THE 6TH INTERNATIONAL CONFERENCE
"THE CHANGING ECONOMIC LANDSCAPE:
ISSUES, IMPLICATIONS AND POLICY OPTIONS"
ISSN1331 – 677X (UDK 338)
May 30th - June 1st 2013

THE EFFECT OF CONTINGENCY FACTORS ON MANAGEMENT CONTROL SYSTEMS: A STUDY OF MANUFACTURING COMPANIES IN CROATIA

Ivana Dropulić[a]

[a] *PhD student, University of Split, Faculty of Economics, Cvite Fiskovića 5, Split, Croatia, ivana.dropulic@efst.hr, Assistant.*

ARTICLE INFO

Keywords:

- Management control systems (MCS)
- Croatia
- Contingency-based research
- Contingency factors

ABSTRACT

Using the contingency approach as a theoretical framework, the goal of this article is to investigate various contingency factors that explain design of management control systems (MCS) from a Croatian perspective. It is necessary to conduct empirical research of MCS in Croatia to identify the structure of MCS, since such research has not been carried out and it is unknown degree of development of MCS as well as influential variables. Data were collected from 47 manufacturing companies in Croatia using a post questionnaire. The data demonstrates that type of MCS utilized by companies is associated with the business strategy, company size and type but not with the external environment.

Reference to this paper should be made as follows: Dropulić I,. 2013. The effects of contingency factors on management control system: A study of manufacturing companies in Croatia, *Ekonomska istraživanja – Economic Research Special Issue 2013*

Copyright © 2013 Juraj Dobrila University of Pula, Faculty of Economics and Tourism "Dr. Mijo Mirković"
http://oetconference2013.estudy-oet.net/

I. INTRODUCTION

The main goal of this research is to define and systematically empirical researches design of MCS and contingency factors that explain MCS design in manufacturing companies in Croatia. The lack of clarity and inconsistencies in definition and concept of MCS has created a number of problems in MCS research in regards to the interpretation of research results and the design of MCS.[1]

Contingency-based research has a long tradition and it has become a dominant paradigm in empirical management accounting and control research. Contingency theory claims that "there is no universally acceptable model of the organization that explains the diversity of organizational design", therefore, "organizational design depends on contingent factors relevant to the situation"[2]. This study addresses the research question on whether contingency variables including business strategy, external environment, company size and type affect the design of management control system (MCS). Research was conducted in Croatia, on a sample of manufacturing companies of different sizes (small, medium and large) and different type (public limited companies and private limited companies).

The paper is organized as follows. The next section provides a literature review of the definitions of MCS and introduces the contingency approach as the theoretical framework of this study. In section III, various contingency factors that theoretically influence the design of MCS are provided. The contingency variables are business strategy, external environment, company size and type. Section IV outlines the field study design while the results are discussed in section V. Finally, Section VI summarizes the empirical findings and provides a brief outlook for further research.

II. DEFINITION OF MANAGEMENT CONTROL SYSTEMS (MCS)

Anthony[3] defines management control like "the process by which managers ensure that resources are obtained and used effectively and efficiently in the accomplishment of the organization's objectives." Simons[4] argues that "MCS are the formal, information-based routines and procedures managers use to maintain or alter patterns in organizational activities."

Kloot[5] defines management control systems like instrument which "assist managers in performing all of the control functions of planning, decision-making, motivating, coordinating, communicating objectives, providing feedback and integrating activities within complex organizations, indicating the broad nature of control, not limited to accounting and budgeting systems."

According to Otley's[6] definition "management control systems provide information

---

[1] Teemu Malmi and David A. Brown, "Management control systems as a package—Opportunities, challenges and research directions," Management Accounting Research 19, no. 4 (2008): 289.

[2] Zahirul Hoque, Strategic Management Accounting – Concepts, Processes and Issues (London; Rollinsford, NH: Spiro Press, 2003), 12.

[3] Robert N. Anthony, Planning and Control Systems: A Framework for Analysis (Boston: Harvard University, 1965), 17.

[4] Robert Simons, Levers of control: How Managers Use Innovative Control Systems to Drive Strategic Renewal (Boston: Harvard University Press, 1995), 5.

[5] Louise Kloot, "Organizational learning and management control systems: responding to environmental change," Management Accounting Research 8, no. 1 (1997): 51.

[6] David Otley, ""Performance management: a framework for management control systems research," Management Accounting Research 10, no. 4 (1999): 364.

that is intended to be useful to managers in performing their jobs and to assist organizations in developing and maintaining viable patterns of behavior." MCS helps organizations to motivate employees to make decisions and to take actions which are in the organization's best interest.[7]

The current trend in management control research is to combine the use of formal with 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.[8] According to Malmi and Brown[9] management controls include all the devices and systems managers use to ensure that the behaviors of their employees are consistent with the organization's objectives and strategies. Their 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 of individual systems. Because there has been very little explicit theoretical and empirical research on the concept of MCS as a package, despite the existence of the idea in management accounting literature for decades, they provide a new typology for MCS structured around five groups: planning, cybernetic, reward and compensation, administrative and cultural controls.

In designing and using MCS managers must consider a large number of situational factors that individually and collectively affect the effectiveness of the various management controls[10]. Thus, a contingency approach assumes that the design and the application of MCS are influenced by the context in which they are applied[11].

We used the concept of MCS that represents a combination of various cybernetic controls and cultural controls with related techniques used for the purpose of guiding and motivating employees to accomplish organizational goals. This concept is based on research of Malmi and Brown[12] which suggests studying of MCS as a package of controls, but we used only two types of control, cybernetic and cultural controls, instead of original five controls. The reason for that has been the detailed view in research model, simplicity and expectation of author that cybernetic and cultural controls are the dominant controls used by companies in Croatia in relation to other types of control systems.[13]

III. THE CONTINGENCY VARIABLES

Important role in identification of contingency variables that influence on MCS design have contingency theory. Early accounting researchers investigate the importance of environment, technology, structure, size, strategy and national culture to the design of MCS[14]. In this research,

---

[7] Chee W. Chow, Michael D. Shields, and Anne Wu, "The importance of national culture in the design of and preference for management controls for multi-national operations," Accounting, Organizations and Society 24, no. 5-6 (1999): 441.
[8] Jordi Carenys, "Management Control Systems: A Historical Perspective," International Bulletin of Business Administration, no. 7 (2010): 37.
[9] Malmi and Brown, 287-300.
[10] Kenneth A. Merchant and Wim A. Van der Stede, Management control systems: performance measurement, evaluation and incentives (England: Prentice Hall, Pearson Education Limited, 2007), 723.
[11] Robert H. Chenhall, "Theorising contingencies in management control systems research," in Handbook of Management Accounting Research, ed. Christopher S. Chapman, Anthony G. Hopwood and Michael D. Shields (Oxford: Elsevier Ltd., 2007), 164.
[12] Malmi and Brown, 287-300.
[13] Ivica Pervan, "Utilization of Accounting Information for Decision Making in Croatian SME: Preliminary Findings," The Business Review 19, no. 2 (2012): 165.
Robert H. Chenhall, "Management control systems design within its organizational context: findings from contingency-based research and directions for the future," Accounting, Organizations and Society 28, no. 2-3 (2003): 128.

business strategy, external environment, company size and type will be proposed as influencing contingency factors on MCS design in manufacturing companies in Croatia.

A. Business strategy

Existing knowledge of the relationship between strategy and MCS is limited and provide considerable scope for further research.[15] The research evidence of the relationship between MCS and strategy is fragmentary and sometimes conflict because strategy has been operationalized and measured in many different ways in contingency research.

Porter[16] presented a model with three different types of business strategies - cost leadership, differentiation and focus. Porter's generic strategies of low cost and differentiation have remained the dominant typology used in the MCS researches. This research is based on Porter's generic strategies for the reason of being the most empirically tested and present concept that the participants can easily understand.[17] One criticism towards this typology is that it was developed several years ago and hasn't got a realistic description of today's situation, but Porter's typology is flexible and it has space for adaptation.[18] Although Porter also identifies broad focus as a strategy it has been argued that broad focus is not an explicit strategy and since this confusion researchers have tended to examine only the cost leadership and the differentiation strategy. Therefore this study will focus on the cost leadership and differentiation strategy as the main strategic options.

The concern of this study is that management control system design well be contingent on business strategy. The preceding arguments lead to the following null hypothesis

H1: Business strategy will not affect management control system design.

B. External environment

According to Chenhall[19] the external environment is a powerful contingency variable that is at the foundation of contingency-based research and the most widely researched aspect of the environment is uncertainty. Environmental uncertainty refers to the broad set of factors that make it difficult to predict the future in a given area[20].

The research evidence shows that the external environment or perceived environmental uncertainty (PEU) has some powerful effects on design of MCS[21], but the results were inconsistent and conflicting because of variations in the measure of PEU[22]. According to Milliken[23] environmental

---

[15] Kim Langfield-Smith, "Management control systems and strategy: A critical review," Accounting, Organizations and Society 22, no. 2 (1997): 207.

[16] Michael E. Porter, Competitive strategy (New York: Free Press, 1980).

[17] Mathew Tsamenyi, Sunil Sahadev, and Zheng Shi Qiao, "The relationship between business strategy, management control systems and performance: Evidence from China," Advances in Accounting, incorporating Advances in International Accounting 27, no. 1 (2011): 194.

[18] Kent Marshall and Mikael Snygg, "Business Strategy and Management Control Measures for Success" (Master Thesis, Bleking Institute of Technology, School of Management, Sweden, 2004).

[19] Chenhall, Management control systems, 137.

[20] Merchant and Van der Stede, 724.

[21] Sofiah Md Auzair, "The effect of business strategy and external environment on management control systems: a study of Malaysian hotels," International Journal of Business and Social Science 2, no. 13 (2011): 238.

[22] Divesh S. Sharma, "The differential effect of environmental dimensionality, size, and structure on budget system characteristics in hotels," Management Accounting Research 13, no. 1 (2002): 102.

[23] Frances J. Milliken, "Three Types of Perceived Uncertainty About the Environment: State, Effect, and Response Uncertainty," The Academy of Management Review 12, no. 1 (1987): 136.

uncertainty will be defined as "an individual's perceived inability to predict something accurately" because of a "lack of information" or "an ability to discriminate between relevant and irrelevant data". In this study environment will be considered by the aspect of "perceived environmental uncertainty" (PEU) and its influence on MCS will be tested on a sample of manufacturing companies.

The concern in the study is that external environment will affect the management control system design. The null hypothesis of this research question is then as follows:

H2: External environment will not affect the management control system design.

C. Company size

Although only a few of MCS studies have explicitly considered size as a contingency variable, in this study it will be included as other researches, that have examined size, have considered its effects together with other elements of context such as technology and strategy. There are several ways of measuring size and these include profits, sales volume, assets, share valuation and employees, but the most contingency-based MCS studies have defined and measured size as the number of employees. Precise measure of size could be important depending on the element of context and dimensions of MCS being studied.[24]

This study measures company size according to the criteria of Accounting Law[25]. Concerning measurement, this law classifies companies as small, medium and large according to the following criteria: total assets, revenues and average number of employees during the year.

The concern in the study is that company size will affect the management control system design. The null hypothesis of this research question is then as follows:

H3: Company size will not affect management control system design.

D. Company type

A company is a legal entity established and organized in accordance with the Companies Act.[26] In Croatia, company forms are: private limited companies (Cro: d.o.o), public limited company (Cro: d.d.), general partnership (Cro: j.t.d.), limited partnership (Cro: k.d.) and economic interest association (Cro: GIU). All companies in sample of this research are private limited companies and public limited companies.

Private limited companies (d.o.o.) are the most frequent type of company in Croatia. A private limited company is one in which one or more legal entities or natural persons invest in initial authorized stakes, with which they participate in the total authorized capital as contractually set beforehand. A public limited company (d.d.) is based on capital, with owners (shareholders) investing in authorized capital divided into shares.[27]

In summary, company type will affect the management control system design. The null hypothesis of this research question is then as follows:

---

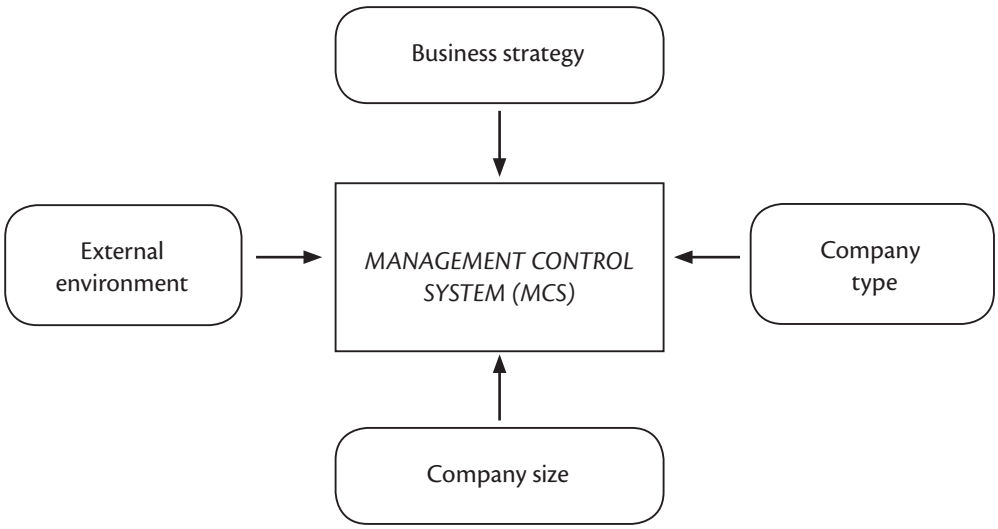
[24] Chenhall, Management control systems, 148-150.
[25] Accounting Law, Zagreb: The Official Gazette of the Republic of Croatia 109, 2007.
[26] Companies Act, Zagreb: The Official Gazette of the Republic of Croatia 111, 1993
[27] Croatian Chamber of Economy, "How to Start Up an Enterprise in Croatia," Croatian Chamber of Economy, http://www2.hgk.hr/en/How_To_Start_Up_an_Enterprise_in_Croatia.asp?izbor=01_companies (accessed March 20, 2013).

H4: Company type will not affect management control system design.

IV. The Structure of the Research

The research framework used in this study is as follows:

FIGURE 1. THE RESEARCH MODEL



Source: Author's research model

According to previous researches[28] of MCS, the model of research can be formulated as follows:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e_1 \quad (1)$$

Where:

- Y - Management control system - MCS (measured by the total index of MCS including the components of cybernetic and cultural control systems)
- X_1 - Business strategy (measured by an index resulting from summation of nine items)
- X_2 - External environment (measured by perceived environment uncertainty)
- X_3 - Company size (small, medium or large company)
- X_4 – Company type (public or private limited company)
- $\beta_{1...4}$ – Regression coefficients
- β_0 – Constant
- e_1 – Random term.

A. Measurement of variables

The measured variables include business strategy (BS), external environment (PEU), company size (SIZ), company type (TYP) and management control system (MCS).

To measure business strategy, cost leadership and differentiation, we adopted the instrument originally developed by Govindarajan[29] and subsequently extended by Jermias and Gani[30] which include, instead of the original six, nine items: product selling price, percent of sales spent on research and development, product significantly higher, respondents are asked to position their company relative to their competitor across the nine items above. The questions were intended to signify the strategic choice of the company where a higher score indicates product differentiation and lower score indicates low cost strategies.[31]

In this study, the variable external environment was named perceived environmental uncertainty (PEU) to recognize the fact that environmental uncertainty is assessed using perceptual measures, rather than objective measures, as only through managerial perception environmental becomes known to the organizations[32]. PEU was measured using eight variables. Respondents were asked, on a five-point Likert scale ranging from 1 (very predictable) to 5 (very unpredictable), to indicate their perceptions of the relative predictability of the eight items of the company's environment. The eight items were supposed to measure the respondents' perceptions on the predictability of various aspects of their organization's suppliers, competitors, customers, economic environment, government regulation, production and information technologies, industrial relations and deregulation and globalization.[33]

To measure the company size we used the criteria of Accounting Law[34]. This law classifies entrepreneurs as small, medium and large according to the three criteria: total assets, revenues and average number of employees during the year. Small entrepreneurs are those that do not exceed two of the following conditions: total assets of 32,500,000.00 HRK[35], revenue of 65,000,000.00 HRK and average number of employees during the financial quality, product features, brand image, introduction of new products, changes in design, fast and delivery, and post sales support. Using a five-point scale, 1 for significantly lowers and 5 for

year: 50. Medium entrepreneurs are those which exceed the previous two conditions, but do not exceed two of the following conditions: total assets of 130,000,000.00 HRK, revenue of 260,000,000.00 HRK and average number of employees during the financial year: 250. Large enterprises are those which exceed the previous two conditions. Also, large enterprises in terms of this Act are banks, savings banks, building societies, electronic money institutions, and other.

All companies are registered in a court register following the Court Register Act and the

---

[29] Vijay Govindarajan, "A contingency approach to strategy implementation at the business-unit level: Integrating administrative mechanisms with strategy," Academy of Management Journal 31, no. 4 (1988): 851.

[30] Johnny Jermias and Lindawati Gani, "Integrating business strategy, organizational configurations and management accounting systems with business unit effectiveness: a fitness landscape approach," Management Accounting Research 15, no. 2 (2004): 190.

[31] Tsamenyi, Sahadev and Qiao, 196.

[32] Ruzita Jusoh, "The influence of perceived environmental uncertainty, firm size, and strategy on multiple performance measures usage," African Journal of Business Management 4, no.10 (2010): 1978.

[33] Zahirul Hoque, "Linking environmental uncertainty to non-financial performance measures and performance: a research note," The British Accounting Review 37, no. 4 (2005): 474.

[34] Accounting Law.

[35] 1 EUR = 7,625330 HRK (Croatian National Banka, Zagreb).

Rules of Court Register Entry Procedures. According to Croatian Companies Act[36] they are defined as a private limited company, public limited company, general partnership, limited partnership and economic interest association. Therefore, company type is defined by Croatian Companies Act.

As we said previously, in this study we used the concept of MCS that represents a combination of various cybernetic controls and cultural controls. For cybernetic controls we used: budgets, financial measures and non-financial measures. The master budget[37] is a comprehensive set of budgets covering all phases of an organization's operations for a specified period of time. In the questionnaire, with 6 questions, was measured the use of different parts of master budget and with 7 questions was measured the use of budgets for different purposes. Also, with 11 questions was measured the use of financial and non-financial measures. Respondents were asked, on a five-point Likert scale ranging from 1 (never used) to 5 (always used), to indicate the use of cybernetic controls along the above 25 questions.

For cultural controls we used value based controls, symbol based controls and clan controls which impact employee behavior[38]. The respondents for each of the 3 questions circled the appropriate number from 1 (strongly agree) to 5 (strongly disagree) corresponding degree of agreement or disagreement with the specified statement.

B. Description of the samples

The population of this research is defined as all manufacturing companies in Croatia with at least 100 employees. The justifications for selecting this category of organizations are as follows: only companies with at least 100 employees were included in the target sample. The reason for this is that companies, employing less than 100 employees, are expected not to rely on sophisticated and complex designed MCS.[39] Also, it was decided to include only companies operating in the manufacturing industry. The rationale behind this decision is based on the argument that manufacturing companies may design their MCSs differently than non-manufacturing industries.[40] Thus, moving from one industry sector to another may cause problems in terms of comparability among measures of MCS and its correlate.[41]

Having defined the research population, and the criteria to be used to select a representative sample, it was necessary to identify the sampling frame or the appropriate list of the population from which the sample could be drawn. The sampling frame was based on the CCE[42] (Croatian Chamber of Economy) database. The CCE database provided 328 companies from manufacturing industry with at least 100 employees.

Having chosen the sampling frame it was necessary to determine the sample size and

---

[36] Companies Act.
[37] Ronald W. Hilton, Managerial Accounting (United States of America: Irwin/McGraw-Hill, 1999), 337.
[38] Malmi and Brown, 294-295.
[39] Zahirul Hoque, "A contingency model of the association between strategy, environmental uncertainty and performance measurement: impact on organizational performance," International Business Review 13, no. 4 (2004): 490.
[40] Joseph Fisher, "Contingency-based research on management control systems: Categorization by level of complexity," Journal of Accounting Literature 14, no. 1 (1995): 53.
[41] Mohammed Abdul Rahim Al-Dahiyat, "Towards an effective design of Management control systems: a contingency approach, http://eprints.hud.ac.uk/5939/1/273719.pdf, (accessed June 2, 2010).
[42] Croatian Chamber of Economy, "The Croatian Company Directory," Croatian Chamber of Economy, http://www1.biznet.hr/HgkWeb/do/extlogon (accessed March 29, 2013).

to select a random sample which depends on funds, time and the planned method of analyses. Bearing this in mind, and given that the research objectives require a small amount of data to conducting statistical techniques, 50% or 164 companies were randomly selected from this population for further research. Of 164 questionnaires sent out, a total of 47 questionnaires were returned. Thus, the 47 responses were used in the data analysis of this study, making a usable response rate of 29%.

The study was based on data collected using post questionnaires sent to the financial managers of companies from manufacturing industry. Each questionnaire consists of three sections. The first section asks respondents for general information's about business and manager. The second section requests information about management control systems, the three section requests information about business strategy and external environment as influencing contingency factors on MCS design. Data about company size and type were collected from database of Croatian Chamber of Economy.

Table 1 presents the statistics on respondents in terms of size (small, medium and large) and type of company (public limited company - 0 and private limited company - 1).

TABLE 1 - PROFILE OF THE RESPONDENTS

Type of company/size	*Large*	*Medium*	*Small*	*Total (% of total)*
Public limited company	7	13	0	20 (43%)
Private limited company	5	17	5	27 (57%)
Total	12 (25%)	30 (64%)	5 (11%)	47 (100%)

Source: Research results

As only 5 companies classified as small companies, categories small and medium size companies were combined into a single category, namely medium size companies. Thus, only two sizes, medium - 0 and large - 1, were analyzed.

Descriptive statistics for measures used in tests of our hypotheses (business strategy, external environment and management control system) are presented in table 2 for the overall sample of 47 respondents.

TABLE 2 – DESCRIPTIVE STATISTIC

Variables	*N*	*Mean*	*Median*	*Std. deviation*	*Min.*	*Max.*
Business strategy (BS)	47	3.4657	3.5556	0.61675	1.89	4.67
External environment (PEU)	47	3.0612	3.1250	0.82705	1.00	4.88
Management control system (MCS)	47	3.7699	3.8889	0.61837	2.22	4.71

Source: Research results

Based on the reliability test, the variables have a Cronbach's alpha of 0.922 for MCS, 0.869 for PEU and 0.877 for business strategy.

Table 3 displays a Pearson correlation matrix for all variables in model. Examination of the correlation matrix suggest there were not too highly correlated, thus, multicollinearity problem is unlikely to exist.

TABLE 3 – PEARSON CORRELATION MATRIX

Variables	*MCS*	*PEU*	*BS*	*Company size*
MCS				
PEU	-0.051			
BS	0.458**	0.013		
Company size	0.342*	0.090	0.131	
Company type	-0.436**	-0.015	-0.229	-0.187

Source: Research results.

N = 47
**p<0.01 (two-tailed).
*p<0.05 (two-tailed).

V. The results of the research

Model test the effect of contingency variables (including business strategy, perceived environment uncertainty, company size and type) on MCS design. It is suggesting that all variable as a whole have contributed to the MCS design (table 5).

TABLE 5 – TEST OF MODEL

Model	*Sum of Squares*	*df*	*Mean Square*	*F*	*Sig.*
Regression	6.796	4	1.699	6.611	0.000
Residual	10.794	42	0.257		
Total	17.589	46			

Source: Research results

In all four hypotheses, individual contingency variables were expected to influence on MCS design. Logically, a variable that influences on MCS design of a company individually should also influence on MCS design in combination with other variables. However, further analysis has provided clear insight about the three variables, business strategy and company type, that significantly influences on MCS design and company size which contribute to MCS design at the significantly of 10%.

TABLE 6 – MULTIPLE REGRESSION ANALYSIS

	Unstandardized Coefficients		*Standardized Coefficients*		
Model	***B***	***Std. Error***	***Beta***	***t***	***Sig.***
(Constant)	2.551	0.713		3.576	0.001
BS	0.357	0.125	0.356	2.852	0.007**
PEU	-0.062	0.091	-0.082	-0.678	0.502
Company size	0.344	0.174	0.245	1.976	0.055°
Company type	-0.384	0.156	-0.311	-2.468	0.018*

Source: Research results

Dependent Variable: MCS

**p<0.01
*p<0.05
°p<0.10

H1 of this study is as follows: Business strategy will not affect management control system design. As indicated in table 6, this study has rejected the hypothesis suggesting the variable can contribute significantly to MCS design.

H2 predicting that external environment will not affect the management control system design is significantly accepted. Evidence indicated in Table 6 explains the value of coefficient of -0.062 and standard error of 0.091 has probability of 0.502 higher than 5% and 10%. Based on the test, H2 has been accepted.

H3: Company size will not affect management control system design. Due to fact that its coefficient value of 0.344 with the standard error of 0.174, asserting that size will not affect management control system design, seems to be rejected at the significance of 10%, suggesting that the company size contribute to MCS design.

The last hypothesis of this study is H4 predicting that company type will not affect the management control system design is significantly rejected. As indicated in table 6, this study has rejected the hypothesis H4 suggesting the company type can contribute significantly to MCS design (variable with coefficient of -0.384 and standard error of 0.156 has probability of 0.018 less than 5%).

The coefficients β_1 (business strategy) and β_3 (company size) were positive and significant ($p \leq 0.01$ and $p \leq 0.10$). The unstandardized coefficient β_4 (company type) was negative and significant ($p \leq 0.05$) and unstandardized coefficient β_2 (PEU) was negative and not significant ($p \geq 0.10$). The unstandardized coefficients suggest that company type was the most important variable explaining MCS design, followed by business strategy, and company size.

VI. CONCLUSION

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. Future studies need to focus their attention on broad views of MCS and research MCS as a package of different control.

Although there is a large number of studies of contingency factors and their impact on MCS design, the results of these studies are contradictory. The inconsistent definitions and measurements of variables used in research and the tendency of researchers to study the relationship between one contingency variable and one MCS control have led to poor understanding and knowledge of this issue in today's environment. Future studies need to focus their attention on MCS as a "package" of controls and explore the influence of multiple contingency factors on MCS design.

This research draws on prior research and uses a contingency approach to identify variables that are relevant to the MCS design in manufacturing companies. To some extent, findings of the current study reconfirm prior studies. However, this study also offers several new insights into the design of MCS.

In general, the results suggest:

- Companies pursuing a differentiation strategy place greater emphasis on cybernetic and cultural controls as a part of MCS than companies pursuing a cost leadership strategy.
- Large companies place greater emphasis on cybernetic and cultural controls as a part of MCS than medium companies.
- Public limited companies place greater emphasis on cybernetic and cultural controls as a part of MCS than private limited companies.

The study is subject to a number of potential limitations. First, the findings of this study are based on data from a manufacturing industry, that might not necessarily reflect the general pattern of companies but the advantage of using a single industry, however, is that the influence of business environment is greatly minimized. Second, the model is tested using survey data and thus is subject to the usual limitations associated with such data. Third, the model is relatively simplistic although we recognize that MCS involves multiple control systems but this study only focuses on cybernetic and cultural controls. Another limitation of the study relates to the instrument we adopted in measuring strategy. Our instrument assumes that strategy can be measured on a continuum with low cost and differentiated strategies at the opposite end.[43] However, this approach can be criticized on the grounds that it does not allow us to determine firms that follow both strategies at the same time. A possible solution is to adopt a separate measurement instrument for both sets of strategies.[44] Despite the potential limitations of the study, this is the first empirically study conducted in the field of MCS in Croatia.

[43] Jermias and Gani, 185.
[44] Auzair and Langfield-Smith, 411-412.

VII. REFERENCES

Accounting Law, Zagreb: The Official Gazette of the Republic of Croatia 109, 2007.

Al-Dahiyat, Mohammed Abdul Rahim. "Towards an effective design of Management control systems: a contingency approach, http://eprints.hud.ac.uk/5939/1/273719.pdf, (accessed June 2, 2010).

Anthony, Robert N. *Planning and Control Systems: A Framework for Analysis*. Boston: Harvard University, 1965.

Auzair, Sofiah Md. "The effect of business strategy and external environment on management control systems: a study of Malaysian hotels." *International Journal of Business and Social Science* 2, no. 13 (2011): 236-244.

Auzair, Sofiah Md. and Langfield-Smith, Kim. "The effect of service process type, business strategy and life-cycle stage on bureaucratic MCS in service organizations." *Management Accounting Research* 16, no. 4 (2005): 399–421.

Carenys, Jordi. "Management Control Systems: A Historical Perspective." *International Bulletin of Business Administration*, no.7 (2010): 37-54.

Chenhall, Robert H. "Management control systems design within its organizational context: findings from contingency-based research and directions for the future." *Accounting, Organizations and Society* 28, no. 2-3 (2003): 127–168.

Chenhall, Robert H. Theorizing contingencies in management control systems research, Edited by Chapman, C.S., Hopwood, A.G., Shields, M.D., Handbook of Management Accounting Research, Elsevier, Oxford, 2007.

Chow, Chee W., Shields, Michael D., and Wu, Anne. "The importance of national culture in the design of and preference for management controls for multi-national operations." *Accounting, Organizations and Society* 24, no. 5-6 (1999): 441-461.

Companies Act, Zagreb: The Official Gazette of the Republic of Croatia 111, 1993.

Croatian Chamber of Economy. "How to Start Up an Enterprise in Croatia" Croatian Chamber of Economy, http://www2.hgk.hr/en/depts/information/poduz_dj_2012_EN.pdf.

Croatian Chamber of Economy. "The Croatian Company Directory." Croatian Chamber of Economy, http://www1.biznet.hr/HgkWeb/do/extlogon.

Fisher, Joseph. "Contingency-based research on management control systems: Categorization by level of complexity." *Journal of Accounting Literature* 14, no. 1 (1995): 24-53.

Govindarajan, Vijay. "A contingency approach to strategy implementation at the business-unit level: Integrating administrative mechanisms with strategy." *Academy of Management Journal* 31, no. 4 (1988): 828-853.

Hilton, Ronald W. *Managerial Accounting.* United States of America: Irwin/McGraw-Hill, 1999.

Hoque, Zahirul. Strategic Management Accounting – Concepts, Processes and Issues. London; Rollinsford, NH: Spiro Press, 2003.

Hoque, Zahirul. "A contingency model of the association between strategy, environmental uncertainty and performance measurement: impact on organizational performance." *International Business Review* 13, no. 4 (2004): 485–502.

Hoque, Zahirul. "Linking environmental uncertainty to non-financial performance measures and performance: a research note." *The British Accounting Review* 37, no. 4 (2005): 471-481.

Jermias, Johnny and Lindawati Gani. "Integrating business strategy, organizational configurations and management accounting systems with business unit effectiveness: a fitness landscape approach." *Management Accounting Research* 15, no. 2 (2004): 179-200.

Jusoh, Ruzita. "The influence of perceived environmental uncertainty, firm size, and strategy on multiple performance measures usage." *African Journal of Business Management* 4, no.10 (2010): 1972-1984.

Kloot, Louise. "Organizational learning and management control systems: responding to environmental change." *Management Accounting Research* 8, no. 1 (1997): 47-73.

Langfield-Smith, Kim. "Management control systems and strategy: A critical review." *Accounting, Organizations and Society* 22, no. 2 (1997): 207-232.

Malmi, Teemu and David A. Brown. "Management control systems as a package—Opportunities, challenges and research directions." *Management Accounting Research* 19, no. 4 (2008): 287-300.

Marshall, Kent and Snygg, Mikael. "Business Strategy and Management Control Measures for Success." Master Thesis, Bleking Institute of Technology, School of Management, Sweden, 2004.

Merchant, Kenneth A., and Van der Stede, Wim A. *Management control systems: performance measurement, evaluation and incentives*. England: Prentice Hall, Pearson Education Limited, 2007.

Milliken, Frances J. "Three Types of Perceived Uncertainty about the Environment: State, Effect, and Response Uncertainty." *The Academy of Management Review* 12, no. 1 (1987): 133-143.

Otley, David. "Performance management: a framework for management control systems research." *Management Accounting Research* 10, no. 4 (1999): 363-382.

Pervan, Ivica. "Utilization of Accounting Information for Decision Making in Croatian SME: Preliminary Findings." *The Business Review* 19, no. 2 (2012): 165-171.

Porter, Michael E. *Competitive Strategy*. New York: Free Press, 1980.

Sharma, Divesh S. "The differential effect of environmental dimensionality, size, and structure on budget system characteristics in hotels." *Management Accounting Research* 13, no. 1 (2002): 101–130.

Simons, Robert. Levers of Control: How Managers Use Innovative Control Systems to Drive Strategic Renewal. Boston: Harvard University Press, 1995.

Tsamenyi, Mathew, Sahadev, Sunil and Qiao, Zheng Shi. "The relationship between business strategy, management control systems and performance: Evidence from China." *Advances in Accounting, incorporating Advances in International Accounting* 27, no. 1 (2011): 193–203.