

**Risk Management and Management Control - The impact of the
financial crisis on the use of Management Control Systems**

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Research Design and methodology approach

Abstract

In the light of the economic crisis 2008/2009, the environment of many companies changed dramatically which led to a significant increase in uncertainty and risk for those firms. The aim of this paper is to investigate the influence of increasing risk and uncertainty on the configuration and use of management control systems by using Simons' (1994) levers of control framework. Drawing mainly on the literature of contingency-based management accounting research, a set of hypotheses on the specificities of management control in uncertain environments will be derived. Furthermore, these hypotheses will be developed using survey data of Chief Financial Officers (CFOs) from a sample of Austrian companies.

Key words

Management control, uncertainty, risk, contingency theory, risk management

1. Research Objective and Motivation

Due to its outstanding importance, uncertainty is one of the most widely researched aspects of the environment of organizations in Management Control contingency-based research (Chenhall, 2003; Chapman, 1997; Hartmann, 2000). The current business environment is characterized by fast changes in customers, technologies and competition. Thus, organizations need to continuously renew themselves to survive and prosper (Danneels, 2002). In the light of the financial/economic crisis 2008/09, however, uncertainty and risk rose enormously for many companies and hence forced many firms to adapt their management control systems (MCS) to the changing environment. Therefore, knowledge about the reactions of firms to changing environments is of great importance to the management as overreactions could severely affect key performance indicators of impacted firms. Furthermore, Berry et al (2009) call for further research with regards to risk and MCS.

According to Merchant and Otley (2007), "a MCS is designed to help an organization adapt to the environment in which it is set and to deliver the key results desired by stakeholder groups". The purpose of this paper is to use Simons' (1994) levers of control framework to investigate the antecedents of control systems (i.e. uncertainty and risk) and the associations among the control systems. Simons' LOC framework is chosen as it is widely used in literature and has strong practical implications. The LOC framework asserts that strategic uncertainty and risk drive the choice and use of control systems (Widener, 2007). Hence, this study will try to contribute to the small but growing body of work with regards to relations among control systems (Widener, 2007; Anderson & Dekker, 2005; Kennedy & Widener, 2006).

The author aims to observe a change in the variable "perceived environmental uncertainty" (PEU) and "risk" and its influence on MCS on a large scale sample of companies. Chenhall (2003) is followed for the distinction between uncertainty and risk: *risk* is defined as situations for which probabilities can be attached to particular events occurring, whereas *uncertainty* defines situations in which probabilities cannot be attached and even the elements of the environment may not be predictable. Normally, crisis and other detrimental events change the environment only for single companies and/or certain sectors. In this special situation of the current economic crisis, however, it can be expected that there are effects on a broader range of companies.

As a consequence, the following research questions (RQ) will be addressed:

RQ: Do companies change their MCS under conditions of increasing risk and uncertainty?

RQ1: How do companies adapt their MCS (4-Levers of Simons) under conditions of increasing environmental uncertainty and risk?

RQ2: Do differences in risk capabilities have an influence on MCS usage under conditions of increasing environmental uncertainty and risk?

RQ3: How do companies change their MCS with regards to strategic investment decisions under conditions of increasing environmental uncertainty and risk?

2. Theoretical Framework and Hypotheses

2.1 Management Control and Contingency Theory

„Management control is the process by which managers assure that resources are obtained and used effectively and efficiently in the accomplishment of the organization’s objectives.“ (Anthony, 1965). MCS is thus the process that links strategic planning and operational control (Otley, Broadbent & Berry, 1995). Management Control Systems (MCS) have the purpose of providing information useful in decision-making, planning and evaluation (Widener, 2007; Merchant & Otley, 2007). The focus of MCS is not only on one form of control like performance measures but on multiple control systems working together (Widener, 2007; Otley, 1980). Simons (1995) argues that “MCS are the formal, information-based routines and procedures managers use to maintain or alter patterns in organizational activities. Whereas strategic control assesses the question whether the strategy chosen by the organization is valid, management control according to Merchant and Van der Steede (2007) addresses the question whether employees behave appropriately or not. MCS are therefore intended to help the organization to motivate employees to make decisions and to take actions which are in the organization’s best interest (Chow, Shields & Wu, 1999). Management control systems thus have two main purposes: providing information useful to management and helping to ensure viable patterns of employee behaviour in order to achieve organisational objectives.

Simons (1995) posits in his *levers of control (LOC) framework* that MCS consists of four interrelated control systems: beliefs (e.g. mission statement), boundary (e.g. code of conduct), diagnostic (e.g. budgets) and interactive (e.g. management involvement) systems. Moreover, he argues that strategic uncertainty and strategic risk play a central role in his (LOC) framework.

Contingency theory assumes that the design and the application of MCS are influenced by the context in which they are applied (Chenhall, 2007). A contingency approach to MCS research therefore aims at identifying the best design and usage of MCS in a given context (Chenhall and Chapman, 2006). According to Chenhall (2003) there are various forms of theoretical fit that have been used to classify contingency-based research in MCS: selection, interaction and systems (Drazin & Van de Ven, 1985). This study follows the selection fit which examines the way contextual factors are related to aspects of MCS with no attempt to assess whether this association is linked to performance (Chenhall, 2003; Chenhall & Morris, 1986; Merchant, 1985).

Figure 1 describes the theoretical model used in this paper.

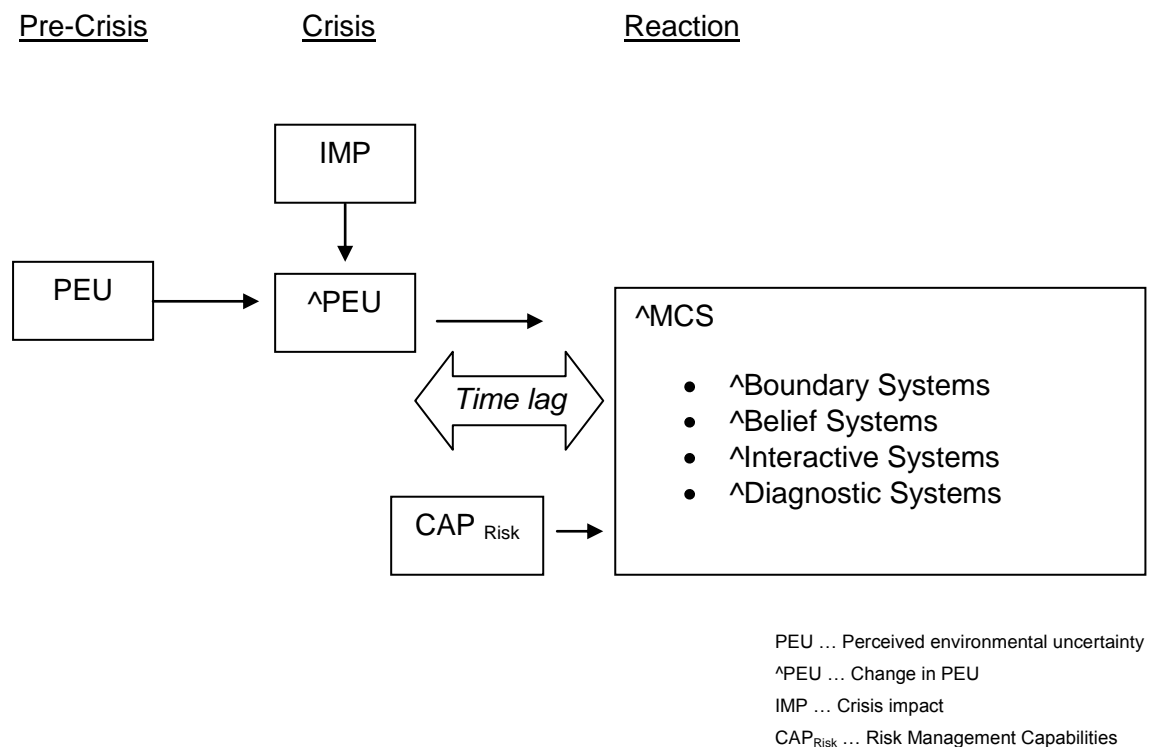


Figure 1: Theoretical model

2.2 Hypotheses

In the following a set of hypotheses will be developed on how firms change their MCS in times of increasing uncertainty and risk. For the purpose of this paper the summary of the hypotheses are shown here only.

Summary of hypotheses

- H 1: An increase in PEU is associated with a change in the use of MCS*
- H 2: Companies with traditional high PEU change their MCS to a lower extent than other companies under conditions of increasing PEU*
- H 3: Boundary systems are used to a higher extent under conditions of increasing PEU*
- H 4: Interactive systems are used to a higher extent under conditions of increasing PEU*
- H 5: Belief systems are used to a higher extent under conditions of increasing PEU*
- H 6: Interactive systems are used to a higher extent under conditions of increasing PEU*
- H 7: Companies with high risk capabilities do change their MCS to a lower extent than other companies under conditions of increasing PEU*

3. Research Methodology

3.1 Implications from philosophy of science

This paper follows a quantitative empirical research approach. Due to the research question and research field, quantitative empirical research is prevalent (Chenhall, 2003; Henri, 2006; Widener, 2007). From an epistemological point of view, this paper will have a contingency theory-based system of hypotheses, which should be supported by data of a sample drawn from the target population. This poses the question whether the results from this sample enables to verify or falsify the theory-based hypotheses for the whole population. Epistemologically, this research approach leads to the problem of induction. Induction is not a valid inference process as the conclusion is not entailed in the premises and the problem of induction as introduced by Hume basically means that it is not possible to make generalizations from empirical observations (Lee & Lings, 2008). However, it is taken care that the formulation of the hypothesis is such that they are clear and simple and that they can either be supported or failed to be supported by empirical data, which means that they are testable (Lee & Lings, 2008).

3.2 Data

3.2.1 The Sample

The *target population* for this survey were Austrian companies (except financial institutions) with at least 50 employees. According to the AMADEUS database, the total population with these characteristics in Austria comprises 6,043 firms. Companies of this minimum size can be expected to have some form of formalized MCS and to be large enough to ensure that

organizational and strategy variables apply (Miller, 1987; Henri, 2006). Austria was selected as its economy was severely hit by the crisis and its traditional high exposure to Central and Eastern European countries resulted in high uncertainty for its firms.

The *sample* consists of companies on the “Trend 500” list for the 500 largest Austrian companies as well as of the members of the OCI, which are similar to a great extent. Financial institutions were excluded from the study due to their different characteristics. Even though the sampling process was not carried out totally randomly, the sampling process ensures a good representation of population. In total, the sample comprises 678 companies. The firms to be selected in the sample respect the following criteria: (i) no financial institution and (ii) at least 50 employees.

Target persons for the online-questionnaire were the CFOs of the sample companies. The CFO was chosen as he is supposed to have the greatest insight into MCS and financial matters and risk management. Every CFO received a personal e-mail invitation which contained a link to the online-questionnaire. Thus, this study used a key-informant approach which leads to limitations of the results, as information will be obtained only from one single respondent. However, according to Harzing and Sorge (2003), this is the only feasible approach to obtain a satisfying response (Diekmann, 2004). Contact data was obtained from the AMADEUS database or directly from the companies’ homepages and via direct company contact (e-mail or telephone). In order to increase the response rate, reminder mails were sent out a week after the first invitation mail. CFOs not having responded after two weeks of the initial cover e-mail were contacted by phone and invited to participate in the survey.

The internet-based approach chosen for this study has certain advantages. First of all, it is less costly and complex than normal mail surveys are. The response management process is more flexible. Moreover, it is also possible to control for the time used by the respondent to fill in the questionnaire and hence, to eliminate respondents who just clicked through the questionnaire. Additionally, no data-entry errors can occur. However, online-questionnaires also have certain disadvantages that normally occur in mail surveys (Diekmann, 2004), e.g. it is not possible to control whether the addressed respondent (target person) really filled in the questionnaire himself.

A total of 190 responses (28,0%) were received. Of those, 3 were unusable, mainly due to missing data. The remaining 187 usable responses resulted in a response rate of 27,5%. The average firms had average sales of EUR 160 million and on average 300 employees. This response rate was higher than anticipated and is within or above the range of similar

recent studies (Widener, 2006; Henri, 2006; Baines & Langfield-Smith, 2003). Moreover, current literature reports that a sample size varying between 100 and 200 cases, or between 5 and 10 subjects per estimated parameter is adequate for small-to-medium size structural equation models (Henri, 2006).

As the possibility of non-response bias arises, it is examined in a two-step analysis. Respondents are first compared with non-respondents in terms of sample characteristics (size, location, industry). The result of parametric independent t-tests evaluates whether there is a statistically significant difference between the means of the responding companies and the total sample in terms of turnover, employees, etc. For a further examination of the possibility of non-response bias, answers from persons who replied without follow-up reminders are compared with respondents who only replied after follow-up mails or reminder calls by comparing the mean score of each variable (Henri, 2006).

3.2.2 *Data Collection Process and Questionnaire*

The questionnaire was pre-tested prior to postage by a small group of academics and three CFOs. This process resulted in changes to some of the wording and the presentation of the questionnaire. *Data collection* for this paper was based on the online tool 2ask (www.2ask.at). This study was carried out by the Institute for Strategic Management and Management Control of WU Vienna in cooperation with the OCI (Oesterreichische Controllerinstitut).

The questionnaire was structured into four main parts:

- a) Perceived Environmental Uncertainty and Risk
- b) (Change in) Management Control Systems
- c) Risk Management
- d) Statistical Data

The questionnaire contained approximately 32 closed questions. The average response time was 20 minutes. The language of the questionnaire was German, however, an English version was available on demand. Four respondents used the English version. Within the adoption of MCS, a time-lag problem of measures taken by companies arises as the impact of the crisis is different across industries. In order to include all changes in MCS, the respondents were asked to respond to Part B of the questionnaire for measures taken since June 2008. This is mainly due to the fact that this was the time when the crisis approximately started to have an impact on the Austria economy. Moreover, respondents were also asked

to include already planned and executed measures within the next six months into their responses. Each variable was operationalized through two to five items and the response measured with a seven point Likert scale. Three anchor points exemplified responses ranging from 1 = does not apply at all to 4= does partly apply and up to 7 = applies fully.

To establish validity of the survey variables, content and construct validity has to be assessed (Widener, 2007; Nunally, 1978). For the measurement of MCS, items from previous research were used (Henri, 2006; Widener, 2007). The LOC framework was adapted from Widener (2007). Perceived environmental uncertainty (PEU) was measured with the construct developed by Moers (2006). However, additional items were added to better reflect the current context. In order to avoid the common problem of spurious correlation a number of control variables will be included (size, family and non-family firms, industry, primary customer segment etc.). Especially the industry variable and the primary customer variable (e.g. B2B) are valuable indicators for the time-lag of the crisis impact. The constructs will be calculated through summation of the single item scores. To improve the reliability of the constructs the Cronbachs α will be calculated to make sure that the item score has a high correlation with the sum of the item scores.

3.3 Data Analysis

For analysis of data, regression analysis and ANOVA will be applied. Data analysis will be carried out in SPSS 17. Moreover, a structural equations (SEM) approach also seems promising with regards to its increasing importance in MCS research (Chenhall, 2003). For SEM, the AMOS software package will be used.

4. References

- Anderson, S. W., & Dekker, H. C. (2005). Management control for market transactions: the relation between transaction characteristics, incomplete contract design, and subsequent performance. *Management Science*, 51, 1734–1752.
- Anthony, R. N. (1965). *Planning and Control Systems: Framework for Analysis*. Boston: Graduate School of Business Administration Harvard University.
- Berry, A. J., Coad, A. F., Harris, E. P., Otley, D. T. & Stringer C. (2009): Emerging themes in management control: A review of recent literature. *The British Accounting Review* 41, 2-20.
- Chapman, C. S. (1997). ReXections on a contingent view of accounting. *Accounting, Organizations and Society*, 22(2), 189–205.
- Chapman, C. S. (1998). Accountants in organisational networks. *Accounting, Organizations and Society*, 23(8), 737–766.
- Chenhall, R.H. & Chapman, C.S (2006). Theorising and Testing Fit in Contingency Research on Management Control Systems. *Methodological Issues in Accounting Research – Theories, methods and issues*, ed. Z. Hoque, 35-54. London. Spiramus.
- Chenhall, R. H., & Morris, D. (1986). The impact of structure, environment and interdependencies on the perceived usefulness of management accounting systems. *Accounting Review*, 61, 16–35.
- Chenhall, R.H., (2003). Management control systems design within its organizational context: findings from contingency-based research and directions for the future. *Accounting, Organizations and Society* 28, 127–168.
- Chenhall, R.H., (2007). Theorising contingencies in management control research. In: Chapman, C.S., Hopwood, A., Shields, M.D. (Eds.), *Handbook of Management Accounting Research*. Elsevier, Oxford, pp. 163–206.
- Chow, C.W., Shields, M.D., & Wu, A. (1999). The importance of national culture in the design of and preference for management controls for multi-national operations. *Accounting, Organizations and Society*, Vol. 24, 561-582.
- Danneels, E. (2002). The dynamics of product innovation and firm competences. *Strategic Management Journal*, 23, 1095-1121.
- Diekmann, A. (2004): *Empirische Sozialforschung – Grundlagen, Methoden, Anwendungen*, 11. Auflage, Reinbek bei Hamburg.
- Drazin, R., & Van de Ven, A. H. (1985). Alternative forms of fit in contingency theory. *Administrative Science Quarterly*, 30, 514–539.
- Ezzamel, M. (1990). The impact of environmental uncertainty, managerial autonomy and size on budget characteristics. *Management Accounting Research*, 1, 181–197.

- Gordon, L. A., & Narayanan, V. K. (1984). Management accounting systems, perceived environmental uncertainty and organizational structure: an empirical investigation. *Accounting, Organizations and Society*, 9, 33-47.
- Harzing, A.W., & Sorge, A. (2003). The Relative Impact of Country of Origin and Universal Contingencies on Internationalization Strategies and Corporate Control in Multinational Enterprises: Worldwide and European Perspectives: *Organization Studies*, Vol. 24, No. 2, 187-214.
- Henri, J.-F. (2006): Management Control Systems and Strategy: A Resource-based Perspective. *Accounting, Organizations and Society* 31, 529-558.
- Kennedy, F., & Widener, S. K. (2006). A control framework: Insights from evidence on lean accounting. Working Paper. Clemson and Rice Universities.
- Kline, R. B. (1998). Principles and practice of structural equation modeling. New York: The Guilford Press.
- Kober, R. et al. (2007). The interrelationship between management control mechanisms and strategy. In: *Management Accounting Research*, 18: 425-452.
- Lee, N. & Lings, I. (2008). *Doing Business Research. A Guide to Theory and Practice*. London: Sage.
- Merchant, K. (1985a). Budgeting and the propensity to create budgetary slack. *Accounting, Organizations and Society*, 10(2), 201–210.
- Merchant, K. A., & Otley, D. T. (2007). A review of the literature on control and accountability. *Handbook of Management Accounting Research*, (Ed.) C. S. Chapman, A. G. Hopwood, and M. D. Shields, 785-804, Amsterdam: Elsevier Press.
- Merchant, K.A. & Van der Steede, W.A. (2007). *Management Control Systems – Performance, Measurement, Evaluation and Incentives*. 2nd ed., Essex: Prentice Hall.
- Miller, D. (1987). The structural environmental correlates of business strategy. *Strategic Management Journal*, 8(1), 55–76.
- Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). New York, NY: McGraw-Hill Book Company.
- Otley, D. et al (1995). Research in Management Control: An Overview of its Development. *British Journal of Management*, Vol. 6, 31-44.
- Otley, D. T. (1980). The contingency theory of management accounting: achievements and prognosis. *Accounting, Organizations and Society*, 5, 413–428.
- Otley, D.T., Broadbent, J.M., Berry, A.J., (1995). Research in management control: an overview of its development. *British Journal of Management* 6, S31–S34.
- Schreyögg, G., Kliesch-Eberl, M (2007). How dynamic can organizational capabilities be? Towards a dual-process model of capability dynamization. *Strategic Management Journal*, 28: 913–933.

Simons, R. (1990). The Role of Management Control System in Creating Competitive Advantage: New Perspectives. *Accounting, Organizations and Society* 15, 127-143.

Simons, R. (1994). How new Top Manager Use Control Systems as Levers of Strategic Renewal. *Strategic Management Journal*, Vol. 15, No. 3, 169-189.

Simons, R. (2000). *Performance measurement and control systems for implementing strategy*. Upper Saddle River, NJ: Prentice Hall.

Simons, R., (1995). *Levers of Control, How Managers Use Innovative Control Systems to Drive Strategic Renewal*. Harvard Business School Press, Boston, MA.

Widener, S. (2007). An empirical analysis of the levers of control framework. *Accounting, Organizations and Society* 32, 757-788.