management control device, and causally related to goal alignment, motivation, and reported process or decision changes	Manufacturing	Organizational behavior	Archival, survey	BSC is an effective approach for strategy communication and management control. Improvement in BSC's performance may improve business efficiency and profitability. However, inaccurate or subjective measures, one-way communication and an inappropriate benchmark cause significant conflicts and tensions between a company and its distributors
Lyons <i>et al.</i> (2003)	Aligning capital investment decisions with the BSC	<i>CM</i>	Case study	How BSC was used to translate strategy into actions and how BSC was linked to capital budgeting process	Health care	No explicit theory	Case study	Capital investment decision making was integrated into BSC using a matrix approach. Strategic goals were assigned weights and projects were evaluated based on their ability to impact the strategic goals
Ax and Björnerak (2005)	Bundling and diffusion of management accounting innovations – the case of the BSC in Sweden	<i>MAR</i>	Descriptive	Communication, diffusion and transformation of BSC from a supply side perspective	None	Sociology	Archival	BSC has been supplemented with other administrative innovations and adapted to the existing business culture to appear more attractive. The Swedish BSC package includes BSC and non-budget management, BSC and the intellectual capital model, and BSC and the stakeholder model

(continued)

Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Tuomela (2005)	The interplay of different levers of control: a case study of introducing a new performance measurement system	<i>MAR</i>	Case study	The role of strategic performance measurement systems in the interplay between different control levers	Manufacturing	Simons' levers of control	Field study	The 3K scorecard was used for both diagnostic and interactive control purposes at the case company and had specific implications for both beliefs systems and boundary systems
Johanson <i>et al.</i> (2006)	Balancing dilemmas of the BSC	<i>AAAJ</i>	Conceptual	Debate on critical issues in the implementation and use of the BSC as a management control tool	None	Organizational behavior	Conceptual	The dilemma of balancing different perspectives in implementation and employee mobilization, one-size-fits-all problems, the time dimension, and various organizational logics
Funck (2007)	The BSC equates interests in healthcare organizations	<i>JAOC</i>	Case study	How BSC has been translated and edited to fit the public healthcare environment. How politicians, administrators, and medical professionals have influenced the design and function of the BSC	Public sector	Sociology	Case study	Concept of balance was translated as a balance between different perspectives, resulting in the BSC balancing the different interests within the organization. The cause and effect relationship is ineffective in the context studied
Joseph (2008)	A rationale for stakeholder-based management in developing nations	<i>JAOC</i>	Case study and conceptual	The rationale for stakeholder-based management in developing countries, whether based on agency theory or stakeholder theory	Manufacturing	Economics, sociology	Case study	Stakeholder-based management strategy is implemented using BSC and strategy map. It proves consistent with normative stakeholder theory, resulting in "total wealth creation", rather than just "shareholder wealth"

Table AVIII.

Table AIX.
Benchmarking

Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Elhathan <i>et al.</i> (1996)	Benchmarking and management accounting: a framework for research	<i>J/MAR</i>	Conceptual	The roles benchmarking plays within management accounting functions	None	Contingency theory	Conceptual	Develops a framework for benchmarking research that discusses antecedent, contextual, and outcome variables. Applies it to illustrate the benchmarking of an ABC management system

Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Chenhall and Langfield-Smith (1998)	The relationship between strategic priorities, management techniques and empirical investigation using a systems approach	AOS	Empirical	Whether combinations of management techniques and practices enhance the performance of organizations under particular strategic priorities	Manufacturing	Strategic management and contingency theory	Survey	Quality systems, integrating systems, team-based structures and human resource management policies, improving processes, manufacturing systems innovations, and activity-based techniques enhance performance of firms emphasizing product differentiation strategies. Integrating systems, benchmarking, strategic planning techniques, and activity-based techniques enhance organizational performance in low price strategies
Naranjo-Gil and Hartmann (2006)	How top management teams (TMTs) use management accounting systems to implement strategy	J/MAR	Empirical	How TMTs use management accounting systems for strategy implementation	Public hospitals	Organizational behavior	Survey	As TMTs have a more professional (administrative) orientation, they make more interactive (diagnostic) use of MAS, and the use of non-financial (financial) information

(continued)

Table AX.
Strategic management
accounting

Table AX.

Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Cadez and Guilding (2008)	An exploratory investigation of an integrated contingency model of strategic management accounting	AOS	Empirical	The effect of strategic choices, market orientation, and company size on two dimensions of SMA and the mediating effect of SMA on company performance	Multiple industries	Contingency theory	Survey, archival	Accountants' strategic decision-making participation is positively associated with the use of a prospector strategy and deliberate strategy formulation. SMA use is positively associated with using a prospector strategy, deliberate strategy formulation, company size, and accountants' strategic decision-making participation. SMA usage positively affects performance

Author/ Year	Article Title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Ansari <i>et al.</i> (2007)	A template for implementing target costing	CM	Practical insight	Processes and steps to implement target costing	Manufacturing	No explicit theory	Practical insight	Steps involved are related to top management support, pilot project, planning, form teams, training, tools set up, and institutionalization process

Table AXI.
Target costing

Table AXII.
Lean manufacturing

Author/year	Article title	Journal	Article type	Key issues addressed	Setting	Theory	Research method	Key findings
Grasso (2006)	Barriers to lean accounting	CM	Practical insight	Why it is difficult for management accounting to support lean transformation	None	No explicit theory	Practical insight	Cultural compatibility issue, accountants' education, professional orientation, and personal traits influence lean transformation. Cultural change is a major barrier to lean accounting
Huntzinger (2006)	Economies of scale are dead: right-sizing for effective cost management and operation	CM	Case study	How lean principles and methods create right-designed systems for more effective manufacturing	Manufacturing	No explicit theory	Case study	Lean manufacturing requires effective design and implementation of operational flow and best cost efficiency, but is less dependent on economies of scale

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