

The Role of a Management Accounting System in the Decision-Making Process: Evidence from a Post-Transition Economy

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crossref <http://dx.doi.org/10.5755/j01.ee.26.1.4873>

Information about the management accounting system (MAS) is required for high-quality decision-making in business. Thus, MAS has to be appropriately developed and organized. The paper aims to explore the role of MAS in the decision-making process and its changes from the perspective of the economy that shifted from transition towards market-oriented economy. The study was performed on the sample of medium-sized and large Slovenian companies. The methodology comprises an interpretation of responses to the questionnaire, which was distributed in 1995, 2001, 2006, and 2011. The analysis of the data shows changes in the role of MAS over time and indicates the characteristics of MAS during transition and post-transition periods. The role of MAS was assessed by analyzing the frequency of reporting, content, and scope of MAS information for top and middle management. The results show that in times of crisis Slovenian management did not use MAS information more frequently, as suggested by the theory. The results indicate that MAS was not that developed during the transition period in comparison to traditionally developed market economies, while during the post-transition period, especially in the period of crisis, improvements are notable. Based on the results, the authors provide some recommendations for further improvement of MAS in the analyzed companies. The study is designed to make a contribution to management accounting literature from the perspective of a transition economy.

Keywords: *management accounting system (MAS), decision-making process, transition economy, management accounting change, management accounting practices.*

Introduction

A management accounting system (MAS) is the organization's major source of necessary information in managerial decision-making. That is why the degree of its development and the role it plays in the decision-making process are crucial. According to the theory of contingency, there is no universally appropriate MAS that could be implemented in all types of organizations. Thus it has to be adapted to specific circumstances and designed in a flexible manner (for the basic contingency approach see Gordon & Miller, 1976; Hayes, 1977; Waterhouse & Tiesen, 1978; Otley, 1980).

In spite of this, there is empirical evidence that supports a positive association between managers' use of MAS information and performance. Chenhall & Morris (1986), and Mia & Chenhall (1994), state that MAS information is required for high-quality decisions and for the utilization of comparative advantages. That is why MAS has to provide information required for managerial decision-making (Dent, 1996; Govindarajan, 1984; Mia & Chenhall, 1994; Simons, 1990).

Since research about the design, development, and current practices associated with MAS in transition

economies and less developed countries is lacking (Haldma & Laats, 2002), this study is intended to make a contribution to the existing management accounting (MA) literature from the perspective of a transition economy by exploring the role of MAS in the decision-making process using the sample of Slovenian companies. Moreover, it analyzes MAS changes over the period of major changes in the Slovenian business environment (i.e., a questionnaire was distributed in 1995, 2001, 2006, and 2011). Changes over a period of time were analyzed since prior studies suggest that changes in the environment (political, social, and economic changes) significantly affect the development of MAS (Vamosi, 2003; Hopper *et al.*, 2009). The authors would like to note that many changes occurred in Slovenia during the analyzed period. The business environment was characterized by ownership transformation, followed by internationalization, the accession of Slovenia into the EU (2004), and the adoption of the Euro that followed in 2007. Finally, the period when the last questionnaire was distributed is characterized by financial crisis and environmental uncertainty. To date, this research is the largest of its kind in the Slovenian environment.

The scientific problem of the article is that despite the great importance of MAS, research on its characteristics in economies of transition and less-developed countries is lacking.

The aim of this study is to analyze the role of MAS and its changes over time from the perspective of a post-transition economy. *The objective* is to determine the characteristics of MAS from the perspective of Slovenia. *Research methods.* Based on the previous theoretical findings, we designed a questionnaire, which was distributed to Slovenian large and medium-sized companies in 1995, 2001, 2006, and 2011. Responses are analyzed by using quantitative research methods.

Novelty. The results of this study contribute to the existing management accounting literature because the research on the adaptation of management accounting to the environments of developing countries is limited.

Literature review

Management accounting (MA) in transition and less developed economies

Despite the fact that MA has been a widely endorsed topic by academic researchers in recent decades, these studies only occasionally refer to transition economies. The reasons may concern at least two facts. Firstly, most research was done in the field of financial accounting (Hopper *et al.*, 2009), and, secondly, the MA was less developed. It has received greater focus only in recent decades. At the beginning of this century (Haldma & Laats, 2002) determined that MA is still in its initial stage of development. To date, the situation has not changed significantly. So far an updated literature review of existing MA (Hopper *et al.*, 2009) has demonstrated that MAS in transition economies and less developed countries has still not been highly developed and comparable with developed market economies. However, the authors found that research in the field of MA in less developed countries is increasing, with a broader spread across less developed countries at different development stages. Yet, there is no extensive research in any of these countries (including Europe), apart from China. (Islam & Kantor, 2005) investigated the development of quality management accounting practices in China (a review of the literature based on MA practices in selected Asian countries was made also by (Sulaiman *et al.*, 2004). According to the authors, changes in the way enterprises are run in China have required more management information, and have consequently forced the development of MAS. Vamosi (2003) examined selected aspects of MA in a Hungarian company that shifted its operation from a command to a market economy. His results suggest that changes in accounting practice, to a larger extent, are a consequence of changes in the environment.

Management accounting practices in the case of Lithuania were explored by (Valanciene & Gimzauskiene, 2007; Strumickas & Valanciene, 2009; Jasiukevicius & Christauskas, 2011). (Valanciene & Gimzauskiene, 2007) analyzed the changing role of MA. They found that the changing role of MA depends upon the implementation level of modern MA concepts and the organization's ability to manage all capacities of these conceptions.

(Strumickas & Valanciene, 2009) provided evidence that the application of MA tools, their complexity and rapidity of MA changes, depend on the organization type. (Jasiukevicius & Christauskas, 2011) analyzed the application of performance measurement systems in the electricity sector of Lithuania. The results indicate that analyzed companies use mainly financial indicators. However, the importance of non-financial indicators is growing (see for example also Janes & Faganel, 2013).

(Luther & Longden, 2001; Waweru, Hoque & Uliana, 2004) focused on MA changes in South Africa, as a consequence of environmental changes.

The most prevalent theory recently in the field of MA is the contingency theory (see for example Kattan, Pike & Tayles, 2007). A continuous stream of empirical research in this area signals its importance (Gerdin & Greve, 2004). Contingency theory suggests that there is no ideal form of MAS, since the effectiveness and usefulness of MAS is contingent.

Even though the research area of MA within transition economies is getting broader interest, the design, development, and current practice associated with MAS in transition and less developed countries have not been studied enough in detail, especially in the case of Eastern Europe. Alawattage, Hopper & Wickramasinghe (2007) state that the lack of quantitative research in these countries is closely related to the difficulties relating to obtaining reliable data. These issues are neither well understood nor have been processed in prior literature.

Information for decision-making and management accounting systems

According to (Chenhall & Morris, 1986), MAS information is useful if it is characterized by the following attributes: timeliness, scope, aggregation, and integration. 'Timeliness' refers to frequency and speed of reporting. If the information provided by the MAS is not timely, management will not be able to use it because it will not be able to respond to events rapidly enough. 'Scope' refers to information related to the external environment, non-financial information, and information oriented towards the future. A traditional MAS was originally designed to provide information about events within the organization, above all monetary, and the focus was oriented towards data about historical events. Nowadays it must go beyond – and it also has to prepare relevant information for creating budgets. 'Aggregation' refers to the level of the data aggregation form. The information provided by the MAS has to take into account the aggregation related to the time period and the functional area, and finally also the analytical or decision models. Management at each level makes decisions that are within its competence and responsibility. For each level of decision-making, MAS provides appropriate information, while incorporating specific intents and decision contents. Top management has to receive more aggregated data than middle management, which needs more detailed information. The frequency of reporting is more important for middle management. Middle management needs to take more corrective actions than top management. The fourth characteristic of MAS is oriented towards integration. The

information flow has to be interacted within segments and their sub-units.

According to (Baiman, 1982), accounting information can serve two roles in affecting performance in organizations: a decision influencing role and a decision facilitating role. The use of MAS information for decision-influencing purposes is, according to (Christopher *et al.* 2009), intended to influence employee behavior. The decision facilitating role leads to improved action choices (improves employees' knowledge). Thus, accounting information influences employee behavior and it improves the organizational performance via improved action choices. The latter can be achieved only by providing suitable information for decision makers.

Studies have shown that as managers' perceived environmental uncertainty increases, they use MAS information more frequently, which leads to an improvement in their performance (Mia, 2002). Similarly, in a 'high task' uncertainty situation, the extent of the use of broad scope MAS information leads to effective managerial decisions, and hence to improved managerial performance (Chong, 1996; Gul & Chia, 1994). In times of a higher perceived environmental uncertainty, the availability of MAS information and aggregation have been associated with greater managerial performance. In today's highly competitive market environment in which the latest financial crisis has led to greater uncertainties, managers have more need for MAS information than ever before.

In summary, current literature demonstrates that MAS plays an important role in the process of decision-making and positively affects organizational performance. That is why we are interested in the role it plays in the decision-making process of Slovenian medium-sized and large companies that have undergone the process of transition.

Research framework

In accordance with (Hopper *et al.*, 2009) who provided evidence that transition economies and those in less developed countries have MAS that is less developed compared to those in traditional market economies, we are interested in the characteristics of MAS in the decision-making process of Slovenian companies and its changes over the analyzed period, especially in times of financial crisis. In accordance with the theoretical review (Mia, 2002) we hypothesize that: *in times of crisis (times of higher uncertainty) the management of selected Slovenian companies uses MAS information more frequently in comparison to times before the crisis.*

Data used and methodology

Studies exploring characteristics of MAS in companies, used questionnaires as the most frequent research method (Chenhall & Morris, 1986; Chong, 1996; Haldma & Laats, 2002; Valanciene & Gimzauskiene, 2007). Thus, it has been decided to collect data for the study using a quantitative research method, a questionnaire survey. We formulated a questionnaire based on previous literature (Chenhall & Morris, 1986). The questionnaire was distributed to selected Slovenian companies. Since prior studies suggest that changes in the environment

significantly affect the development of MAS (Vamosi, 2003; Hopper *et al.*, 2009) we distributed the questionnaire four times; i.e., at the end of 1995, 2001, 2006, and 2011. The research in 2001, 2006, and 2011 was an iteration of that performed in 1995. The year 1995 (the year of the first questionnaire) was characterized by ownership transformation, followed by internationalization – a process of increased involvement of Slovenian companies in international markets (the second questionnaire). 2004 marked the entrance of Slovenia into the EU (third questionnaire). The fourth questionnaire is characterized by financial crisis and increased market uncertainty.

In accordance with the fact that the delegation of authority to lower hierarchical levels (middle management) is reasonable only in medium-sized and large Slovenian companies, we excluded small companies from the analysis.

The questionnaire was divided into two parts. The first includes general information about the company; the second includes questions about the characteristics of MAS (the respondents were top and/or middle management).

The questionnaire was formed on the basis of the (Chenhall & Morris, 1986) definition of MAS attributes. These are defined by: timeliness (frequency and speed of reporting); scope (the extent of information provided by MAS); aggregation (the aggregation level of information provided to different decision-makers); and integration. We assessed the level of MAS development through the first three attributes (timeliness, scope, and aggregation), but were not able to objectively define the level of integration. Timeliness was integrated in an open-ended question about the frequency of MAS reporting to top and middle management. The scope and aggregation at different decision-making levels was investigated by analyzing the content of MAS information defined in open-ended questions.

Characteristics of MAS were tested by analyzing the frequency and content of information that managers receive from it. We analyzed the content of MAS information (open-ended questions), the scope for which such information is used and additional information provided by MAS (apart from those that concern the company). Moreover, respondents were asked if there are differences among information used on different hierarchical levels.

While timeliness, scope, and aggregation (as attributes of information quality) are one of the attributes in the process of decision-making, there are several other that affect it. Prominent among these are ones connected to the level of understanding of MAS information; and there are those regarding managerial reliance on MAS information closely linked to managerial confidence. And of course there are many others. This study assumes that these factors optimally affect the decision process, and so they are not included in the study.

To approach the characteristics of MAS within the period of analysis, firstly, the main features of all four surveys were analyzed.

Data analysis and interpretation of results

Research results are presented in the following order. Firstly, descriptive statistics of the population and our sample is specified. Secondly, the content of MAS information provided to top and middle management is presented (univariate analysis of the responses from all periods of our analysis). Statistical significance of frequency of MAS information in time, comparing times before the crisis and during times of crisis, is evaluated using the independent sample t-test (according to Gorard, 2003). Finally, differences in MAS information received by different levels of decision makers are explored using univariate analysis (analysis of frequency).

The population consists of 859 medium-sized and 288 large companies in the year 1995, 1,032 medium-sized and 287 large companies in 2001, 1,211 medium-sized and 264 large companies in 2006, and finally 2,082 medium-sized and 342 large companies in 2011 (SURS, 2013). Our analysis includes 54 medium-sized companies and 125

large companies in 1995, 58 medium-sized, and 151 large companies in 2001, 44 medium-sized and 54 large companies in 2006, and, finally, 40 medium-sized and 41 large companies in 2011. The structure of the companies by the number of employees is presented in table 1.

To more clearly understand which departments provide information for decision-making, companies were asked which departments provide this type of information. The question included the following close-ended responses (multiple choice responses): accounting department, analysts' department, both of them, operational staff, and others.

The data indicates that in all analyzed years the accounting department was the most important department providing information for decision-making (46 % in 1995, 56 % in 2001, 37 % in 2006, and 44 % in 2011). Other departments were less important. In 2011, compared to 2006, the importance of the accounting department rose slightly.

Table 1

Number of employees in companies that were included in the analysis

Number of employees	1995		2001		2006		2011	
	n	%	n	%	n	%	n	%
No answer	2	1,1	1	0,5	3	3,1	3	3,7
1-50	/	/	/	/	/	/	14	17,3
51-100	35	19,6	44	21,9	34	34,7	18	22,2
101-250	53	29,6	59	29,4	26	26,5	19	23,5
251-1000	68	38	73	36,3	28	28,6	18	22,2
More than 1000	21	11,7	24	11,9	7	7,1	9	11,1
Sum	179	100	201	100	98	100	81	100

Legend: the symbol / is used to indicate that no company was classified in the given class

Note: companies that did not provide the precise number of employees (no answer) were all classified as large or medium-sized companies (in accordance with Companies Act), which is why we did not exclude them from further analysis. In the 2011 survey companies with fewer than 50 employees are all classified as large or medium-sized companies (on the basis of other two criteria used for defining the size, such as net sales and value of total assets), and therefore are retained in the analysis.

Source: authors' data

On the basis of our results we can posit that it is crucial to understand the characteristics and development of MAS as the major source of information for decision-making.

The content and characteristics of MAS information used by top and middle management

Firstly, the content of open-ended questions was analyzed; i.e., what information is provided by MAS to top and middle management. Since companies could provide multiple responses, we received varied answers. Based on the responses it is reasonable to analyze classes of information which were provided by at least 20 % of the respondents (a large extent of information can be classified in groups that are used by less than 5 % of companies and so cannot be classified in groups of representative categories).

The information received by top and middle management was separated into different classes of information according to the frequency of reporting (i.e., daily, weekly, monthly, and annual level). The analysis of responses provided the following results. Both top and middle management received MA information for the most part on a monthly basis (in all four surveys).

Focusing on top management, the information provided by MAS can be classified in groups of the

following categories (classes of information which were provided by at least 20 % of the respondents):

- At the daily level: cash and liquidity information (in all four surveys; 55,9 % in 1995, 46,3 % in 2001, 36,7 % in 2006, and 39,7 % in 2011) was the most common information provided to top management. In 1995 the second most important MAS information regarded sales – 26,8 %. This was also the case in 2001 – 23,4 % and in 2011 – 20,6 %.

- On the weekly level the most often used were balance sheet and profit and loss account data - in 46,3 % of cases (in 2001) - and accounts receivable & payable information 23,5 % (in 2006); followed by sales at 36,3 % (in 2001), liquidity at 32,8 % (in 2001), and production at 20,4 % (in 2006). In 2011 the most important was information about sales – 31,7 %, followed by accounts receivable & payable information at 23,8 % and cash and liquidity information at 25,4 %. In 2011 information about sales and that concerning cash and liquidity information became notably more important than in 2006.

- Balance sheet and profit and loss account data on the monthly basis comprised: 65,9 % in 1995, 89,1 % in 2001, 89,8 % in 2006, and 77,7 % in 2011. In 2011 cash and liquidity information was provided to top management on a monthly basis in 33,3 % of cases. Information about sales was received by top management in 30.1% of cases.

The differences show that in 2011 top management was willing to receive more information about the liquidity and sales of the company.

– Balance sheet and profit and loss account data were most often used even on an annual basis: 68,7 % in 1995, 74,1 % in 2001, while in 2006 annual reports were the most often used, at 32,6 %. In 2011 the most frequently received information regarded financial accounts at 42,8 %, followed by the annual reports at 38,1 %.

The data shows that in times of crisis (fourth questionnaire) in comparison to the year 2006, top management was willing to receive much more information about cash and liquidity of the company, and more information about sales. The results are most probably a consequence of financial crisis, when the liquidity problem became very common.

On the other hand middle management received mostly (classes of information which were provided by at least 20 % of the respondents):

– At the daily level: information about production, which amounted to 21,2 % in 1995. Until 2011 all other information on the daily level was used in less than 20 % of cases. In 2011 information about the cash and liquidity was received by middle management in 20,6 % of cases.

– All information on the weekly level was used in less than 20 % of cases, except in 2011 when information about the cash and liquidity was received in 20,6 % of the analyzed companies.

– Balance sheet and profit and loss account data on the monthly level: 32,4 % in 1995, 45,2 % in 2001, followed in 2006 by performance analysis information (32,6 %) and once again balance sheet and profit and loss account data, 28,5 % in 2006. In 2011 middle management received information about sales most frequently at 23,8 %, and reports about performance at 20,6 %.

– Balance sheet and profit and loss account data on the annual level were: 35,7 % in 1995 and 30,8 % in 2001.

In 2006 no representative category was found. In 2011 annual reports were provided in 20,6 % of cases.

Analysis of the responses shows that in 2011 middle management also required more information about cash and liquidity of the company (daily and weekly). At the monthly level they required information about sales and reports about performance more frequently. Our analysis shows that most probably the environmental uncertainty and financial crisis forced management to monitor liquidity sales more frequently.

A detailed analysis of responses shows that before 2006 top and middle management only rarely made budgets or monitored their deviations. Further improvements in this regard can be noticed in 2011. On the other hand, information about investments, margins, in-depth performance analysis, and risk analysis are still too rarely reviewed.

To understand whether management use MAS information during the crisis more frequently, we compared the MAS information received by top and middle management between surveys performed in 2006 and 2011 (table 2). We gave a score of 1 to each item of information. The total amount of information was divided by the number of companies included in the analysis. We compared the responses from times before the crisis and the times of crisis using the independent sample t-test. We found that during the crisis, management received less information on the daily and monthly levels, while the extent of MAS information increased on both the weekly and annual levels. However, the results were statistically significant only on the annual level. All other differences were non-significant. Thus, on the basis of open-ended questions our results do not indicate that the amount of MAS information used by management has increased in the times of crisis.

Table 2

Amount of MAS information received by top and middle management in 2006 and 2011

Number of MAS information	Daily level	Weekly level	Monthly level	Annual level
2006 (n = 98)	205	196	398	163
- total	2,09	2	4,06	1,66
- per company				
2011 (n = 81)	127	203	252	243
- total	1,57	2,51	3,11	3
- per company				
Independent sample t-test	$P = 0,183 > \alpha = 0,05$	$P = 0,290 > \alpha = 0,05$	$P = 0,538 > \alpha = 0,05$	$P = 0,008 < \alpha = 0,05$

A more in-depth analysis of responses shows that top management receives more information from MAS than middle management (considering both the frequency of reporting in all periods and the average information per hierarchical level). These findings are inconsistent with the literature and best practice where middle management receives more frequent information and more detailed data than top management.

Moreover, managers at both levels were asked whether MAS provides additional information - i.e., apart from those for the company as a whole.

The data shows that for most categories presented in table 3, top management receives more information than middle management. The situation remained unchanged throughout the entire period of analysis. In 1995 top

management primarily received information about industry average, in 2001 and 2006 about profit centers, while in 2011 the most important information was about connected undertakings. On the other hand, middle management during the entire period received mostly information about profit centers.

Focusing on times of crisis and comparing the responses among surveys from 2006 and 2011 we found the following. The chi-square test provides evidence that information received by top management significantly differs between 2006 and 2011 in cases of information about profit centers ($P = 0,024 < \alpha = 0,05$) and connected undertakings based on consolidated financial reports ($P = 0,020 < \alpha = 0,05$). In both cases in 2011 this type of information was provided fewer times than in 2006. Other

changes in the case of top management were non-significant ($P > 0,05$; $\alpha = 0,05$). Similarly, middle management received statistically significantly fewer

information about profit centers in 2011 compared to 2006 ($P = 0,008 < \alpha = 0,05$). All other changes were statistically non-significant ($P > 0,05$; $\alpha = 0,05$).

Table 3

Additional MAS information for top and middle management (multiple response questions)

	1995				2001				2006				2011			
	TM (n = 179)		MM (n = 179)		TM (n = 201)		MM (n = 201)		TM (n = 98)		MM (n = 98)		TM (n = 81)		MM (n = 81)	
<i>Information about:</i>	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
1. Leading companies within the industry	48	26,8	32	17,9	74	36,8	35	17,4	27	27,6	12	12,2	18	22,2	7	8,6
2. Industry average	109	60,9	66	36,9	105	52,2	59	29,4	43	43,9	24	24,5	26	32,1	19	23,4
3. Economy as a whole	91	50,8	40	22,3	84	41,8	29	14,4	18	18,4	10	10,2	21	25,9	10	12,3
4. Similar companies	22	12,3	10	5,6	39	19,4	22	10,9	22	22,4	11	11,2	18	22,2	12	14,8
5. Profit centers	100	55,9	97	54,2	142	70,6	127	63,2	54	55,1	52	53,1	29	35,8	26	32,1
6. CU	64	35,8	26	14,5	111	55,2	49	24,4	48	49,0	18	18,4	32	39,5	11	13,6
7. CU based on CFI	49	27,4	19	10,6	103	51,2	34	16,9	40	40,8	11	11,2	19	23,4	6	7,4
8. Other information	2	1,1	/	/	3	1,5	1	0,5	4	4,1	4	4,1	2	2,5	0	0
9. No other information	22	12,3	41	22,9	17	8,5	37	18,4	13	13,3	20	20,4	7	8,4	16	19,7

Legend: The symbol / is used to indicate that no company was classified in the given class; TM-top management, MM-middle management, CU-connected undertakings, CFI-consolidated financial reports.

Source: authors' data and calculations

Additionally, management was asked whether the information received by MAS differ between levels of decision-makers (table 4). Surprisingly, many respondents (in all analyzed years) answered that there were no differences. Taking into consideration that the sample includes medium-sized and large companies, it would be expected that different hierarchical levels of decision-makers would receive information appropriate to specific needs. In 1995, 29,1 % of the analyzed companies reflected no differences in information between different hierarchical levels. After the first survey this situation improved. However, in 2011 almost 20 % of respondents still demonstrated no differences in information received

and used between top and middle management. However, it is worth noting that the situation is improving. The difference between 1995 and 2011 has decreased by almost 10 percentage points.

MAS should provide more aggregated information for top management. In 2011 the share of those companies where top management had more aggregated information in comparison to middle management has increased in comparison with 2006 (5 percentage points). However, the chi-square test found no statistical differences between answers received in 2006 compared to 2011 ($P > 0,05$; $\alpha = 0,05$).

Table 4

Differences in information between different hierarchical levels

	1995 (n = 179)		2001 (n = 201)		2006 (n = 98)		2011 (n = 81)	
	n	%	n	%	n	%	n	%
No answer	/	/	3	1,5	1	1	12	14,8
No differences	52	29,1	44	21,9	21	21,4	16	19,7
Top management has more aggregated information than middle management	55	30,7	57	28,4	23	23,5	23	28,4
Information is completely different	/	/	4	2	4	4,1	3	3,7
Some information is equal, some differentiated	66	36,9	84	41,8	47	48	27	33,4
We do not know	6	3,4	/	/	2	2	/	/
Total	179	100	201	100	98	100	81	100

Legend: the symbol / is used to indicate that no company was classified in the given class.

Source: authors' data

The questionnaire also asked about the principal scope of information provided to top management. Management was asked whether the information provided by MAS was intended to represent a basis for planning; were they supposed to be a basis for monitoring; was the information limited to an informative nature or whether it used for other purposes (table 5). Based on the presented results it is clear that from 2006 the MAS information for top management gained in importance as informative, while their importance decreased in the case of planning and monitoring purpose.

Our findings yield some interesting insights into MAS within Slovenian companies. During the current financial crisis, the top and middle management of selected companies did not use MAS information more frequently in comparison with times before the crisis. However, we found differences in the content of MAS information received by decision-makers. Liquidity issues and information about generated sales became considerably more important during the crisis.

Table 5

Principal purposes for which the MAS information was used

	1995		2001		2006		2011	
	(n = 179)		(n = 201)		(n = 98)		(n = 81)	
Information for:	n	%	n	%	n	%	n	%
Planning	130	72,6	151	75,1	79	81	47	58,0
Monitoring	100	55,9	118	58,7	89	91	30	37,0
Informative nature	136	76	158	78,6	60	61	52	64,2
For other purposes	9	5	10	5	7	7,1	2	2,5
No answer	/	/	/	/	/	/	9	11,1

Legend: the symbol / is used to indicate that no company was classified in the given class; TM is an abbreviation for top management.

Source: authors' data and calculations

The analysis of results also shows that both levels of management should (apart from information that concerns the company) devote more attention to information about companies operating within the same industry (table 3). MAS information should be used more frequently for planning and monitoring deviations rather than just informative purposes (table 5).

Conclusions

The literature review suggests that MAS in economies in transition and less-developed countries has still yet to become as highly developed as in advanced market economies. Prior research suggests that changes in MA practices, to a large extent, are a consequence of changes in the environment. Moreover, the changing role of MA depends upon the organization's ability to implement modern MA concepts. However, information about the design, development, and current practices associated with MAS in transition economies and less developed countries in the literature is lacking.

The purpose of this study was to identify the characteristics of the MAS from the perspective of one emerging economy, Slovenia. To date, this study is the largest of its kind in the Slovenian environment.

We found that the most important department that provides decision-making information within Slovenian middle-sized and large companies is the accounting department. Thus, the analysis confirms prior findings that suggest that the accounting department is a major source of information for managerial decision-making. Since findings of prior studies claimed that changes in the environment significantly affect the development of MAS we were interested in changes that occurred over a long period of time. Thus, the survey exploring the role of MAS in the decision-making process of selected Slovenian companies was performed four times - in 1995, 2001, 2006, and 2011. Since the literature suggests that in times of higher perceived environmental uncertainty the availability of MAS information is associated with higher managerial performance, we sought to determine whether in the current financial crisis selected companies used MAS information more frequently.

The findings show that we cannot confirm our hypothesis. The survey from 2011 indicates that management in Slovenian companies did not use MAS information more frequently in comparison to the survey from 2006. Significant differences were confirmed only for

Our findings draw attention to the fact that too often top and middle management receive equal information from MAS. The results indicate that MAS must be modernized and developed in a manner that satisfies the specific needs of different decision-makers.

MAS information provided at the annual level, while other differences were not significant. At the same time the data shows that on the daily and monthly levels the usage of MAS information did not become more frequent. On the other hand, our findings show that the content of MAS information received by top and middle management in times of crisis has changed. It can be noticed that both top and middle management were focused more on cash and liquidity issues. Results suggest that managements' primary concern in times of the crisis relates to controlling liquidity.

Our results show that until 2006 MAS was especially less developed than in traditional market economies. Contemporary techniques used in the management accounting field were not commonly used. Instead, some traditional techniques were most common. We found that the analyzed companies do not put enough effort into design budgets, monitoring deviations, planning investments, analyzing margins, carrying out in-depth performance analysis, and implementing risk analysis.

In the transition and the post-transition processes of Slovenia MAS has not been fully integrated into decision-making processes. Results show that top managers received more information than middle managers, which is inconsistent with current literature and best practice. The results are surprising, as we would expect that top management use MAS information for more long-term decision-making, while middle management does so for more short-term decisions. Changes in the environment specific to the first three surveys did not lead to any major changes. However, an improvement is notable between 2006 and 2011, indicating that companies are becoming aware of the role of MAS in providing different information for different decision-making levels.

This study represents a contribution to the current literature of management accounting from the perspective of an emerging economy. Our findings confirm previous studies, which determined that MAS in economies in

transition and in less developed countries remains less developed than in advanced market economies. Since previous research argued that in times of higher perceived environmental uncertainty, the availability of MAS information is associated with higher managerial performance, we expected that in the times of crisis Slovenian management would have used MAS information more frequently. Our results show that this was not the case. Thus, our evidence shows that Slovenian companies should invest more effort into developing more contemporary MAS.

The authors are aware that companies might not have disclosed all the information which is prepared for top and middle management, and thus the role of MAS in the survey might be undervalued. Moreover, our study does not determine how MAS information affects the companies' performance. This is the major limitation of the study.

Further research should analyze the role of MAS in other transition and post-transition countries in order to understand the level of MAS development in greater depth, the adaptation to changes in the environment, and the affect of MAS information on companies' performance.

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The article has been reviewed.

Received in July, 2013; accepted in February, 2015.