

DESIGN OF MANAGEMENT CONTROL SYSTEMS – A STUDY OF JOINT STOCK COMPANIES IN CROATIA

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This paper examines the issues related to the definition, concept and design of management control systems (MCS). Lack of knowledge about the development and design of MCS, and the need for systematic empirical research in this thematic area, are the main motivations for this research. This study seeks to explain the MCS within a Croatian context and it is one of few research studies conducted in the field of MCS in Croatia. In this research we used the concept of MCS that represents a combination of various cybernetic, administrative and cultural controls, as well as reward and compensation controls, with related techniques. This observation of MCS is wider and the strength of the typology lies in the broad scope of the controls in the MCS as a package, rather than the depth of its discussion as individual systems. The research adopted a survey methodology. Data were collected from 40 joint stock companies in Croatia using a post questionnaire. Final results suggest that joint stock companies in Croatia use more administrative and cybernetic controls than the reward and compensation controls and cultural controls as a part of MCS.

1. INTRODUCTION

What really makes a MCS is not precisely defined and further research is needed to examine the MCS concept and design. MCS supports the creativity of employees, improving the operational efficiency and competitiveness of enterprises. However, there is no universally best MCS that applies to all situations in any organization, much less all organizations (Merchant and Van der Stede, 2007).

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As there has been very little theoretical and empirical research on the concept of MCS as a package, despite the existence of the idea in management accounting literature for decades, this research provides a new concept of MCS that represents a combination of various cybernetic, reward and compensation, administrative, and cultural controls. The purpose of this paper is to add to the limited body of knowledge of the MCS design and to examine the concept of MCS as a package of multiple controls. To improve the process of research on this subject, it is necessary to determine those influential internal and external variables that affect the development and design of MCS. This research examines issues related to the purpose of MCS and the elements of MCS with no attempt to assess the meaning and measurement of influential factors and their relationship with different elements of MCS.

The paper is organized as follows. The following section provides a reference overview of the definitions of MCS. Section 3 outlines the structure of the research while the results are discussed in section 4. Finally, section 5 summarizes the empirical findings and provides a brief outlook for further research.

2. DEFINITION OF MANAGEMENT CONTROL SYSTEMS (MCS)

There are numerous definitions and descriptions of MCS. Some of those definitions overlap, whereas others are quite different from each other (Malmi and Brown, 2008). Chenhall (2003) describes terms such as management accounting (MA), management accounting systems (MAS) and management control systems (MCS) and defines them in the following way: *“MA refers to a collection of practices such as budgeting or product costing, while MAS refers to the systematic use of MA to achieve some goal. MCS is a broader term that encompasses MAS and also includes other controls such as personal or clan controls.”*

According to Kimura and Mourdoukoutas (2000), conventional management control systems “refer to the deployment of various techniques in hierarchical organizations in order to monitor and measure employee performance against certain management targets.” Anthony (1965) defines management control as “the process by which managers ensure that resources are obtained and used effectively and efficiently in the accomplishment of the organization's objectives.” Thus, MCS has two main purposes. The first is providing information useful to management and the second is helping to ensure viable patterns of employee behavior in order to achieve organizational objectives (Asel, 2009). A well-designed MCS supports and coordinates the

decision-making process and motivates individuals throughout the organization to act in concert (Srivastava and Rastogi, 2008).

According to Chenhall (2003), the definition of MCS has evolved over the years from one focusing on the provision of more formal and financially quantifiable information to one that embraces a much broader scope of information. The current trend in management control research is to combine the use of formal and informal systems, to create a control package, because it is considered that through the sole use of cybernetic systems it is impossible to control the relevant variables for an organization to achieve its objectives (Carenys, 2010). Techniques of management accounting and control need to be studied as part of a wider organizational control system, not only individually within a restricted context (Otley, 1999).

According to Malmi and Brown (2008), management controls include all the devices systems managers use to ensure that the behaviors and decisions of their employees are consistent with the organization's objectives and strategies. Their observation of MCS is wider in scope and the strength of the typology lies in the broad scope of controls in MCS as a package, rather than the depth of its discussion of individual systems. Management control systems (MCS) package is a collection or set of controls and control systems. The individual control systems may be more traditional accounting controls such as budgets and financial measures, along with more socially based controls such as values and culture controls. Organizations may have numerous controls present, and they all may be used to some extent to align individual's activities with organizational goals (Alvesson and Karreman, 2004; Flamholtz et al., 1985; Otley, 1980; Simons, 1995).

In this research we used the concept of MCS that represents a combination of various cybernetic, reward and compensation, administrative and cultural controls with related techniques. This concept is based on a research by Malmi and Brown (2008) which suggests a new typology for MCS structured around five groups: planning, cybernetic, reward and compensation, administrative and cultural controls. Instead of the original five controls, we used only four, i.e. cybernetic, reward and compensation, administrative and cultural controls. The reason for that was the detailed view in research model and simplicity.

There are four basic cybernetic systems that have been identified in MCS research that will be considered in this research: budgets, financial measures, non-financial measures and hybrids that contain both financial and non-financial measures (Malmi and Brown, 2008). Reward and compensation

controls focus on motivating and increasing the performance of individuals and groups within organizations by achieving congruence between their goals and those of the organization (Bonner and Sprinkle, 2002). This research is concerned with three attributes of reward and compensation controls: benchmarking for comparison, bonus determination criteria and performance evaluation criteria (Al-Dahiyat, 2003). For administrative controls, we consider three groups of controls: organization design and structure, governance structures within the company and the procedures and policies (Malmi and Brown, 2008). We also consider three aspects of cultural control: value-based controls, symbol-based controls and clan controls (Malmi and Brown, 2008).

3. STRUCTURE OF RESEARCH

As stated previously, the concept of MCS that represents a combination of various cybernetic, reward and compensation, administrative and cultural controls was used in this research. Budgets, financial measures, non-financial measures and hybrids were used for cybernetic controls. The master budget is a comprehensive set of budgets covering all phases of an organization's operations for a specified period of time (Hilton, 1999).

In the questionnaire, 6 questions were used to measure the use of different parts of master budget and 7 questions were used to measure the use of budgets for different purposes. In addition, 12 questions were used to measure the use of financial, non-financial and hybrid measures. The respondents answered 25 questions using a five-point Likert-type scale ranging from 1 (never used) to 5 (always used), to indicate the use of cybernetic controls.

For reward and compensation controls three questions were used to measure managerial evaluation and rewards system. The respondents were asked, using a five point Likert-type scale, to determine the degree of emphasis given to external standards, subjective criteria and long-term measures compared relative to internal standards, objective criteria and short-term measures when evaluating and comparing managerial performance and determining managerial bonus (Al-Dahiyat, 2003).

For administrative controls, two dimensions of organizational structure, centralization and formalization, were used. Centralization measures consisted of 6 items to capture the locus of decision making responsibility for several managerial decisions relating to capital budgeting, new product introduction, pricing policies of major product lines, penetration into new markets, major changes or new manufacturing processes and personnel policies. Formalization

measures consisted of 3 items that focused on measuring the extent of operating procedure documentation and degree of adherence to documented rules and procedures were used to capture this construct (Al-Dahiyat, 2003). The respondents were asked to indicate their degree of agreement or disagreement with the specified statement on a five-point Likert-type scale ranging from 1 (strongly agree) to 5 (strongly disagree).

Value-based controls, symbol-based controls and clan controls which impact employee behavior were used for cultural controls. The respondents indicated their degree of agreement or disagreement for each of the 3 statements by circling the appropriate number from 1 (strongly agree) to 5 (strongly disagree).

The research was based on data collected using post questionnaires sent to financial managers of 100 randomly selected joint stock companies in Croatia. Only those companies with at least 100 employees were included in the target sample. It is expected that small companies are less likely to have a real need for complex management control systems (Hoque, 2004).

The following material was sent to each of the respondents: a letter explaining the purpose of the research, the questionnaires, and a self-addressed, stamped return envelope. Each questionnaire consists of two sections. The first section asks respondents for general information about the business and the manager, and the second section requests information about MCS.

A total of 40 usable questionnaires were received, which leads to the response rate of 40%. For a field survey involving a complex questionnaire, such as in this research, a response rate of about 20-22% is usually considered very good (Saunders et al., 2009). Thus, it was decided that the response rate reached was adequate for conducting statistical analyses.

4. RESULTS OF THE RESEARCH

Table 1 presents the statistics on respondents in terms of their size. This study measures company's size according to the criteria of Accounting Law (Official Gazette, 109/07) which classifies entrepreneurs as small, medium and large according to the following criteria: total assets, revenues and average number of employees during the year. In the sample of 40 joint stock companies, 24 (60%) are medium size and 16 (40%) are large joint stock companies.

Table 1. Profile of respondents

Size of company	Medium	Large	Total (% of total)
Total	24 (60%)	16 (40%)	40 (100%)

Source: Empirical analysis.

This study classified companies according to the criteria of National Classification of Activities 2007 – NCA 2007 (Official Gazette, 58/07). This law classifies entrepreneurs in 21 different categories. A total of 50% of joint stock companies in the sample are manufacturing companies.

Descriptive statistics for cybernetic controls (budgets, financial measures, non-financial measures and hybrids) are presented in table 2 for the overall sample of 40 respondents. Six questions were used to measure the use of different parts of the master budget, 7 questions were used to measure the use of budgets for different purposes, and 12 questions were used to measure the use of financial, non-financial and hybrid measures.

Table 2. Descriptive statistics for cybernetic controls

Variables	Different parts of the master budget	Budgets for different purposes	Financial measures	Non-financial measures	Hybrid measures
N	40	40	40	40	36
Missing	0	0	0	0	4
Mean	4.1042	3.6196	4.2938	3.6804	2.8611
Std. Deviation	0.78054	0.78671	0.79640	0.79177	1.31264
Minimum	2.50	1.57	2.00	1.71	1.00
Maximum	5.00	5.00	5.00	5.00	5.00

Source: Empirical analysis.

Table 2 indicates that joint stock companies in Croatia most frequently used financial measurements, followed by different parts of the master budget. Findings also indicate that the hybrid measures were rarely used as a part of cybernetic controls. Descriptive statistics for reward and compensation controls are presented in table 3. Three questions were used to measure the use of reward and compensation controls. Table 3 indicates that joint stock companies in Croatia most frequently used external standards, subjective criteria and long-term measures when evaluating managerial performance and determining managerial bonus.

Table 3. Descriptive statistics for reward and compensation controls

Variables	Internal vs. external standards	Objective vs. subjective criteria	Short-term vs. long-term measures
N	38	37	37
Missing	2	3	3
Mean	2.5000	2.6757	2.8378
Std. Deviation	0.92269	1.13172	0.95782
Minimum	1.00	1.00	1.00
Maximum	4.00	5.00	5.00

Source: Empirical analysis.

Nine questions were used to measure the use of administrative controls. Centralization measures consisted of 6 items and formalization measures consisted of 3 items.

Descriptive statistics for administrative controls are presented in table 4. The obtained results indicate higher centralization than formalization in joint stock companies in Croatia.

Table 4. Descriptive statistics for administrative controls

Variables	Centralization	Formalization
N	40	39
Missing	0	1
Mean	4.2167	3.9530
Std. Deviation	0.83649	0.67207
Minimum	1.00	2.67
Maximum	5.00	5.00

Source: Empirical analysis.

Value based controls, symbol based controls and clan controls were used for cultural controls. Descriptive statistics for cultural controls are presented in table 5.

The results indicate that joint stock companies in Croatia used value based controls more frequently than symbol-based controls and clan controls.

Table 5. Descriptive statistics for cultural controls

Variables	Value based controls	Symbol based controls	Clan controls
N	40	39	38
Missing	0	1	2
Mean	3.5750	3.2051	2.9474
Std. Deviation	0.93060	1.00471	1.11373
Minimum	1.00	1.00	1.00
Maximum	5.00	5.00	5.00

Source: Empirical analysis.

Based on the reliability test, the variable of MCS has a Cronbach's alpha of 0.891. Descriptive statistics for four controls of MCS are presented in table 6.

Table 6. Descriptive statistics for MCS

Variables	Cybernetic controls	Reward and compensation controls	Administrative controls	Cultural controls
N	40	38	40	40
Missing	0	2	0	0
Mean	.	2.6930	4.0946	3.2542
Std. Deviation	0.63199	0.70341	0.74159	0.73379
Minimum	2.28	1.00	1.00	1.67
Maximum	5.00	4.00	5.00	4.67

Source: Empirical analysis.

According to the results of the research, joint stock companies in Croatia most frequently used administrative controls as a part of MCS, followed by cybernetic controls and cultural controls. Findings also indicate that the reward and compensation controls are rarely used as a part of MCS.

5. CONCLUSION

The purpose of this paper is to provide a review of MCS research, to critically evaluate this work and lay foundations to enable researchers to continue developing MCS research. The first challenge in undertaking MCS research is the definition of MCS. A number of definitions and descriptions of MCS exist. Some authors have outlined very broad conceptions of what could

be considered as MCS, but there are also narrower views of MCS. The lack of clarity and the inconsistencies in the definition of MCS have created a number of problems in MCS research regarding the interpretation of research results. Future studies need to focus on broad views of MCS and research MCS as a package of different controls.

The concept of MCS that represents a combination of various cybernetic, reward and compensation, administrative and cultural controls with related techniques used for the purpose of guiding and motivating employees to accomplish organizational goals was used in this research. This concept is based on a research by Malmi and Brown (2008) which suggests a new typology for researching MCS as a package of controls. The results of this research indicated that joint stock companies in Croatia most frequently used administrative controls as a part of MCS, followed by cybernetic controls and cultural controls. Findings also indicated that the reward and compensation controls were rarely used as a part of MCS.

The research is subject to a number of potential limitations. First, this research examines issues related to the definition and elements of MCS with no attempt to assess the meaning and measurement of influential factors and their impact on MCS. Second, the model is tested using survey data and thus is subject to the usual limitations associated with such data. Despite the potential limitations of the study, this is the first empirically study conducted in the field of MCS in Croatia.

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DIZAJN SUSTAVA MENADŽERSKE KONTROLE – STUDIJA DRUŠTVA S OGRANIČENOM ODGOVORNOŠĆU U HRVATSKOJ

Sažetak

U ovom se radu analizira problematika definicije, koncepta i dizajna menadžerskih sustava kontrole (MSK). Nedostatak znanja o razvoju i dizajnu MSK i potreba za sustavnim empirijskim istraživanjem ovog područja predstavljaju temeljnu motivaciju za provedbu istraživanja. U ovoj se studiji pokušava objasniti uloga MSK u hrvatskom kontekstu, a radi se o jednom od rijetkih istraživanja ove problematike u Hrvatskoj. U njemu se koristi koncept MSK kao kombinacije različitih kontrolnih mehanizama – kibernetičkih, administrativnih i kulturalnih, kao i mehanizama nagrađivanja te kompenzacija, pri čemu se proučavaju i povezane tehnike. Ovakvo promatranje MSK je široko postavljeno, a snaga korištene tipologije leži u širokom spletu kontrolnih mehanizama u MSK-u, prije negoli u „dubini“ diskusije pojedinačnih kontrolnih mehanizama. U istraživanju se koristi anketna metodologija, pri čemu su podaci prikupljeni poštanskom anketom iz 40 hrvatskih dioničkih društava. Rezultati istraživanja ukazuju da dionička društva u Hrvatskoj, u većoj mjeri, kao dio svog MSK, koriste administrativne i kibernetičke kontrolne mehanizme, negoli one koji se oslanjaju na kontrolu nagrađivanja i kompenzacija, odnosno na organizacijsku kulturu.

