

# MULTI-DIMENSIONAL PERFORMANCE MEASUREMENT PRACTICES IN DEVELOPING COUNTRIES: A LITERATURE REVIEW AND FUTURE RESEARCH DIRECTION

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## Abstract

This study reviews work on multi-dimensional performance measurement (MPM) and MPM tools such as the balanced scorecard (BSC) in developing countries. 103 papers published by accounting, performance measurement and management journals between 1987 and 2013 are analysed according to their topics, settings, theories and research methods. The principal findings are that firms in developing countries: use MPM but rates vary between countries; BSC was a popular MPM tool; MPM usage was related to varied internal and external factors; the manufacturing sector was the main focus of MPM research; and most studies fail to explicitly articulate their theoretical perspective, identify research gaps or reveal their research motivation. Following this review on MPM usage, MPM in developing countries is presented, and important future research directions identified and presented in the form of research questions.

**Keywords:** Performance Measurement, Multi-Dimensional Performance Measures, Developing Countries, Multiple Industries

## 1. INTRODUCTION

Over the past two decades, firms globally have shifted from traditional performance measurement systems (PMS) towards multi-dimensional performance measures (MPM) (Garengo & Bititci, 2007; Chenhall, 2005). The latter approach has gained popularity because allegedly it motivates employees and managers by reconciling achieving organisational objectives with individuals' sense of belonging and accomplishment (Yasin & Gomes, 2010; Greiling, 2006) and, in addition to financial information, MPM provides information on key dimensions of firms' value chains such as customers, employees, quality, the business process and suppliers (Neely et al., 2005; Duh et al., 2008). MPM has become an important tool for practitioners and a key research topic in management accounting, performance management and other academic disciplines. MPM research has dramatically increased over the last two decades (Kennerly & Neely, 2003; Neely et al., 2001, Neely, 2005; Yadav et al., 2013).

The aim of the current study is twofold: (a) to review the existing literature on multi-dimensional performance measurement in developing countries and to analyse the review results; and (b) to identify future research directions on MPM in developing countries. There are reviews of performance measurement in developed countries generally (e.g. Neely, 2005), in the USA (Srimai et al., 2011b) and in the services sector (Yasin and Gomes, 2010) but none of MPM in developing countries. Consequently, this review examines work on MPM there to identify whether factors that influence its adoption vary from those in developed countries. Other rationales

and motivations that led to the current study are highlighted below.

Understanding the state of MPM in developing countries is important for few reasons. To illustrate, previous research mentioned that there have been relatively little research on management accounting theme in developing countries (Hopper et al., 2009; Ezzamel & Xiao, 2011; Waweru et al., 2005). Historically, this problem was even more noticeable because management accounting education and practice was less developed in the developing countries (Duh et al., 2008). However, globalisation, foreign direct investment, operations by foreign MNCs, assistance and prescriptions from many donor agencies for public sectors (such as World Bank, International monetary fund (IMF), Asian Development bank (ADB)) above all, joint venture initiatives of developed countries firms with organizations in many developing countries have offered opportunity to disseminate, adopt and practise many world best advanced management accounting tools including new performance measurement techniques such as TQM or BSC (Duh et al., 2008; Hopper et al., 2009). The travel of accounting ideas from developed countries to developing countries is therefore a fundamental research issue with a number of unsolved research questions. For example, how and why some accounting ideas travel globally (for example, Kaplan and Norton's balanced scorecard (BSC) (Ezzamel & Xiao, 2011). Scholars suggested that due to the influence of globalisation, leading accounting professional institute such as Chartered Institute of Management Accountants and Institute of Chartered Accountants in England and Wales, or other factors

(Ezzamel and Xiao (2011; p.629), through which accounting technologies travel from developed countries to the rest of the world (Hopper et al., 2009; Ezzamel & Xiao, 2011).

Similarly, it has also been argued that developing countries experience increasing pressure to ensure good governance, reduce corruptions, ensuring accountability, and above all other parameter such as demonstrating value for money services (Tillima et al., 2010; Mimba et al., 2007). Performance measurement which is key technique of providing performance information on these parameters to external stakeholders is believed to facilitate in this process.

Next, because of distinct culture, value system, socio-economic status of developing countries, imported western performance measurement system could be customised in developing countries (Hopper et al., 2009; Tillima et al., 2010); initiatives to implement MPM tool could be hindered; alternatively, new performance measurement techniques could be emerged to local demands; this line of understanding is not known from the context of developing countries. Understanding this line of knowledge would have potentials understanding to what extent westernised management accounting practices (e.g., MPM or MPM techniques BSC) has now become truly 'globalised'.

Furthermore, developing countries are the main provider of ready-made garments to the rest of the world (Haider, 2006; Hyvarinen, 2000). At the same time, developing countries are the key promoter of micro-credit finance, which is even model for developed countries (Microcredit Summit Campaign, 2005). Nevertheless, developing countries experience challenges of meeting development goals while at the same time economic (financial) and social problem (poverty reduction, work for better health and education service and better service) (Yip & Ramakrishna, 2002; Liverani & Lundgren, 2007; Kakande, 2006). To succeed in such attempt, effective and comprehensive performance measurement system are required to be put in place for firms in developing countries to measure and manage related activities and use information from measurement system irrespective of industries. Yet developments, progress of performance measurement techniques, the states of contemporary performance measurement system in developing countries are not yet known. Many commentators in western countries believe that in terms of economic progress and growth, BRIC (Brazil, India, China and South Africa) countries will dominate in this century (Ezzamel & Xiao, 2011). Consequently, unknown tales (development and progress) on management control system (MPM specifically) of firms in developing countries can be shared with interested international audience such as policy makers, businessman, and academics who are interested to know the progress and development of performance measurement system and who want to build relationship with firms in developing countries or to replicate success stories (if any) in developed countries.

In the context of developing countries, Hopper et al.(2009) is the first review of management accounting (MA) practices in less developed countries (LDCs): it outlines a framework of epochs of accounting developments but it has limited

information on MPM. Tillema et als' (2010) framework identify factors influencing the demand for and supply of performance measurement information in LDCs but only within the public sector. This study extends the frameworks of both papers to MPM in developing and emerging countries across multiple industries. Little is known on what types of performance indicators they use; the extent, manner and motives for using such information; whether changes are taking place; and whether trends in developing countries firms parallel those in developed countries (Mimba et al., 2007, p.192). These may differ, especially given the prevalence of state-controlled economies in many developing countries compared to the free market economies in developed countries (Anderson & Lanen, 1999; Luther & Longden, 2001; Waweru et al., 2005). During the last three decades, however, many developing countries have liberalised their economies through deregulation, which has increased competition, customer and stakeholder demands and, above all, joint ventures with developed countries' firms (Waweru et al., 2005; Anderson & Lanen, 1999). Consequently, firms in developing countries now have a greater need for high quality and real-time MA information (Waweru et al., 2005) and possibly multi-dimensional performance measurement systems like the BSC (Ezzamel & Xiao, 2011, p. 628). Whether any such changes have taken place and whether these are due to the opening of their economies and greater competition need investigation.

This review of pertinent research publications addresses these issues by examining which factors influence the adoption of MPM in developing countries, identifying country differences, establishing a framework of factors influencing MPM usage, contrasting these findings with developed countries' experiences, and identifying fruitful avenues for future MPM research in developing countries<sup>1</sup>.

The next section describes the methods utilized to these ends. The third section analyses the review findings followed by discussion of findings based on topics presented in section four. The final section summarises the findings and provides suggestions for future MPM research in developing countries.

## 2. REVIEW METHOD

The scope of the review covers the use of MPM and associated tools such as the BSC; their links with contextual factors, their relation to organisational performance; challenges of using MPM; and comparative studies on MPM between developing countries, and between developing versus developed countries. 'Multi-dimensional performance measures' refers to performance indicators, financial and non-financial and 'performance measurement' to their actual usage (Bourne et al., 2003, p. 3). Noted that in the current review, multi-dimensional performance measures cover indicators used for multiple perspectives such as customers, employees, quality, community interests, environmental factors,

<sup>1</sup> These issues include the reliance on contemporary PM techniques in developing countries; how firms from developing countries accommodate Western-based PM tools within their own values and social systems; what are the challenges when implementing MPM techniques; and whether they require modification to suit the needs of developing countries

resource allocation or resource flexibility, and financial results, an approach in line with Ittner et al (2003). 'Developing countries' include both emerging and newly industrialised countries (United Nations [UN], 2010). Wallace (1990) described 'emerging countries' as 'an amorphous and heterogeneous group of countries mostly found in Africa, Asia, Latin America, the Middle East, and Oceania' and which had a colonial past (p. 3). 'Newly industrialised countries' (NICs) have enjoyed rapid economic progress according to socio-economic classifications but are not yet fully developed (Bozyk, 2006).

The methodology is consistent with similar studies in the area (see Shields, 1997; Hopper et al., 2009; Chenhall & Smith, 2011). Several databases and search engines such as Emerald, Google Scholar, Inderscience, and Science Direct, were used to identify articles focused on the issues above. Keywords used in the search included 'multi-dimensional performance measures (MPM)', MPM tools such as 'BSC or others', 'performance measurement' and 'developing countries'. This revealed over 300 articles, each of which was read to identify whether it addressed the issues under scrutiny. All types of organisations were included.

103 papers published between January 1987 and December 2013 was selected. Consistent with Shields (1997), book reviews, conference papers, working papers, unpublished theses, brief editorials and commentaries were excluded. Only papers in English were considered. The 1987 start was chosen because it marked the beginning of an increased research interest in MPM (Johnson & Kaplan, 1987). The 2013 conclusion was the latest year the study could address at the time of writing. The review included articles on MPM in developing

countries in top-tier and peer reviewed accounting and non-accounting journals (appendix 1 lists all reviewed journals). In appendix 1 details the number of papers in each journal listed, and compares the numbers in accounting and non-accounting journals. Reviewed papers were categorised by regions and countries (appendix 2) as in Hopper et al. (2009). Papers were classified according to their topics, settings, theories used and research methods.

Within the reviewed papers, topics were classified into four categories (see table 1 also in section 1.4), namely: (a) extent and use of MPM; (b) contextual factors and their role in MPM and organisational performance; (c) comparative studies on MPM; and (d) others (this category included the challenges of implementing and using MPM, MPM changes, any literature review-based MPM research in developing countries, and the development of their own MPM by firms in developing countries). Category (b) addressing 'contextual factors and their role with MPM and organisational performance' comprised those studies which have explicitly identified factors that drive firms in developing countries to use MPM. The grouping of category (c) was motivated by seeking to understand any MPM research attempted in developing countries beyond their own national boundaries. Similarly, comparative MPM studies between developing countries and with developed countries (if any) were likely to provide clear pictures of why implementation and use of any MPM or MPM tools were being facilitated or hindered in any developing country's setting, but might have been successfully implemented in developed countries. Category (d) entailing 'others' included other studies of MPM that did not fall under the earlier three categories.

**Table 1.** Topics in reviewed papers

Topics	Frequency	Relevant studies
Extent and use of MPM	52	Anand et al. (2005); Joshi (2001); Joseph (2008); Umashanker & Dutta (2007); Chaklader & Roy (2010); Khan et al. (2011); Khan et al. (2010a); Khan et al. (2010b); Khan & Halabi (2009); Huang et al. (2007); Jusoh et al. (2008b); Tayles et al. (2007); Burgess et al. (2007); Ong et al. (2010); Norhayati & Siti-Nabiha (2009); Yu et al. (2009); Rabbani et al. (2011); Rabbani et al. (2007); Rabbani et al. (2010); Anh et al. (2011); Yongvanich & Guthrie (2009); Posayanant & Chareonngam (2010); Sawalqa et al. (2011); Al-Materneh (2011); Valmohammadi & Servati (2011); Juhmani (2007); Ismail (2007); Jardali et al. (2011); Mohamed & Hussain (2005); Wadongo et al. (2010); Tsamenyi et al. (2010); Luther & Longden (2001); Lonial et al. (2008); S̃evic (2005); Bogicevic & Domanovic (2009); Kloviene & Gimzauskiene (2009); Waweru et al. (2005); Curado & Manica (2010); Rhodes et al. (2008); Peters et al. (2007); Hansen et al. (2008); Edward et al. (2011); Srimai et al. (2011a); Pienaar & Penzhorn (2000); de Waal (2007); Scavone (2006); Solano et al. (2003); Bhagwat & Sharma (2007); Jasiukevicius & Christauskas (2011); Thakkar et al. (2009); Scapens & Yan (1993); Waweru & Sprakman (2012)
Contextual factors, their role in MPM and organisational performance	29	Anderson & Lanen (1999); Hoque & Alam (2004); Kapugi & Smith (2007); Fleming et al. (2009); O'Connor et al. (2006); Tsamenyi et al. (2011); Tsang (2007); Jusoh et al. (2008a); Jusoh et al. (2006); Jusoh & Parnell (2008); Amir et al. (2010); Amir (2011); Smith et al. (2008); Ong & Teh (2008); Kattan et al. (2007); Mmieh et al. (2011); Waweru et al. (2004); Eker & Pala (2008); Demirbag et al. (2006); Avci et al. (2011); Gimzauskiene & Kloviene (2011); Guerreiro et al. (2006); Kamhawi (2011); Al-Enizi et al. (2006); Tsamenyi et al. (2008); Lau & Sholihin (2005); Akbar et al. (2012); Kagaari (2011); Munir et al., (2013).
Comparative studies on MPM	6	Chen et al. (2006a); Jazayeri et al. (2011); Taylor et al. (2001); Julnes & Mixcoatl (2006); Sulaiman et al. (2004); Hoque (2001)
Others <sup>2</sup>	16	Duh et al. (2008); Mimba et al. (2007); Tillema et al. (2010); Hopper et al. (2009); Wickramasinghe et al. (2007); Othman et al. (2006); Bevanda et al. (2011); Sinkovic̃ et al. (2011); Sharma & Lawrence (2005); Pusavat et al. (2009); Johnston & Pongatichat (2008); Li & Tang (2009); O'Donnell & Turner (2005); Satta (2006); Marwa & Zairi (2009); Siti Nabiha & Scapens (2005)
<b>Total</b>	<b>103</b>	

<sup>2</sup> This included challenges of implementing and using MPM. MPM change and any literature review-based PM research in developing countries.

### 3. REVIEW FINDINGS

Appendix 2 gives the regional distribution of the papers in which MPM was studied. Most (54.9% of 103 papers) were from Asia [Bangladesh (5), India (8), Sri Lanka (3), China (9), Malaysia (15), Indonesia (4), Pakistan (4), Afghanistan (3), Vietnam (1) and Thailand (5)]; 8.8 % came from the Middle East [Jordan (2), the four Gulf countries (1) and Iran (1), Palestine (1), Bahrain (2), Lebanon (1) and Oman (1)]; 13.7% came from Africa [Egypt (1), Kenya (3), Ghana (2), South Africa (4), Uganda 1, Tanzania (2) and Mauritius (1)]; 10.8% from Europe [Turkey (4), Croatia (2), Serbia (2) and Lithuania (3)]; 3.92% from South America (Argentina (1), Brazil (1), Mexico (1) and Venezuela (1)). Others (7.9%) came from Fiji (1), Vanuatu (1) and 5 were attributed to no specific country.

Table 2 shows that MPM research in developing countries has focused principally on the manufacturing sector (28); followed by the services sector (20); the public sector (19); and then multiple industries (16). The majority of papers residing in manufacturing might be expected given that MPM has historically been associated with this setting (Shields, 1997). It is similar to findings for developed countries (e.g., Shields [1997]) in the USA and Chenhall and Smith [2011] in Australia.

Nevertheless, there is a limited focus on other industries such as banking (e.g., Rhodes et al., 2008). Given that banks in developing countries have experienced substantial pressure from stakeholders to improve their performance and to implement new performance measurement and management tools, e.g. to strengthen their capital base, to decrease non-

performing loans and, above all, to foster banks' customer-retention efforts this is surprising (Munir et al., 2013; Erturk & Solari, 2007). There are few studies of micro-credit organisations (an exception is Waweru and Sprakman, 2012). These are now a vital component of development and are under increasing pressure to adopt MPM to help their stakeholders evaluate whether their social and financial objectives, their financial sustainability, community outreach and, above all, their desired developmental impacts have been attained (Zeller et al., 2003; Kipesha, 2013).

17% of the total reviewed papers were on public sector organisations. This was unexpectedly low given the prominence of the state sector in many developing countries and the allegedly widespread application of BSC in developed countries' public sectors (Smith & Kim, 2005; Dyball et al., 2011) though precise usage rates are as yet unknown. The absence of any studies on non-governmental organisations is puzzling and disappointing given their rapid growth in developing countries over the past three decades. These can concentrate on advocacy, often on behalf of the poor and marginalised, but many are now major providers of goods, finance and services, sometimes combining this with advocacy and poverty alleviation programmes in areas like health and education. Some like BRAC and Grameen in Bangladesh are amongst the country's largest enterprises. Given the multiplicity of constituencies that non-governmental organisations serve, and the complexity and variety of their goals, they represent fertile but neglected sites for MPM research.

**Table 2.** Settings used in reviewed papers

Settings	Frequency	Relevant studies
Manufacturing	28	Khan et al. (2010a); Khan & Halabi (2009a); Anderson & Lanen (1999); Joshi (2001); Bhagwat & Sharma (2007); Joseph (2008); Jazayeri et al. (2011); Kapugi & Smith (2007); Fleming et al. (2009); Burgess et al. (2007); Jusoh et al. (2008a); Jusoh et al. (2008b); Jusoh et al. (2006); Jusoh & Parnell (2008); Smith et al. (2008); Ong & Teh (2008); Sawalqa et al. (2011); Al-Materneh (2011); Valmohammadi & Servati (2011); Kattan et al. (2007); Eker & Pala (2008); Demirbag et al. (2006); Chaklader & Roy (2010); Hoque & Alam (2004); Thakker et al. (2009); Lau & Sholihin (2005); Taylor et al. (2001); Siti Nabiha & Scapens (2005)
Services	20	Chen et al. (2006a); Amir et al. (2010); Amir (2011); Othman et al. (2006); Rabbani et al. (2011); Rabbani et al. (2010); Jardali et al. (2011); Wadongo et al. (2010); Waweru et al. (2004); Avci et al. (2011); Jasiukevicius & Christauskas (2011); Mohamed & Hussain (2005); Wickramasinghe et al. (2007); Lonial et al. (2008); Tsang (2007); Huang et al. (2007); Peters et al. (2007); Hansen et al. (2008); Edward et al. (2011); Satta (2006)
Multiple industries	16	Khan et al. (2011); Khan et al. (2010b); Anand et al. (2005); Tsamenyi et al. (2011); Tayles et al. (2007); Ong et al. (2010); Anh et al. (2011); Yongvanich & Guthrie (2009); Pusavat et al. (2009); Juhmani (2007); Ismail (2007); Waweru et al. (2005); Luther & Longden (2001); Gimzauskiene & Kloviene (2011); Kloviene & Gimzauskiene (2009); Curado & Manica (2010)
No settings <sup>3</sup>	9	Duh et al. (2008); Rabbani et al. (2007); Kamhawi (2011); Hopper et al. (2009); Sulaiman et al. (2004); Scavone (2006); Solano et al. (2003); Bogicevic & Domanovic (2009); Scapens & Yan (1993)
Public sector	19	Li & Tang (2009); Tillema et al. (2010); Mimba et al. (2007); Srimai et al. (2011a); Johnston & Pongatichat (2008); O'Donnell & Turner (2005); Posayanant & Chareonngam (2010); Mmieh et al. (2011); Sinkovic' et al. (2011); Bevanda et al. (2011); Julnes & Mixcoatl (2006); Sharma & Lawrence (2005); Norhayati & Siti-Nabiha (2009); O'Connor et al. (2006); Hoque (2001); Marwa & Zairi (2009); S'evic (2005); Tsamenyi et al. (2010); Akbar et al. (2012)
Universities/ colleges	6	Tsamenyi et al. (2008); de Waal (2007); Pienaar & Penzhorn (2000); Yu et al. (2009); Umashanker & Dutta (2007); Kagaari (2011)
Financial ins./Banks	5	Guerreiro et al. (2006); Al-Enizi et al. (2006); Rhodes et al. (2008); Waweru & Sprakman (2012); Munir et al., (2013).
<b>Total</b>	<b>103</b>	

<sup>3</sup>This included theoretical and conceptual papers, literature reviews and analytical pieces where no setting could be identified.

Table 3 classifies the papers according to their theoretical perspective. A particular type of theory employed was attributed if the theoretical approach employed was clearly mentioned anywhere in the article. As Appendix 2, Table 4 indicates contingency theory has been the most applied theory (10), followed by institutional theory (6), grounded theory (3), and a stakeholder framework (2). However, the bulk of studies did not explicitly mention their theoretical perspective (71) (exceptions include Lau & Sholihin, 2005; Anderson & Lenen, 1999; Waweru et al., 2004; Guerreiro et al., 2006; Tsamenyi et al., 2008, 2011; Avci et al., 2011; Ong & Teh, 2008; Kloviene & Gimzauskiene, 2009; Gimzauskiene & Kloviene, 2011).

Of the six papers that addressed theoretical perspectives considering institutional theory lens, four studies were informed by the new institutional sociology (NIS) perspective (Mimba et al., 2007; Tilemma et al., 2010; Norhayati & Siti-Nabiha, 2009;

Akbar et al. (2012), one study considers old institutional economics (OIE) (Guerreiro et al, 2005) and combination NIS and OIE is used in another study (see Siti Nabiha & Scapens 2005). These studies advanced our understanding on many issues such as change in MA practices including performance measure in a case bank (Guerreiro et al, 2005); developing the conceptual framework for MPM in public sector in less developed countries (Tillema et al., 2010); understanding demand and supply of MPM information in developing countries (Mimba et al., 2007); exploring the way the performance management system (PMS) in a public entity of Malaysia been institutionalization (Norhayati & Siti-Nabiha, 2009;) and understanding the relationship between "stability and change" in the process of accounting change that resulted in ceremonial use of key performance indicators (Siti Nabiha & Scapens, 2005).

**Table 3.** Theories used in reviewed papers

<i>Name of theory</i>	<i>Frequency</i>	<i>Relevant studies</i>
Contingency	10	Khan et al. (2011); Khan et al. (2010a); Anderson & Lanen (1999); Fleming et al. (2009); Tsamenyi et al. (2011); Ong & Teh (2008); Kattan et al. (2007); Waweru et al. (2004); Luther & Longden (2001); Avci et al. (2011)
Old institutional economics (OIE) & new institutional sociology (NIS)	6	Guerrero et al. (2006); Tillema et al. (2010); Mimba et al. (2007); Norhayati & Siti-Nabiha (2009); Akbar et al. (2012); Siti Nabiha & Scapens (2005)
Grounded theory	3	Tsamenyi et al. (2008); Wickramasinghe et al. (2007); Pusavat et al. (2009)
Stakeholder model	2	Joseph (2008); Li & Tang (2009)
Contingency & complexity theory	1	Kloviene & Gimzauskiene (2009)
Institutional with technical rational theory	1	Sharma & Lawrence (2005)
Goal setting theory	1	Lau & Sholihin (2005)
Neo-institutional & actor network theory	1	Jazayeri et al. (2011)
Cultural political economy	1	Hopper et al. (2009)
Contingency, agency	1	Taylor et al. (2001)
Multiple, more than two <sup>4</sup>	1	Gimzauskiene & Kloviene (2011)
No explicit theories	71	Khan et al. (2010b); Khan & Halabi (2009a); Anand et al. (2005); Joshi (2001); Bhagwat & Sharma (2007); Kapugi & Smith (2007); Jusoh et al. (2008b); Jusoh et al. (2006); Jusoh & Parnell (2008); Smith et al. (2008); Sawalqa et al. (2011); Al-Materneh (2011); Valmohammadi & Servati (2011); Eker & Pala (2008); Demirbag et al. (2006); Chaklader & Roy (2010); Thakker et al. (2009); Chen et al. (2006a); Amir et al. (2010); Amir (2011); Othman et al. (2006); Burgess et al. (2007); Rabbani et al. (2011); Rabbani et al. (2010); Jardali et al. (2011); Wadongo et al. (2010); Jasiukevicius & Christauskas (2011); Mohamed & Hussain (2005); Tsamenyi et al. (2010); Lonial et al. (2008); Tsang (2007); Huang et al. (2007); Peters et al. (2007); Hansen et al. (2008); Edward et al. (2011); Satta (2006); Al-Enizi et al. (2006); Rhodes et al. (2008); Srimai et al. (2011a); Johnston & Pongatichat (2008); O'Donnell & Turner (2005); Posayanant & Chareonngam (2010); Mmich et al. (2011); Sinkovic et al. (2011); Bevanda et al. (2011); Julnes & Mixcoatl (2006); Hoque (2001); Marwa & Zairi (2009); S'evic (2005); Duh et al. (2008); Rabbani et al. (2007); Kamhawi (2011); Sulaiman et al. (2004); Scavone (2006); Solano et al. (2003); Bogicevic & Domanovic (2009); Curado & Manica (2010); de Waal (2007); Pienaar & Penzhorn (2000); Yu et al. (2009); Umashanker & Dutta (2007); Tayles et al. (2007); Ong et al. (2010); Anh et al. (2011); Yongvanich & Guthrie (2009); Juhmani (2007); Ismail (2007); Waweru et al. (2005); Scapens & Yan (1993); Waweru & Spraakman (2012); Kagaari (2011)
Others <sup>5</sup>	4	Jusoh et al. (2008a); O'Connor et al. (2006); Hoque & Alam (2004); Munir et al., (2013).
<b>Total</b>	<b>103</b>	

<sup>4</sup> This included institutional theory, complexity theory and contingency theory.

<sup>5</sup> This included the selection approach (n = 1), combining NIS and other framework (n = 1) and development of a theoretical model (n = 2).

Of the studies that followed contingency theories, studies have examined the influence on MPM design addressing many contextual variables such as economic reform, privatization, market competition, business strategy etc (e.g., Fleming et al, 2009; Khan et al., 2010; Fleming et al. 2009; Waweru et al., 2004; Luther & Longden, 2001). Furthermore, on top of examining the role economic reform, privatization in management accounting practices including MPM practices of firms in developing countries (Anderson & Lanen, 1999), the other contingency led studies' investigated the role of technological innovation in the application of MPM (e.g. Ong & Teh 2008); the influence of strategic orientation on firms performance considering both financial and non-financial dimensions (Avci et al., 2011); and the

moderating role of business strategy in management control system and organisational performance (Tsamenyi et al., 2011), however is a recent phenomenon. A few studies adopted other approaches such as cultural political economy (Hopper et al., 2009), a stakeholder framework (Li & Tang, 2009), and grounded theory (Wickramasinghe et al., 2007) and a combination of NIS and technical rational perspectives (Sharma & Lawrence 2005).

The research methods (see Table 4) indicate that much research has been based on case studies using both interviews, and interview and document analysis (20 papers out of 103). Although surveys were the most popular method (45 papers), mixed-methods, which can enhance understanding of themes under investigation and provide rich sources of data (Modell, 2005) has grown (14).

**Table 4.** Research methods used in reviewed papers

<i>Research methods</i>	<i>Frequency</i>	<i>Relevant studies</i>
Survey	45	Khan et al. (2010a); Khan et al. (2010b); Khan & Halabi (2009a); Khan et al. (2011); Fleming et al. (2009); Anand et al. (2005); Joshi (2001); Kapugi & Smith (2007); O'Connor et al. (2006); Tsamenyi et al. (2011); Jusoh et al. (2008a); Jusoh et al. (2008b); Jusoh et al. (2006); Jusoh & Parnell (2008); Amir et al. (2010); Smith et al. (2008); Burgess et al. (2007); Ong et al. (2010); Ong & Teh (2008); Yongvanich & Guthrie (2009); Srimai et al. (2011a); Sawalqa et al. (2011); Al-Materneh (2011); Juhmani (2007); Ismail (2007); Wadongo et al. (2010); Mmieh et al. (2011); Waweru et al. (2004); Waweru et al. (2005); Luther & Longden (2001); de Waal (2007); Satta (2006); Eker & Pala (2008); Demirbag et al. (2006); Avci et al. (2011); Lonial et al. (2008); Gimzauskiene & Kloviene (2011); Kloviene & Gimzauskiene (2009); Curado & Manica (2010); Huang et al. (2007); Solano et al. (2003); Yu et al. (2009); Taylor et al. (2001); Lau & Sholihin (2005); Akbar et al. (2012)
Interviews	11	Bhagwat & Sharma (2007); Joseph (2008); Pusavat et al. (2009); Šević (2005); Jasiukevicius & Christauskas (2011); Bevanda et al. (2011); Mohamed & Hussain (2005); Johnston & Pongatichat (2008); Tsang (2007); Rhodes et al. (2008); Julnes & Mixcoatl (2006)
Interviews and document analysis	10	Jazayeri et al. (2011); Othman et al. (2006); Tsamenyi et al. (2008); Kattan et al. (2007); Sharma & Lawrence (2005); Wickramasinghe et al. (2007); Tsamenyi et al. (2010); Waweru & Spraakman (2012); Siti Nabiha & Scapens (2005); Munir et al., (2013).
Action research	1	Li & Tang (2009)
Archival /desk research/ conceptual papers/ literature review	18	Hopper et al. (2009); Tillema et al. (2010); Mimba et al. (2007); Chen et al. (2006a); Duh et al. (2008); Rabbani et al. (2007); Marwa & Zairi (2009); Bogicevic & Domanovic (2009); Sinkovic´ et al. (2011); Sulaiman et al. (2004); O'Donnell & Turner (2005); Pienaar & Penzhorn (2000); Umashanker & Dutta (2007); Chaklader & Roy (2010); Hoque (2001); Scavone (2006); Thakker et al. (2009); Scapens & Yan (1993)
Analytical: mathematical	4	Rabbani et al. (2010); Kamhawi (2011); Jardali et al. (2011); Al-Enizi et al. (2006)
Mixed methods <sup>6</sup>	14	Anderson & Lanen (1999); Amir (2011); Tayles et al. (2007); Rabbani et al. (2011); Anh et al. (2011); Posayanant & Chareonngam (2010); Valmohammadi & Servati (2011); Guerreiro et al. (2006); Peters et al. (2007); Hansen et al. (2008); Kagaari (2011); Edward et al. (2011); Norhayati & Siti-Nabiha (2009); Hoque & Alam (2004)
<b>Total</b>	<b>103</b>	

<sup>6</sup> This included interviews, document reviews and a questionnaire all in one study.

Surprising, experiment have gained no popularity in developing countries since in our review no MPM research has applied that. This is the areas in where developing countries PM studies can contribute in future and to get the benefits of experimental research<sup>7</sup>. The number of analytical papers (mathematical) are also low (4 papers out of 103), than Shields's (1999) study in USA (49 papers out of 152) however greater than that of Australian-based management accounting studies (Chenhall & Smith, 2011, found only 1 paper as analytical out of 231). Mathematical analysis in the reviewed papers primarily involved the application of Data Envelop analysis (DEA) (Al-Enizi et al., 2006), Delphi technique (Jardali et al. 2011; Kamhawi, 2011; Rabbani et al. 2010) for understanding PM techniques. In line with findings, found in Australia<sup>8</sup>, action research was not popular in developing countries (only one paper, specifically, Li & Tang, 2009).

#### 4. DISCUSSIONS OF FINDINGS BASED ON TOPICS

As mentioned earlier, topics of reviewed papers were classified into four categories (see table 1): (a) extent and use of MPM (52 papers); (b) contextual factors driving firms to adopt MPM and organisational performance (29); (c) comparative studies (6); and (d) others (16) (including implementing and using MPM, MPM changes, literature review-based MPM research in developing countries, and development of MPM by indigenous firms). Within 52 papers on the topic of the extent and use of MPM in category (a), 7 papers explained the use of MPM in developing countries; 29 papers described the use of the BSC as a multi-dimensional performance measurement tools and 16 papers were relating to the use of MPM tools as performance management tool together with alternative applications of the MPM tool. These sections discuss these in details.

##### 4.1 Extent and use of MPM

Of the (52) papers that studied how many firms used MPM, 7 investigated rates of adoption of MPM indicators (financial and other). For example, 81% (n=149) of listed manufacturing firms in Malaysia used MPM indicators (Burgess et al. (2007); 51.6% (n=124) of Kenyan hotel and tourism firms (Wadongo et al., 2010); and from 65.2% in 2003 to 71.8% in 2009 various Vietnamese firms (n=181), though public sector firms had lower MPM adoption than listed firms formed through joint ventures with foreign interests (Anh et al., 2011). A combination of financial and non-financial indicators were also found within responsibility centres in China (Scapens and Yan, 1993), micro-finance institutions (Waweru and Spraakman, 2012), banks in Gulf Cooperation Council countries (Al-Enizi et al., 2006), and a Tanzanian tertiary college (de Waal, 2007).

Adoption of the BSC as a performance measurement tool is evidenced in many studies (29 papers). Adoption rates for firms across multiple

industries were 65% (n=83) in Bahrain (Juhmani, 2007); around 40% (n=123) in Thailand (Yongvanich & Guthrie, 2007); 10% (n=60) in Bangladesh (Khan et al., 2011); 60.1% (n=33) in Egypt (Ismail, 2007); 38.1% (n=181) in Vietnam (Anh et al., 2011); 10% (n=30) in Madeira (Curado & Manica, 2010), and 21.2% (n=52) in South African manufacturing and service sectors (Waweru et al., 2005). Other studies report BSC adoption rates in manufacturing sectors, namely 40% (n=60) in India (Joshi, 2001) which in a similar later study rose to 45.28% (n=24) (Anand et al., 2005); 35.1% (n=168) in Jordan (Sawalqa et al., 2011); and 50% (n=30) in Lithuania (Jasiukevicius & Christauskas, 2011).

4 studies empirically tested causal links within the BSC model (Huang et al., 2007) in the Chinese tourist industry, Jusoh et al. (2008a) in Malaysian manufacturing firms, Khan et al. (2010b) in Bangladesh, and Ong et al. (2010) in Malaysia each examined applications of the four perspectives in Kaplan and Norton's (1992) BSC model.

The empirical results of Huang et al (2007) study revealed that non-financial performance measures of BSC dimension (i.e., the learning and growth perspective, internal process perspective, and customer perspective) not only directly influence the financial performance measures, but also have indirect effect on performance through the cause-and-effect relationships among different perspectives. The findings by Jusoh et al. (2008a) study suggest that the use of BSC measures in the form of internal business process and innovation and learning measures showed to have a significant effect on firms' performance. Their results also suggest that when studied firms use a performance measurement system incorporating all four perspectives of BSC measures, their performance is much better than when they rely exclusively on an individual perspective. Ong et al. (2010) evidenced the theoretical foundations of BSC model and they found sequential dependency among the four perspectives of BSC. This line of understanding is further supported by Khan et al (2010) study. Their study further reported that the relationship between customer perspective factors and internal business process factors are stronger than that of the relationship between learning and growth factors and internal business process factors. Their study also evidenced that the companies that have improved their financial indicators have increased their efforts towards internal business activities more than the companies that have not. Specifically, companies that financial indicators (ROA and ROE) have increased over the three years period had been found an increased orientation to improving internal business process compared to the companies that had these ratios decreased in the period.

It is important to mention that all of the above-mentioned BSC-based studies involved the full adoption of all four perspectives of Kaplan and Norton's (1992) BSC model, with one exception (i.e., Tsamenyi et al., 2010). Using a modified version of the BSC model by adding the community perspective as a fifth perspective, Tsamenyi et al. (2010) analysed the performance of two large privatised companies in Ghana. Their study reported that subsequent to privatisation, the two case companies were able to improve their performance in all performance dimensions.

<sup>7</sup> Experimental work's focus internal validity that offers a powerful way of testing specific, focused theories on how individuals respond to information from management control system or any other MA systems (Chenhall & Smith, 2011)

<sup>8</sup> Chenhall and Smith [2011] found one paper employing action research out of 232 reviewed

BSCs not only incorporate financial and non-financial measures but also claim to translate mission and strategy into tangible objectives reinforced by comprehensive performance measures (Kaplan & Norton, 1996, 2001). 16 papers examined MPM as a performance management tool (10 using the BSC and 6 alternative applications of BSC). BSC was studied as a performance management tool for an academic information service in South Africa (Pienaar & Penzhorn, 2000). Subsequent studies claim promoted systemic integration and thence better quality assurance in a Venezuelan company (Sonalo et al., 2003), and when it was extended to incorporate environmental factors in Argentina (Scavone, 2006), and social and environmental dimensions in an Indian automobile company (Chaklader and Roy, 2010), it improved sustainability-related performance. The use of BSC as a performance management tool has also been studied in Pakistan (Rabbani et al., 2010) and in Afghanistan's health sector (Peters et al., 2007; Hansen et al., 2008; Edward et al., 2011).

Within these studies, Rabbani et al., (2010) reported that BSC stimulates individual clinicians and managers to cooperatively work towards improving hospital performance. Peters et al, (2007) reported that the adaptation of the BSC model [they modify BSC model under 6 dimensions such as patient perspectives, staff perspectives, capacity for service provision; service provision (technical quality), financial systems, and overall vision for the health sector] in Afghanistan has been served as an useful tool to assess the multidimensional nature of health-services performance, that facilitated managers to benchmark performance identifying strengths and flaws in the Afghan environment. Following Peters et al, (2007) modified version of BSC model, Hansen et al., (2008) reported that the use of a clear monitoring framework (e.g., BSC) enable service sectors to identify priority areas for improvement and measure performance over time in an objectives-based approach, and enable decision-makers to manage public health services effective way in a difficult environment like Afghanistan. Another study by Edward et al., (2011) reported that the BSC has been effectively implemented to assess and improve health service capacity and service delivery using performance benchmarking during the 5-year period. Their study also reported that the use of BSC helped to show the effects of investments in health care, assisted policy change, and form a more evidence-based decision-making culture in Afghanistan's primary health care system (p.9).

The application of BSC in developing countries is found for some other reasons (6 studies). These include developing higher education programs/institutions in India (Umashankar & Dutta, 2007) and in Malaysia (Yu et al., 2009); measuring supply chain management performance in Indian small and medium enterprises (Bhagwat & Sharma, 2007; Thakkar et al. 2009); developing key performance indicators (KPIs) and value chain analysis in the Thai public sector (Posayanant & Chareonngam, 2010); and, in conjunction with a Delphi multi-criteria decision-making methodology, measuring national hospital performance in Lebanon (Jardali et al., 2011). Nevertheless, the amount of research on alternative MPM usages remains small. This may reflect researchers' choices of which firms

to study or that although many firms in developing countries may use MPM they often do so only for limited purposes (an exception is Waweru and Spraakman (2012). For example, there is little evidence for or scrutiny of its use in performance evaluation of employees or managers, or in strategic or tactical decision-making (Ittner et al., 2003).

Firms in developing countries apparently have used BSC similarly to their counterparts in developed countries<sup>9</sup>. The architects of BSC have continually improved it as a management tool (Kaplan et al., 2010; Kaplan & Norton, 2004) but few studies reviewed here gave adequate information on the type<sup>10</sup> of the BSC model used (an exception is Yongvanich and Guthrie, 2009). Papers lack detailed specification of MPM systems design despite prior work giving guidance for doing this (Chenhall, 2005), e.g. which MPM technique (especially the BSC model) was used,<sup>11</sup> how was it defined operationally as a management tool, which generation of the BSC model was used, was it an improved or modified version? The paucity of such information on actual practices contrasted to the systems and claims in texts from proponents of MPM makes it impossible to confidently evaluate the effectiveness MPM applications when used as a management tool.

Also little is known about MPM tools used other than BSC (exception include Curado & Manica, 2010). Curado & Manica (2010) found the largest firms on Madeira used the Tableaux de Bord more than BSC. Given the importance of French MPM techniques in Francophone developing countries, this is important. Nor do the papers reveal much on the processes and institutions involved in diffusing MPM techniques. This is surprising given the frequent claim that systems inappropriate to the problems and context confronting many developing countries are often imposed by transnational institutions such as the World Bank, frequently upon advice of Western consultants.

## 4.2 Contextual factors

29 papers traced the influence of contextual factors on the use of MPM. Researchers have shown increased interest in this, perhaps due to its prominence in developed country research (e.g., Chenhall, 2005; Anderson & Lanen, 1999). The use of MPM or MPM tools has been attributed to economic liberalisation (deregulation); reform policies and privatisation (Waweru et al., 2004; Hoque & Alam, 2004; Anderson & Lanen, 1999; O'Connor et al., 2006); market competition (Fleming et al., 2009; Khan et al., 2010a; Munir et al., 2013); firm size

<sup>9</sup> For example, BSC usage rates were 17.8% (n=200) in Canada (Gosselin, 2005); 31% (n=17) in Finland (Malmi, 2001); 32% (n=53) in Denmark (Nielsen & Sorensen, 2004); 26% (n=201) in the three German-speaking countries, Germany, Austria and Switzerland (Speckbacher et al., 2003); 60% (n=1,000) in the USA (Silk, 1998); 40% (n=1,000) in the USA (Thompson & Mathys, 2008); and 88% (n=140) in Australia (Chenhall & Langfield-Smith, 1998)

<sup>10</sup> See Malmi (2001), Speckbacher et al. (2003), Valmohammadi and Sarvati (2011) for discussion of this

<sup>11</sup> MPM techniques are a performance management tool when they combine multiple performance indicators with leading and lagging indicators; indicators are derived from the firm's overall strategy; they link all business units' activities, and managerial staff and employees' performance to the achievement of the firm's goal and objectives; it is fully documented; and organisational rewards are linked with performance (financial and non-financial) (Chenhall, 2005).



(Khan et al., 2011; Burgess et al., 2007); structural change and uncertainty (Luther & Longden, 2001); the external environment (Gimzauskiene & Kloviene, 2011; Kloviene & Gimzauskiene, 2009); legislative requirements (Akbar et al., 2012); national culture (Tsang, 2007); social and cultural factors such as values, loyalty and obedience (Tsamenyi et al., 2008); and type of ownership (Burgess et al., 2007). Anderson and Lanen (1999), a notable study conducted in India, enhanced understanding of how contextual factors, namely, economic reforms, international orientation of firms and organisational strategy, influenced MA practices including MPM. Recent studies revealed that traditional performance measurement techniques fail to provide adequate management information, which resulted in adoption of MPM in developing countries (Al-Enizi et al., 2006; Munir et al., 2013).

4 studies investigated the mediating and moderating role of contingent variables upon MPM and organisational performance. MPM use in Malaysia significantly mediated relationships between differentiation strategies, environmental competitiveness and organisational performance in service firms (Amir, 2011; see also Lonial et al.'s (2008) study of Turkish hospitals). Two studies investigated the moderating role of contingent factors on performance measurement practices. A mixed method study found organisational culture had moderating effect on MPM practices and thence achievement of non-financial performance indicators (service quality and delivery, and cost reduction) in Ugandan public universities (Kagaari (2011; see also Tsamenyi et al (2011) on the moderating role of business strategy upon management control and performance in China).

Others have found MPM use is influenced by internal factors, namely: business strategy (Tsamenyi et al., 2011; Jusoh et al., 2006, 2008b; Jusoh & Parnell, 2008; Amir et al., 2010; Avci et al., 2011); technological innovation (Smith et al., 2008; Ong & Teh, 2008); information technology (Kamhawi, 2011); growth strategy (Fleming et al., 2009); corporate culture (Hoque & Alam, 2004); technical knowledge and management commitment (Akbar et al., 2012); and total quality management (TQM)<sup>12</sup>. Guerreiro et al.'s (2006) qualitative research study using old institutional economics (OIE) found three major institutional forces influenced a bank in Brazil to adopt MPM alongside other MA changes: competition, declining inflation, and the bank's previous substantial losses (p. 217). Lau and Sholihins' (2005) study conducted in Indonesia was arguably the first to examine behavioural aspects of MPM. They found two intervening two factors (subordinates' trust in supervisors and fairness in the PM evaluation process) influenced relationships between performance measures (financial and non-financial) and job satisfaction.

As found in the current review, the use of MPM in the context of developing countries is also stimulated as a result of technological innovation and the use of information technology (IT) (Bevanda et al., 2011; Smith et al., 2008). These studies showed that use of technological innovation such as

computer aided manufacturing, computer-aided design, computer-aided inspection and testing influence the use of contemporary management accounting techniques including MPM tool such as BSC. Other studies in developing countries evidenced that use of IT plays influential role in MPM use (Kamhawi, 2011; Ong & Teh, 2008). Technological innovation and the use of IT thus are influential factors for the use of MPM in developing countries.

The above studies advance knowledge of contextual factors that influence the use of MPM in developing countries. Nevertheless, little is known about the effect of other contextual factors such as investment in intangible assets and decentralization. Unexplored relationship between decentralisation and MPM in developing countries is rather surprising, given that in the developing countries a key prerequisite in gaining financial support from donor agencies has been organisational reforms, including decentralization and delegation of responsibilities to lower levels of management (Mimba et al., 2007). On top of it, given that the size and scope of operations of firms in developing countries is growing, greater delegation of operational decision-making to middle and operational levels of management is seen for firms in developing countries (Narayana, 2005). Given that decentralized organisations are more inclined to make decisions at an operational level they depend more on operational measures that tend to be non-financial (Gosselin, 2011), decentralised organisational structure for firms in developing countries therefore could more inclined to use MPM. This issue deserve further investigation in developing countries.

#### 4.3 Comparative analyses

6 six papers undertook a comparative analysis of MPM (or MPM tools) between developing countries, or developing versus developed countries. The use of BSC by hospital authorities in Japan and China stimulated development of performance measures and helped them compare and evaluate hospital performance across both countries (Chen et al., 2006a). Despite their slight use of contemporary MA tools like BSC adoption of non-financial indicators (e.g., customer satisfaction) was claimed to be growing in four Asian countries owing to increasing competition (Sulaiman et al., 2004). Government agencies in five South Asian countries (Bangladesh, India, Nepal, Pakistan and Sri Lanka) have all widened the scope of performance measures to incorporate inter alia, growth, efficiency, value for money, competition and customer satisfaction (Hoque, 2001).

A comparative case study of manufacturing firms in Sri Lanka and the UK revealed that a BSC implementation was unsuccessful in the former since it was externally imposed (by the Chartered Institute of Management Accountants [CIMA] Sri Lanka) and resulted in internal disagreement but in the UK firm an 'internal change' culture aided the successful use of BSC (Jazayeri et al., 2011). A comparative study of manufacturing firms in Australia and Mauritius found Australian Chief Executive Officer (CEO)s emphasised financial measures but in Mauritius CEOs rely more on non-

<sup>12</sup> Demirbag et al. (2006) was the first to examine the link between TQM adoption and BSC use in developing countries (see also Eker & Pala, 2008; Kapuge & Smith, 2007). Their results are consistent with findings in developed countries (Vinueza & Hoque, 2011)

financial measures: production technology and information asymmetry had an impact on these differences (Taylor et al., 2001). Lastly, MPM implementations in state governments in Mexico (Campeche) and the USA (Utah) differed. In Utah, BSC implementation was initiated by legislators and the governor took a key leadership role but it was implemented in a participative manner. However, in Campeche, pressure for a BSC implementation emanated primarily from external pressures to which the governor acceded but the project was implemented in a top-down manner (Julnes and Mixcoatl, 2006).

More attempts in the services sector would be prudent as recent literature has shown increasing interest in performance measurement in this sector (Munir et al., 2013; Huang et al., 2007).

#### 4.4 Others

The 16 papers categorised in 'others' category covered: literature reviews (4); challenges/roadblocks of implementing and using MPM (10); and in-house development of MPM by firms (2). Some studies identified implementation problems associated with Western-based MPM tools such as BSC (Wickramasinghe et al., 2007; Othman et al., 2006; Bevanda et al., 2011; Pusavat et al., 2009; Sharma & Lawrence, 2005; O'Donnell & Turner, 2005). Wickramasinghe et al. (2007) argue that in Sri Lanka the diffusion of BSC is an expression of the country's Chartered Institute of Management Accountants (CIMA) desire to globalize by incorporating Western management accounting systems (MAS). The case firm implemented BSC but subsequently failed to use it continuously because intra-firm professional rivalries, resulting internal wrangles, and the owners' preference for focusing only on financial criteria rather than the entire BSC model.

Similarly, a BSC project was resisted in a Malaysian telecommunication company owing to a corporate culture and leadership style at odds with the human relations oriented approach needed for a successful implementation [Othman et al., (2006), see also Bevanda et al. (2011) and Sinkovic' et al.'s (2011) study in Croatia]. When a public entity implemented BSC in Fiji study as a condition for loans by donor agencies, especially the World Bank, the imposed public sector restructuring failed to meet local needs (Sharma and Lawrence, 2005). In Vanuatu the implementation of a performance system where all public officials would be evaluated according to their achievement of pre-defined agreed goals and targets was not widely accepted owing to distrust, absence of incentives and employees' perception that it was imposed by donor agencies (O'Donnell and Turner, 2005). High corruption, low institutional capacity, weak control systems and inclinations to informality were barriers to supplying MPM information within the public sectors in several LDCs (Mimba et al., 2007). Political restrictions and the absence of key data-bases impeded reforms of traditional MPM techniques of performance measurement in China (Li and Tang, 2009). Phusavat et al. (2009) found four key roadblocks to implementing MPM in Thai organisations, namely, empowerment of staff, budgeting, external knowledge and linkage with

software usage. Furthermore, the current review found that bargaining between agents through the use of power within firms in developing countries determines what performance indicators can be used (Jazayeri et al., 2011; Wickramasinghe et al., 2007). Thus, the use of MPM techniques can be subject to the interests of dominant parties. Bargaining between internal and external constituents can lead to professional rivalries or loss of interest by an owner-manager and thence unsuccessful use of MPM tools (e.g., Wickramasinghe et al., 2007). The success or failure of any MPM adoption can depend on reconciling political power, negotiating with, and managing powerful constituents whilst collaborating with others rather than through enforcing change through dictate (Jazayeri et al., 2011). Arguably, the degree of coalition among powerful constituents is an important factor for MPM use.

Some developing countries have developed their own performance indicators. A Tanzanian small firm financing scheme developed comprehensive performance assessment criteria including portfolio quality, financial structure, profitability, efficiency and productivity (Satta, 2006). Marwa and Zairi (2009) developed a diverse performance-oriented measurement model for a Kenyan firm that extended to stakeholder requirements, governance, leadership, and learning and innovation.

These studies identify a series of issues about the demand for and diffusion of MPM tools, challenges of implementing it, and the potential of firms to develop their own MPM techniques. Firms using a Western MPM model can experience difficulties if the local, cultural and social setting in which organisations operate is ignored (Wickramasinghe et al., 2007; Sharma & Lawrence, 2005; O'Donnell & Turner, 2005), hence calls for the need to adapt the BSC model (and its strategy map) to the specific indigenous culture of developing countries (Bevanda et al., 2011; Sinkovic' et al., 2011). Whatever, implementing target-oriented performance evaluation requires local agreement and commitment to performance improvement (O'Donnell & Turner, 2005). Many studies reviewed have paid insufficient attention to such areas (exceptions include Mimba et al., 2007; Wickramasinghe et al., 2007; Sharma & Lawrence, 2005; Li & Tang, 2009; Satta, 2006; Hopper et al., 2009; Tilemma et al., 2010; Siti Nabiha & Scapens, 2005).

## 5. CONCLUSIONS AND FUTURE RESEARCH DIRECTIONS

This study reviewed research on MPM in developing countries. It reviewed 103 MPM research papers published from 1987 to 2013. The principal findings are that: firms in developing countries use MPM though rates of MPM use may vary between countries; BSC was a popular MPM tool; (c) the pace of MPM use was determined by various internal and external factors; MPM research has focussed predominately on the manufacturing sector; and most studies lacked explicit articulation of the theoretical perspectives used, any research gap, and research motivation.

External factors namely deregulation, economic reforms, growing competition, adoption of quality control techniques like TQM, and changing business strategies influenced the use of MPM. Although manufacturing was the most commonly used settings, several studies in the public sector have been made (19). MPM initiatives in the public sector are not surprising given the relatively large role of state-owned enterprises and the growing emphasis on 'good governance' by aid agencies requiring better performance assessment, new public management initiatives, and greater competition and market reforms (Mimba et al., 2007; Tillema et al., 2010; Li & Tang, 2009).

In conclusion, although MPM practices have not invariably been accepted, performance measurement practices in developing countries have often changed, though more needs to be known in the context of developing countries discussed in next paragraphs. In the light of review findings, the study has formulated future research directions discussed as follows.

First, as found in the current review, Western management controls and MPM techniques may need to be customised to take account of indigenous contexts (Tsamenyi et al., 2010). Whether MPM and/or MPM techniques have been modified as a result of increasing sustainability awareness needs further scrutiny. There has been increased consensus among developing countries that performance measurement needs to incorporate sustainability indicators covering employees, customers, the community, and the environment. These are often a result of international influences (Belal & Owen, 2007), or pressure from international financial institutions such as the World Bank, or from local regulators such as central banks or owing to pressure from international financial institutions such as the World Bank (Rahaman et al., 2004; Khan & Dyball, 2012).

**RQ-1:** Do firms in developing countries implement and use MPM tools/ techniques as result of pressure from international financial institutions such as the World Bank, or from local regulators such as central banks?

Second, the review has shown that many developing countries' MPM initiatives were unsuccessful in this context. Although the current review has focused on MPM in developing countries at large, it is likely that these countries are heterogeneous with respect to the extent of poverty, corporate culture, and their political, social and economic systems (Hopper et al., 2009; Tillema et al., 2010). These heterogeneous characteristics could either facilitate the use of MPM or act as barriers to using MPM at the country-specific level. As found earlier, the rate of MPM use and/or of MPM techniques (e.g., the BSC) was not the same among different developing countries. It is likely that heterogeneous characteristics could have a major influence on the rate of MPM use in developing countries. Questions have thus emerged about whether and how firms in developing countries have been advanced or were challenged with respect to the use of MPM taking social, political and historical differences into consideration. A large-scale cross-country research study using a quantitative and qualitative approach is welcomed to investigate these questions.

**RQ-2:** How do firms in developing countries advance or have been challenged with respect to the use of MPM due to social, political and historical differences?

Likewise, as found in the current review, there has been growing demand from external stakeholders for performance measurement information in developing countries (Tillema et al., 2010; Mimba et al., 2007; Akbar, 2012). In the specific context of public sectors in developing countries, reviewed studies progressed the understanding that such external demand originates from stakeholders, which include central government (Akbar, 2012), international funding bodies (Tillema et al., 2010; Mimba et al., 2007). Tillema et al., (2010) reported that reforms in public sectors in developing countries propelled through the prescriptions of funding agencies thus could have influence in the demand of performance measurement information.

Parallel to the demand from external stakeholders for public sectors, in the context of banking sectors in developing countries, demand for using multi-dimensional performance measurement techniques could be driven as a result of external stakeholders influence such as influence from central bank, international funding agencies. In the specific context of banking sector, Munir et al (2011) offered three form of institutional influence (coercive, normative and mimetic) in understanding PMS change using New institutional sociology (NIS) lens (DiMaggio & Powell, 1983). As found in the current review, thus far, little has been progressed toward understanding the role of institutional influence (factors) in the use of MPM in the context of banks in developing countries. Future research is therefore required to investigate influence of institutional factors in the use of MPM for banks in developing countries. Nevertheless, as found in the current review, merely influence from external stakeholders did not lead to change in performance measurement practices in developing countries; participation and involvement of top-level management was essential to adopt new performance measurement (see study by Norhayati & Siti-Nabiha, 2009; Julnes & Mixcoatl, 2006). As a result, support and involvement from internal management is essential for the implementation and use of an MPM tool in banks in developing countries. An in-depth examination of interplay between internal factors and external factors for the use of MPM would be prudential in financial industry.

**RQ-3:** Are there any interplay between internal factors and external factors for the use of MPM in financial industry of developing countries?

As reported in the current review, within studies in developing countries, little attention has been devoted to the issue of firms' investment in intangible assets, the multi-dimensional performance measurement system of firms and to the organisational performance implications in this regard [The current review found that in the context of developing countries, only one study (e.g., Tayles et al., 2007 in Malaysian context) revealed that the level of investment in intangible assets (IC) is associated with management accounting practices including performance measurement, and firms performance]. Investment by firms in diverse intangible assets (e.g., IT, human resource

development, and relationship management of customers and other external parties) could improve organisational performance when firms use comprehensive performance measurement techniques (e.g., MPM tools such as BSC) (Kaplan & Norton, 2004). MPM are necessary to measure investment in intangible asset and to evaluate its effects on ultimate outcome i.e. organisational performance (Hendricks et al., 2012). Some developing countries invest more in intangible assets now than a decade earlier (Raihan, 2007). A key finding in Dutz et al. (2012) was that there was significant intangible investment in the Brazilian business sector (4% of gross domestic product [GDP] from 2000 to 2008): a rate not much below that of developed countries such as Italy and Spain (circa 5–6%). Hulten and Hao (2011) reported a rate of about 8% of GDP in China. Raihan's (2007) identified massive changes and improvements in this area within the banking industry of Bangladesh that included investing in automating and upgrading manual business processes, efficient manpower creation and enhancing employee skills and competence. As developing countries' investment in intangible assets grows significantly, the role of the MPM in reflecting the performance of intangible assets may be indispensable (Tayles et al., 2007). If so then investment in intangible assets is likely to be a driver of MPM usage. Given that many firms in developing countries now use MPM or MPM tool such as BSC (as reported in the current review), and many firms in developing countries concentrate on investing in intangible assets, emerging questions is whether investment in intangible assets lead firms to use contemporary performance measurement system (e.g., the use of MPM) in developing countries. Future research is therefore necessary in order to investigate whether there are any intervening role of MPM for firms in developing countries with regard to investment in intangible assets and its relationship to organisational performance.

**RQ-4:** With regard to change in investment in intangible assets and its relationship to organisational performance, what are the internal and external factors that could have mediating and moderating role for the use of MPM for firms in developing countries?

In terms of behavioural dimension of MPM, the current review revealed that there is very limited study (e.g., Lau & Sholihin, 2005). Future research can investigate on whether the reliance of MPM in evaluating subordinates' performance affects their performance or whether the effect is contingent on the specificity and difficulty of the goals contained in the performance measures. Goals specificity is not only factor that affects employees' behaviours; level of goal difficulty could also affect employees' behaviour (Sholihin et al., 2011). If there is level of goal difficulty, it might have an impact on the relationship of financial and non-financial based evaluation system and employees behaviours (Sholihin et al., 2011; Lau & Sholihin, 2005). Likewise, procedural fairness is related to performance and employee's performance, in turn, may be related to job satisfaction (Lau & Moser, 2008). Employees who perform well may experience high job satisfaction (Lau et al., 2008). This thus follows that the effects of procedural fairness on job satisfaction may be

indirect through job performance of employees. Understanding such phenomenon is a good avenue for future MPM research in developing countries.

**RQ-5:** Does job performance of employees mediate for the use of MPM for firms in developing countries in explaining the effects of procedural fairness on job satisfaction?

Furthermore, the current review has revealed that the rate of BSC use in public sectors in developing countries is still unknown. The public sector of developing countries is therefore a candidate for future large-scale, survey-based research. At the same time, recent studies claimed that developing countries have been progressed significantly economically and socially, and many countries such as China are said to have led the world recovery from the most recent economic crisis (Ezzamel & Xiao, 2011). Ezzamel and Xiao (2011) narrated that accounting research should earnestly take into consider the possibilities of the travel of accounting ideas the other way round, from developing and transitional economies to advanced capitalist countries (p.634). Arguably, more need to know whether any 'novel' PM ideas and technologies, or revisions to PM and management accounting technologies imported by developed countries from developing and emerging market economies.

**RQ-6:** Are there any 'novel' performance measurement ideas and technologies, or revisions to PM and management accounting technologies imported by developed countries originate from developing countries?

Family ownership is more common in developing countries (Hopper et al., 2009). For detailed case studies of this in Indonesia (see Efferin & Hopper, 2007), in Sri Lanka (Jazayeri et al., 2011), and in Bangladesh (Uddin & Hopper, 2005). Family ownership can adversely influence the use of MPM in developing countries. It can induce informal and arbitrary management controls, restrict information and benefits to family members, rules and regulations dictated by family or friendship links, and disregard of the rights of minority shareholders (Hopper et al., 2009; Black et al., 2000; Uddin, 2009). However, as Efferin and Hopper (2007) indicate, family ownership may not invariably inhibit innovative MA reforms though they may have to tally with familial control and traditional cultures (see also Dyball & Valcarcel, 1999). Arguably, more need to know whether MPM ideas and technologies, or revisions to PM and management accounting technologies are stimulated and supported by dominant shareholders in developing economies.

**RQ-7:** Do development and improvement of MPM ideas and technologies, or revisions to PM stimulate and get supported by dominant shareholders in developing countries?

Similarly, high quality performance information intensifies communication between employees, managers, supervisors and other stakeholders (Hoque, 2001). It must be comprehensive when used for performance evaluation but also simple, understandable and easy to communicate if it is to motivate employees to improve performance (Mimba et al., 2007). MPM performance indicators in developing country firms particularly need to be simple<sup>13</sup> given their low institutional capacity and

<sup>13</sup> By 'simplicity', this study means that it is easy to understand, with no ambiguity in interpreting the results to the users of MPM information

weak governance (Mimba et al., 2007). It is essential that the nature of the performance indicators used in firms in developing countries generates high quality performance information so that it intensifies the communication between many parties such as employees, managers, supervisors and other stakeholders (Hoque, 2001). Communicating performance indicators in developing countries by way of either simple ratios or proportion enable users to better understand and compare information on performance indicators (Chen et al., 2006a). It is not well established yet what and how MPM information play role in communicating and corroborate different stakeholders in developing countries given that firms in developing countries operate unique institutional, cultural settings. This deserves further research attention.

**RQ-8:** Do MPM information play role in communicating and corroborate different stakeholders in developing countries?

In the context of developing countries, insufficient resources can impede MPM use. As found in the current review, many MPM initiatives in developing countries are stymied not only by insufficient funding but also as insufficient knowledge, technology; databases and training (see Phusavat et al., 2009; Li & Tang, 2009). Arguably, more need to know whether MPM ideas and technologies, revisions to MPM technologies are hindered as a result of fund shortages in developing countries. Furthermore, the review has suggested that increased attention to methodological issues will have the potential to carry forward future MPM research in developing countries. Survey research should pay heed to the data collection techniques prescribed by Dillman (2000).

Finally, as reported earlier, one of the features of the MPM studies in developing countries was the fact that most of the findings were reported without using any theoretical framework (see Table 4). Explicit reference to theories, developing theoretical framework informed in theoretical lens, or development of theoretical models are required in a research project if the researcher believes that they have contributed to academic literature and the rigorosity of theoretical knowledge. Probably this is one of the reasons why the number of developing countries' MPM articles published in top-tier accounting, management journals is very limited (see Appendix 1).

This review is not free of limitations. The literature review might have missed relevant MPM work that has been published in: areas other than accounting, operations and information systems; non-English language journals; or in book reviews, conference proceedings, working papers, professional publications or unpublished theses. Nevertheless, we hope the findings will be of assistance to further research on MPM in developing countries. Much effort still needs to be expanded essentially in many untouched areas.

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## Appendix 1. Reviewed papers classified by journals

<i>Journal titles</i>	<i>Frequency (f)</i>
<b>Accounting journals</b>	
Accounting Organisations and Society (AOS)	2
Accounting Forum (AF)	1
Accounting, Auditing and Accountability Journal (AAAJ)	5
Management Accounting Research (MAR)	3
Journal of Management Accounting Research (JMAR)	1
Critical Perspectives on Accounting (CPA)	1
Research in Accounting in Emerging Economies (RAEE)	2
Journal of Accounting in Emerging Economies (JAEE)	1
Journal of Accounting and Organisational Change (JAOC)	7
Asia-Pacific Management Accounting Journal (APMAJ)	2
Asian Review of Accounting (ARA)	2
Managerial Auditing Journal (MAJ)	3
South African Journal of Accounting Research (SAJAR)	1
Qualitative Research in Accounting & Management (QRAM)	2
Pacific Accounting Review (PAR)	3
International Journal of Accounting (IJA)	1
British Accounting Review (BAR)	1
Advances in Accounting, incorporating Advances in International Accounting	1
Advanced in Public Interest Accounting	1
Journal of Accounting Auditing and Performance Evaluation (JAAP)	2
Journal of International Accounting, Auditing and Taxation (JIAAT)	1
Asian Journal of Business and Accounting (AJBA)	1
Total reviewed articles in accounting journals	<b>44</b>
<b>Non-accounting journals</b>	
Benchmarking: an International Journal (BIJ)	2
International Journal of Productivity and Performance Management (IJPPM)	7
Measuring Business Excellence (MBE)	4
Public Administration and Development (PAD)	1
International Journal of Operations & Production Management (IJOPM)	1
International Journal of Health Planning & Management (IJHPM)	2
Industrial Management and Data Systems(IMDS)	2
Indian Journal of Economics and Management (IJEM)	2
International Journal of Public Sector Management (IJPSM)	2
International Journal of Public Administration (IJPA)	1
Reviewed articles in other non-accounting journals <sup>14</sup>	35
b. Total reviewed articles in non-accounting journals	<b>59</b>
Total articles (a + b)	<b>103</b>

<sup>14</sup>Public Performance & Management Review (PPMR); International Journal of Emerging Markets (IJEM); International Journal of Electronic Business Management (IJEEM); Journal of African Business (JAB); The Business Review (TBR); Vikalpa; Computers & Industrial Engineering (CIE); European Journal of Economics, Finance and Administrative Sciences (EJEFAS); Management Decision (MD); Economics & Management (EM); International Journal of Health Care Quality Assurance (IJHCQA); Tourism Management (TM); Journal of Manufacturing Technology Management (JMTM); Engineering Economics (EE); International Journal of Human Resource Management (IJHRM); International Journal of Business & Management (IJBM); Journal of Economic and Social Research (IESR); Journal of Asia Pacific Business (JAPB); Implementation Science (IS); Perspective of Innovations, Economic & Business (PIE&B) International Journal of Business Research (IJBR); Journal of Business Economics and Management (JBEM); Health Policy; International Journal of Management and Decision Making (IJMDM); Service Industries Journal (SIJ); Bulletin of the World Health Organization; PLOS Medicine; Information Systems Management (ISM); Journal of Cleaner Production (JCP); Libri; Journal for Healthcare Quality (JHQ); Higher Education (HE); International Journal of Educational Management (IJEM); and International Journal of Sustainable Strategic Management (IJSSM).

## Appendix 2. Reviewed papers classified by countries

Countries	Numbers	%	Relevant studies
<b>Asia</b>			
Bangladesh	5		Khan et al. (2011); Khan et al. (2010a); Khan et al. (2010b); Khan & Halabi (2009); Hoque & Alam (2004)
India	8		Anderson & Lanen (1999); Anand et al. (2005); Joshi (2001); Bhagwat & Sharma (2007); Joseph (2008); Umashankar & Dutta (2007); Chaklader & Roy (2010); Thakkar et al. (2009)
Sri Lanka	3		Jazayeri et al. (2011); Kapuge & Smith (2007); Wickramasinghe et al. (2007)
China	9		Chen et al. (2006); Duh et al. (2008); Fleming et al. (2009); Li & Tang (2009); O'Connor et al. (2006); Tsamenyi et al. (2011); Huang et al. (2007); Tsang (2007); Scapens & Yan (1993).
Malaysia	15		Jusoh et al. (2008a); Jusoh et al. (2008b); Jusoh et al. (2006); Jusoh & Parnell (2008); Amir et al. (2010); Amir (2011); Othman et al. (2006); Smith et al. (2008); Tayles et al. (2007); Burgess et al. (2007); Ong et al. (2010); Ong & Teh (2008); Siti-Nabiha & Scapens (2005); Norhayati & Siti-Nabiha (2009); Yu et al. (2009)
Indonesia	4		Tsamenyi et al. (2008); Rhodes et al. (2008); Lau & Sholihin (2005); Akbar et al (2012)
Pakistan	4		Rabbani et al. (2011); Rabbani et al. (2010); Rabbani et al. (2007); Munir et al., (2013)
Afghanistan	3		Peters et al. (2007); Hansen et al. (2008); Edward et al. (2011)
Vietnam	1		Anh et al. (2011)
Thailand	5		Yongvanich & Guthrie (2009); Srimai et al. (2011); Phusavat et al. (2009); Posayanant & Chareonngam (2010); Johnston & Pongatichat (2008)
<b>Total</b>	<b>56</b>	<b>54.9</b>	
<b>Middle East</b>			
Jordan	2		Sawalqa et al. (2011); Al-Matarneh (2011)
Four Gulf countries	1		Al-Enizi et al. (2006)
Iran	1		Valmohammadi & Servati (2011)
Palestine	1		Kattan et al. (2007)
Bahrain	2		Juhmani (2007); Kamhawi (2011)
Lebanon	1		Jardali et al. (2011)
Oman	1		Mohamed & Hussain (2005)
<b>Total</b>	<b>9</b>	<b>8.8</b>	
<b>Africa</b>			
Egypt	1		Ismail (2007)
Kenya	3		Wadongo et al. (2010); Marwa & Zairi (2009); Waweru & Spraaakman (2012)
Ghana	2		Mmieh et al. (2011); Tsamenyi et al. (2010)
South Africa	4		Waweru et al. (2004); Waweru et al. (2005); Luther & Longden (2001); Pienaar & Penzhorn (2000)
Uganda	1		Kagaari (2011)
Tanzania	2		de Waal (2007); Satta (2006)
Mauritius	1		Taylor et al. (2001)
<b>Total</b>	<b>14</b>	<b>13.7</b>	
<b>Europe</b>			
Turkey	4		Eker & Pala (2008); Avci et al. (2011); Demirbag et al. (2006); Lonial et al. (2008)
Croatia	2		Sinkovic et al. (2011); Bevanda et al. (2011)
Serbia	2		S'evic (2005); Bogicevic & Domanovic (2009)
Lithuania	3		Jasiukevicius & Christauskas (2011); Gimzauskiene & Kloviene (2011); Kloviene & Gimzauskiene (2009)
<b>Total</b>	<b>11</b>	<b>10.8</b>	
<b>South America</b>			
Argentina	1		Scavone (2006)
Brazil	1		Guerreiro et al. (2006),
Mexico	1		Julnes & Mixcóatl (2006)
Venezuela	1		Solano et al. (2003)
<b>Total</b>	<b>4</b>	<b>3.9</b>	
<b>Others</b>			
Fiji	1		Sharma & Lawrence (2005)
Madeira Island	1		Curado & Manica (2010)
Vanuatu Islands	1		O'Donnell & Turner (2005)
Not specific to any country	5		Hoque (2001); Mimba et al. (2007); Tillema et al. (2010); Sulaiman et al. (2004); Hopper et al. (2009)
<b>Total</b>	<b>8</b>	<b>7.9</b>	
<b>Total</b>	<b>103</b>	<b>100</b>	