The Use of Management Control Systems: Impact on Companies' Performance

Jeanette Willert,
Copenhagen Business School,
Department of Accounting and Auditing,
Denmark, jw.acc@cbs.dk

Abstract

This paper investigates the relationship between the use of management control systems (MCS) and companies' performance. The paper focuses on how executive managers' use of MCS relates to developments in company performance. The MCS investigated are: strategy, evaluation of subordinates, rules and procedures, and executive managers' focus on customer relations when guiding and directing their subordinates. A path model is developed which proposes that a larger extent of using the above MCS as well as the frequency of business and leadership evaluation are associated with development in financial performance. Using survey data on executive managers' use of MCS in large companies, the paper shows patterns in the extent to which managers in large companies use the MCS and how this affects company performance. The results confirm that there are some positive and some negative connections between the use of the MCS and company performance.

Keywords: Management control systems, performance, large companies, strategy, evaluation, customer orientation, rules, procedures.

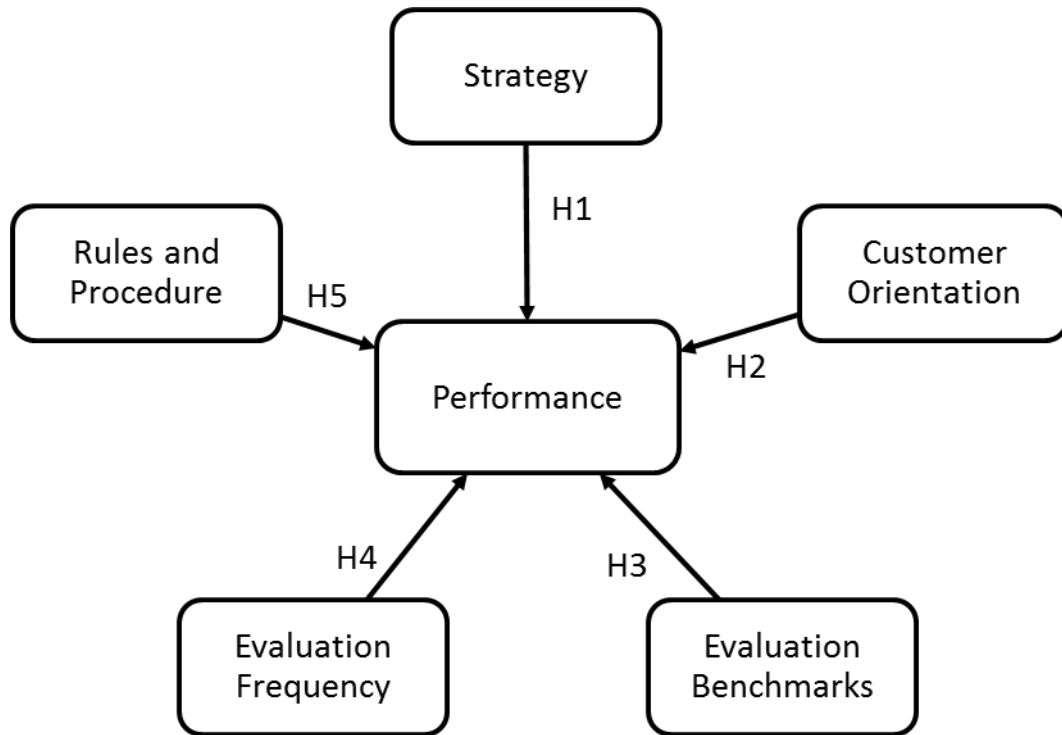**Paper type:** Quantitative research study.

Introduction

Boards and executive management set objectives for their companies, and managers design, introduce, and use many different MCS to support their organizations in achieving these objectives (Fisher, 1998, Merchant & Van der Stede, 2012, Ferreira and Otley, 2009). For most companies, some of these objectives are financial performance goals that include demands for earnings to shareholders (Simons, 1995, 2005, Malmi and Brown, 2008). Managers must guide their subordinates in the most effective way to fulfil company objectives. To do so, they must design and use their MCS in the most effective way, which includes identifying how the design and use of the MCS affect their organizations' success in fulfilling objectives and improving financial performance (Merchant & Otley, 2007). Despite this, in her article from 2007, Stinger states that" [o]ur current understanding of performance management practices and the consequences of different performance management and control system designs in real organizations is limited." (p. 92).

Previous quantitative research studies have explored companies' configuration of MCS by examining to what extent groups of companies use different types of MCS (e.g. Bedford and Malmi, 2015; Gond et al., 2012), whereas focus on how managers' actual use of these MCS impacts the companies' financial performance has been less explored. There is a cost of using MCS, and even though previous research by Widener (2007) shows that the net effect of using MCS is positive, we still need more studies that verify Widener's findings and which further study the relationships between 'how the MCS are used' and 'how this affects the development of companies' performance. Previous research results show that there is a link between the use of MCS and performance (e. g. Gani and Jermias, 2012; Jermias and Satiawan, 2008; Lee and Yang, 2011; Sandino, 2007), however the impact of using the MCS and development in company performance has not been studied much. More studies are needed to extend our knowledge of how this relation between the use of MCS and performance can be used to enhance performance. Case studies have looked at managers' use of MCS and companies' performance (e.g. Marginson, 2002; Sandelin, 2008), yet we need large samples of data from more companies to identify patterns between the use of MCS and company performance in more general terms.

This study contributes to the body of research that investigates the relationship between the use of MCS and development in company performance. The MCS that have been chosen are MCS which in former research studies have shown to have an association with performance (e.g. Baiman and Demski, 1980; Ittner et al., 2003), and which some of executive managers who have participated in the survey included in this study found very important when working with improving financial performance. The aim is to make five interrelated contributions to the literature. First, the study investigates if different characteristics in managers' design and use of strategy make their companies perform better. Second, the study investigates if the extent of customer orientation impacts positively on the development in company performance. Third and fourth, the study investigates if the use of benchmarking when evaluating subordinates and the frequency of evaluation of subordinates relate positively to development in company performance. Finally, the study investigates the extent to which managers' use of company rules and procedures impacts positively on company performance. As control variables the study includes company size and industry. Industry is divided into three groups: manufacturing, service, and trade (retail and wholesale).

This study uses an analytical path model with latent variables (Grefen et al, 2000; Haenlein and Kaplan, 2004) to test the proposed relationships. The model is shown in Figure 1 and illustrates the proposed relationship between development in performance to strategy, executive managers' customer orientation, use of benchmarking when evaluating subordinates' performance, frequency of formalized business and leadership performance, and the extent of using rules and procedures. Analyzing the association between the use of these five MCS and development in company performance may provide us with a better understanding of these MCS' influence on company performance. A path model is developed on the basis of academic literature on MCS and performance, a survey among executive management in large companies, audited archival accounting data on the companies' performance, and statements from some of the executive managers that participated in the survey. Based on the path model, five hypotheses of the association from managers' use of the MCS to the development in companies' performance are tested.

Figure 1
Hypothesized Path Model

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                    ┌──────────────┐
                    │   Strategy   │
                    └──────┬───────┘
                           │
                          H1
                           │
                           ▼
┌──────────────┐    ┌──────────────┐    ┌──────────────┐
│  Rules and   │ H5 │              │    │   Customer   │
│  Procedure   │───▶│ Performance  │◀───│ Orientation  │
└──────────────┘    │              │ H2 └──────────────┘
                    └──────▲──▲────┘
                       H4 ╱    ╲ H3
                         ╱      ╲
              ┌──────────┐    ┌──────────────┐
              │Evaluation│    │  Evaluation  │
              │Frequency │    │  Benchmarks  │
              └──────────┘    └──────────────┘
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The paper is organized as follows: The next section develops a theoretical framework and presents five hypotheses. Following this, a section on research design and methods, sample, data collection and measures is presented. Then the results and discussion are presented, followed by a section containing conclusions and limitations.

Theoretical Framework

The theoretical framework developed associates five different MCS' approach to development in company performance. First, the length of strategy period and the weight given to specific strategy objectives, programs and resources is associated with the development in company performance. Second, executive managers' focus on customer relationships is related to the development in company performance. Third, the extent to which benchmarks are used when evaluating subordinates is related to the development in company performance. Fourth, the frequency of formalized business and leadership performance evaluations is related to

development in company performance, and finally, the extent to which rules and procedures are used is associated to the development in company performance.

Relationship between Strategy and Development in Company Performance

Many studies have looked at the impact of strategy within companies (e.g. Bedford et al., 2016; Chenhall, 2003; Dent, 1990; Govindarajan and Gupta, 1985; Henri, 2006; Ittner and Larcker, 1997; Langfield-Smith, 1997, 2007; Mahama, 2006; Melnyk et al, 2014; Pondeville et al., 2013; Simons 1987, 1990), and researchers have developed theories of strategic archetypes to frame different focuses in the work with strategy: Mintzberg (1973) entrepreneurial, adaptive, and planning mode; Utterback and Abernathy (1975) performance-maximizing, sales-maximizing, and cost-minimizing; Miles and Snow (1978) defender, prospector, analyzer and reactor; Porter (1980, 1985) overall cost leadership, differentiation, and focus. However, this study will not focus on the archetype of strategy, but rather on executive managers' willingness to set more concrete strategic performance goals and to plan for a longer strategy period. This inward focus on executive managers' strategic work rather than on the archetype of strategy will lead to more omnibus findings that can be used by all managers, regardless of which strategic archetype they choose. These arguments lead to the basis for the following hypothesis.

H1: A longer strategy period and a higher weighting of setting strategy goals for objects, programs and resources positively influence the development in company performance.

Relationship between Customer Orientation and Development in Company Performance

Management control and performance measures that address the relationship between customer orientations and company performance have not been studied much in accounting research (Guilding and McManus, 2002), whereas marketing research has studied the relationship more (Chenhall and Langfield-Smith, 2007). However, both within marketing and accounting literature researchers have found relations between customer orientation and company performance (ibid). In the early 1990s, Kaplan and Norton (1992, 1993, 1996a, 1996b, 2000) developed the 'Balanced Scorecard' (BSC), which combines organizational learning, internal business processes, customer

value position, and financial perspectives. The BSC is an effective MCS that translates organizations' vision and strategy into measures and goals that managers can use to guide and direct their subordinates to fulfil strategies, including an increase of customer value and profitability (Chenhall and Langfield-Smith, 1998; Davis and Albright, 2004). In 2014, Simons used the BSC in his book. He emphasized the importance of measuring core output on customer satisfaction, customer retention, acquisition of new customers, and customers' profitability, and stated that "studies have shown that business with satisfied, loyal customers become significantly more profitable over time" (Simons, 2014 page 208). However, to be able to understand and map customer satisfaction, organizations need to have knowledge of customers' expectations, perceptions, and customer value (Chenhall and Langfield-Smith, 2007).

In 1994, Heskett et al. developed 'The service profit chain (SPC)'. SPC is based on information provided by executive managers from large American companies as well as previous research results. As the BSC, the SPC focuses on drivers and cause-and-effect links. The SPC maintains direct relationships from internal service quality and employee satisfaction to external service quality and value to customers, which in turn link to customers' satisfaction and loyalty, which lead to revenue growth and profitability (Heskett et al., 1994). Heskett et al.'s study (1994) finds that customer satisfaction and loyalty are more important than market share and shows how executive managers' focus on customer orientation drives growth in revenue and higher performance. Subsequent research studies which have used the SPC show correlations between the links within the SPC (see more in Yee et al. 2009).

Some of the studies within the accounting literature research that address customers' position and roles in companies, and how to calculate the financial values of customers, are Vaivio (1999) and Boyce (2000). They highlight the importance of including customers' requirements and values in the companies' MCS to direct employee behavior towards customer satisfaction, and identify important customer-based accounting measures. Additionally, Boyce (2000) finds that customer valuation increases shareholder income and wealth. The findings are supported by three other studies of customer orientation within accounting literature (Banker et al., 2000; Guilding and McManus, 2002; Ittner and Larcker, 1998), who have all studied the relationship

between customer satisfaction and company performance, which all of them find positively correlated.

The above arguments lead to the basis for the following hypothesis.

H2: Higher customer orientation positively influences the development in company performance.

Relationships between Using Benchmarking when Evaluating Subordinates and Development in Company Performance

Based on their strategic goals, companies formulate performance measures and pre-set targets that should be linked to definitions of clear goals and benchmarks to be used when evaluating subordinates' performance (Merchant and Van der Stede, 2012; Otley, 1999; Speckbacher and Wentges, 2012). The purpose of setting targets and evaluating subordinates' performance is to direct and motivate employee behavior in the direction of fulfilling companies' goals (Burney et al., 2009, Lillis et al., 2015). To encourage employees to perform at their best, the targets must be specific, clear, measureable, achievable, timely, and challenging while still being realistic. In addition to providing individual feedback, the targets may also be used to determine financial and non-financial rewards (Merchant and Van der Stede, 2012). There is a link between performance evaluation, rewards, employee behavior and organizational performance, however the complexity of cause-and-effect linkages seems to be very high (Ferreira and Otley, 2009; Lillis et al., 2015).

This study focuses on financial performance effects of executive managers' use of benchmarking and objective performance measures (Lillis et al. 2015) when evaluating subordinates. Based on the extent to which managers use calculative numbers, league tables, and trend-based evaluation it will be tested if the use of these factors positively affects companies' financial performance. This leads to the basis for the following hypothesis.

H3: Using benchmarking to a large extent when evaluating subordinates' performance positively influences the development in company performance.

Relationship between the Frequency of Business and Leadership Evaluations and Development in Company Performance

In addition to testing the effect between the use of objective performance goals and development in company financial performance, this study also examines the cause and effect of the frequency of conducting evaluations of business and leadership performance. Simons (1995) suggests the use of diagnostic control systems to define goals, provide motivation, and prepare ex-post evaluation of the work performed by the employees to ensure fulfilment of strategic performance goals. Yet, not much literature has tested the direct link between the frequency of conducting performance evaluations and companies' financial performance. Previous studies have found that "timeliness [provision of information on request and the frequency of reporting systematically collected information] of [management accounting systems] is likely to positively affect managerial performance" (Tsui, 2001 p. 129) and that "increase in the frequency of feedback will in general increase managerial performance" (Gordon and Miller,1976 p. 60). Furthermore, a high frequency of management reports and rapid feedback also relate to managers' ability to respond quickly to changing events (Chenhall and Morris, 1986), and given the dynamics in and uncertainty of the business environment, timely management information may support managers in making more informed decisions. This leads to the basis for the following hypothesis.

H4: A lower frequency between formalized business and leadership performance evaluations (for determining compensation or providing individual feedback) negatively influences the development in company performance.

Relationship between Rules and Procedures and Development in Company Performance

Large companies tend to have many MCS, including an array of rules and procedures (Chenhall, 2006; Flamholtz, 1996). Rules and procedures create boundaries within which employees must perform (Merchant and Van der Stede, 2012; Simons 1995). However, is it possible that too many or too strict rules and procedures increase the employees' opportunities or willingness to be innovative and creative and test new business opportunities? This may then result in companies losing business opportunities and maybe lead to a decrease in performance. According to Simons

(1995), managers need to use both diagnostic and interactive MCS to balance competing demands. Simon stated that "Inherent tensions must be controlled, tensions between freedom and constraint, between empowerment and accountability, between top-down direction and bottom-up creativity, between experimentation and efficiency" (Simon, 1995 p. 4).

The present study tested if large companies may have too strict rules and procedures that may even cause lower performance. These arguments lead to the basis for the following hypothesis.

H5: A large extent of managers' use of rules and procedures when guiding and directing subordinates' behavior negatively influences the development in company performance.

Research Design

Sample and Data Collection

The paper is based on quantitative data collected through interviews with executive managers in 120 out of the 318 largest companies in Denmark. The target was 120 large companies with 250 or more employees[1], and the ORBIS database was used for selection of the companies. The ORBIS database gave a list of 419 large companies. After checking the list for companies that have closed or been sold, and duplicate data points (e.g. a holding company and the operating company), which all were deleted, the quality-checked total list comprised 318 companies. Large companies were chosen as they often have greater quantities of information, are more complex, and have longer chains of command, which give them a structure where authority is more decentralized than in small companies (Chenhall, 2003, 2007; Flamholtz, 1996). Large companies tend to operate on larger scales and use more specialized and sophisticated mass production techniques to lower task uncertainty (Chenhall, 2006; Hoque and James, 2000; Merchant, 1981), which can "improve efficiency [and] provide opportunities for specialization and division of labour" (Chenhall, 2003 page 148). Increasing company size and diversity may challenge social controls and coordination (Merchant, 1981). Consequently, to ensure that employees act uniformly and with a high level of cooperation and integration, large companies need MCS such

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[1] The European Union defines large enterprises as independent firms that employ more than 250 employees. http://www.oecd.org/regional/leed/1918307.pdf

as rules, procedures and standards to guide and direct employees to fulfill company strategies and objectives (Chenhall, 2006; Flamholtz, 1996).

A random sample design was selected for interviewing (Groves et al 2009) with a selection basis of 'every third firm' per industry group (Cochran 1977). Five response-enhancing techniques that have shown a positive effect on survey response rates were used to increase the positive response rate (contacting the respondents personally, highlighting the sponsorships of two Universities, informing about the topic of research, promising respondent anonymity, and using personal interviews) (Anseel et al., 2010, p. 337). With a positive response rate of 74%, 163 companies were contacted to reach the target sample of 120 companies. A standardized questionnaire was used to guide and streamline the interviews, as well as to ensure that the data were comparable. To ensure that respondents understood the questions correctly and to ensure data quality, responses were gathered through personal interviews with CEOs, CFOs or other members of executive management in the 120 companies. The interviews typically lasted between two to three hours, and in order to ensure uniformity and objectivity of the questions the interviews were conducted by two researchers. In addition, the interviews were recorded to safeguard the validity of responses. The purpose of the interviews was to ensure higher quality in the survey data and completeness in answering all questions in the questionnaire, as well as to collect additional qualitative information from the executive managers regarding their design and use of MCS in the large companies.

Measures

This study is based on a classic survey with a large sample size, random sampling selection, and use of analytical statistics to analyze data. Most responses to the questions in the questionnaire are given on a seven-point Likert-scale ranking of importance or frequency, and the remaining responses are selected from closed lists of categories (e.g. Industries). There are no right or wrong responses, and "not applicable" (N/A) is provided as an option for some of the questions. However, the interviews with the executive managers added qualitative information regarding the managers' use of MCS and company context that they find important when guiding and directing their subordinates. This additional information moves the classic survey in the direction

of a cross-section field study, where quantitative answers are supplemented by qualitative statements from the participants (Lillis and Mundy 2005; Merchant and Manzoni 1989).

The questions used in this paper are part of the extended questionnaire. The selected questions relate to areas that many of the CEOs and CFOs who participated in the survey find to be some of the most important when focusing on increasing financial performance. Previous research has also confirmed relationships between the chosen areas of MCS and company performance (Arachchilage and Smith, 2013; Burney et al., 2009; XX). The questions used are presented in Appendix A, and descriptive statistics on each item are reported in Table 1 below.

The first latent variable, 'Design and Use of Strategy' is constructed by three underpinning questions that relate to the extent to which executive management in the large companies are willing to set concrete strategic targets and to work with a longer strategic period. The second latent variable, 'Customer Orientation' is measured by four items that concern the level of focus that the companies put on collaboration with customers and fulfilment of needs and wishes coming from existing and prospective customers. The third latent variable, 'Use of Benchmarking when Evaluating Subordinates' reports the extent to which the executive managers focus on absolute numbers, internal and external benchmarks, and trend-based evaluation when they evaluate their subordinates' performance. The fourth latent variable, 'The Frequency of Formalized Evaluation of Subordinates' measures how often the companies conduct formalized performance evaluations of leadership and business performance for determining compensation or providing individual feedback to subordinates. The fifth latent variable, 'Use of Rules and Procedures' is measured in three very distinct boundary control systems (Simons 1995). It reports the extent to which the companies use codes of conduct (or similar statements), have specified minimum requirements for business opportunities, and demand review of plans before action.

Table 1
Descriptive Statistics

Variable	N	Mean	Standard Deviation	Actual Range		Theoretical Range	
				Minimum	Maximum	Minimum	Maximum
Design and Use of Strategy							
1.1) Length of strategic period	117	3.71	1.339	0	9	0	9
1.2) Extent of specifying objectives	117	5.62	1.325	1	7	1	7
1.3) Extent of specifying programs and resources	117	4.63	1.466	1	7	1	7
Extent of Customer Orientation							
2.1) Our SBU succeeds because we find creative solutions to satisfy our customers' needs	117	5.66	0.939	2	7	1	7
2.2) Our SBU succeeds because we find new customer segments and needs	117	4.44	1.435	1	7	1	7
2.3) Our SBU succeeds because we deepen and create long-lasting customer relationships	117	6.02	1.083	3	7	1	7
2.4) Our SBU succeeds because we collaborate extensively with different organizations	117	3.75	1.814	1	7	1	7
Extent of Using Benchmarking when Evaluating Subordinates' Performance in Relation to							
3.1) Absolute, preset numbers (euros, time, %)	117	5.94	1.302	1	7	1	7
3.2) Internal benchmarks (league table position)	117	3.85	2.011	1	7	1	7
3.3) External benchmarks (league table position)	117	3.14	1.737	1	7	1	7
3.4) Past performance (trend-based evaluation)	117	4.61	1.645	1	7	1	7
Frequency of Formalized Business and Leadership Performance Evaluation							
4.1) Leadership performance	117	4.32	1.311	1	7	1	7
4.2) Business performance	117	2.35	1.647	1	5	1	7
Extent of Using Rules and Procedures							
5.1) Use company-wide codes of conduct or similar statements	117	4.77	1.923	1	7	1	7
5.2) Review plans before action?	117	4.81	1.306	1	7	1	7
5.3) Specify minimum requirements (e.g. ROI, implementation times) for business opportunities?	117	4.90	1.729	1	7	1	7

In addition to the survey data, archival data on the participating companies' earnings are used to measure the companies' financial performance. The companies' earnings are calculated in the form of ROA (return on assets). To avoid noise from financial gearing, ROA is calculated as net income before interest and tax divided by total assets. ROA represents company earnings generated from invested capital, and gives an indication of how effectively management convert invested capital into net income. As the size of invested capital may vary substantially and be highly dependent on industry, this paper uses each company's development in ROA from 2010 to 2013 as an indicator for each company's development in performance. This means that effects from industry are excluded, and the calculated number accounts for the companies' development in earnings in the period during which the survey is conducted. Three companies became outliers, two of the companies showed an extremely negative development in ROA, and one showed an extremely positive development in ROA. These three companies were excluded from the analyses, and the analyses are therefore based on 117 out of the 120 observations. Figure 2 shows the distribution of development in ROA in the 117 companies.

Figure 2
Distribution of Development in ROA
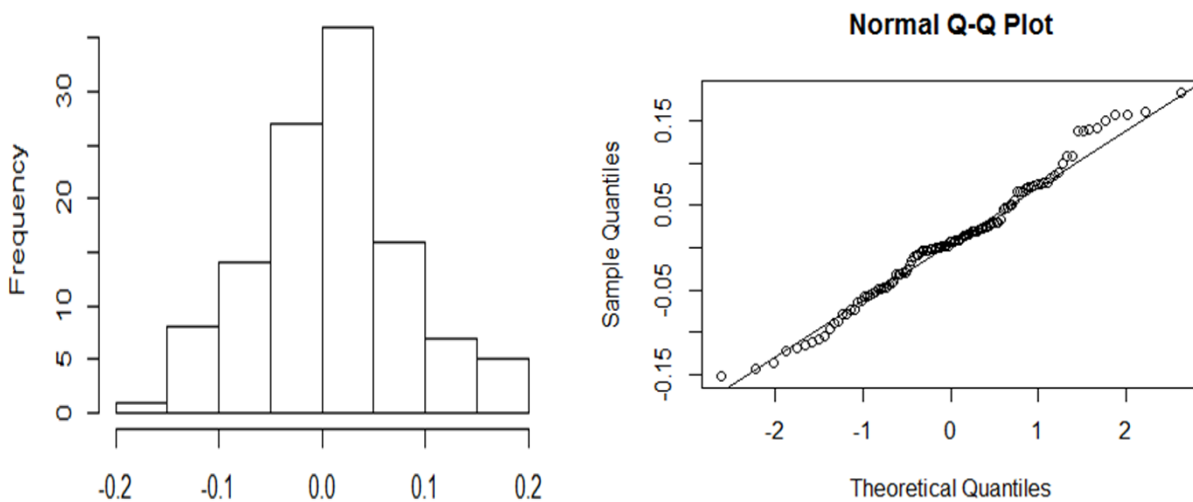
Partial Least Squares (PLS) is used in this paper to test the path model (Figure 1). PLS is a component-based analysis model that makes it is possible to analyze relations between more exogenous and endogenous variables through construction of latent variables. Each latent variable is constructed of two or more items, for example questions as in this paper (Appendix A), which improves the reliability and validity of the study (Gefen et al, 2000; Sanchez, 2013). A PLS model estimates parameters both for the relations between the latent variables and the items (e.g. loadings per item), and for the relations between the latent variables (e.g. path coefficients) (Hulland, 1999). By operationalizing the latent variables on a weighted sum of the additional items according to highest explanation of the variance, and by the PLS weighting the results given by the items (answers given to the questions), the PLS model obtains a maximum power of explanation (Chin 1998a). By nature, PLS is distribution-free and robust to multicollinearity, misspecification and data noise, which makes the PLS a powerful method to predict phenomena, as PLS typically is used to explain variance (Chin, 1998a; Gefen et al, 2000; Goodhue et al 2007; Haenlain and Kaplan, 2004; Sanchez, 2013).

Before presenting the results of the PLS, the model needs to be quality checked. To this end, three steps are recommended (Sanchez, 2013); first, checking the uni-dimensionality of the latent variables; second, checking the items are well explained by the latent variables; and third, assessing the degree to which one latent variable is different from another latent variable.

To check for uni-dimentionality, Dillon-Goldsteins rho, and first and second eigenvalue are used. The Dillon-Goldsteins rho indicates the composite reliability per constructed latent variable, as it focuses on the variance of the sum of the items within each latent variable. A rule of thumb is that Dillon-Goldsteins rho should be above 0.7 (Vinzi et al., 2010). The composite reliabilities are reported in table 2, and with a level between 0.7 and 0.8 for all the latent variables, the model indicates a high internal reliability (Sanchez, 2013). The eigenvalue is a correlation matrix of each of the latent variables. If the latent is uni-dimensional, the first eigenvalue should be above 1, and the second lower than 1 (Sanchez, 2013; Vinzi et al., 2010). The numbers of eigenvalues of the five latent variables are all performed in regards to the required levels (Table 2).

Table 2
Checking for Uni-Dimensionality and AVEs for the Latent Variables

Latent Variable	DG.rho	eig.1st	eig.2nd	AVE
Strategy	0.7984	1.7083	0.7092	0.5131
Customer Orientation	0.7800	1.9087	0.8777	0.4081
Evaluation Benchmarks	0.7408	1.6951	0.8935	0.4056
Frequency of Evaluation	0.7744	1.2637	0.7363	0.6314
Rules and Procedure	0.7246	1.4020	0.8110	0.4548

The reliability of the items is calculated as a loading per item. The loadings are reported in table 3. The level of the loadings per item is between 0.45 and 0.95. In the literature on PLS, there is some variety in the acceptance level of loadings. In general, loadings of 0.7 or more are acceptable[2] (e.g. Götz et al 2010; Sanchez, 2013). However, Hulland (1999, p. 198) states that "in general, items with loadings of less than 0.4 [...] should be dropped", and Chin (1998a, p. 325) states that "loadings of 0.5 and 0.6 may still be acceptable if there exist additional indicators in the block for comparison basis." For all five latent variables, some items in the group have a loading above 0.8. By following Chin (1998a, 1998b) and Hulland (1999), and with reference to previous literature on MCS using PLS (Burney et al. 2009; Chenhall et al, 2011), all the items are accepted.

Following the reliability check, the model is checked for discriminant validity of measurement by testing the extent to which latent variables share more variance with own items than with the other latent variables (Fornell and Larcker, 1981). For this test, the square roots of the average variance extracted (AVE) per latent variable are calculated. A role of thumb is that AVE should be greater than 0.5 to represent satisfactory convergent validity, which means that minimum 50 percent of the items variance is accounted for within the latent variables in relation to the amount of variance due to measurement error (Chin 1998a; Fornell and Larcker, 1981; Sanchez, 2013). AVE per latent variable is reported in table 2. Although not all the latent variables have AVEs with a level above 0.5, they are all accepted to maintain the content validity of the measure and because they do not discriminant validity problems.

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[2] A loading of 0.7 indicates that more than 50 percent of the variance in the observed item is due to the latent variable.

<center>**Results**</center>

This section describes the PLS regression method used to test our theoretical path model, and reports the empirical results.

Partial Least Squares Regressions

PLS path modeling is used to present the result of this empirical study. PLS is a statistical method which can be used for studying complex multivariate relationships among observed and latent variables. PLS is a component-based approach where the concept of causality is formulated in terms of conditional expectation, formed by constructs (latent variables) of the related items. PLS both provides measures which specify the relations between the items and the latent variable that they represent, and provides estimate and diagnostic that specify the relationship between the latent variables. PLS regression is particularly suited in cases of regression where there are more than one explanatory item per exogenous variable, and where there is multi-collinearity among the observed explanatory items. PLS makes no distributional assumptions and thus does not perform inferential statistical tests for overall goodness of fit (Chin 1998a). Alternatively, fit in the model is evaluated by R^2, which indicates the extent of variance in the endogenous variable (in this paper ROA) that is explained by the exogenous latent variables.

The results of the PLS regression model are shown in Tables 3 and 4, and the proposed relationships, including the level of significance given by the developed analytical path model (Figure 1), are illustrated in Figure 3. There are significant paths between use of the five MCS dimensions and development in company performance: 'Use of strategy' (0.1728, p = 0.0645; H1), 'degree of customer orientation' (0.1901, p= 0.0452; H2), 'use of benchmark when evaluating subordinates' (0.1744, P = 0.0624; H3), 'frequency of performance evaluation' (-0.2273, p= 0.0100; H4) and 'use of roles and procedures' (-0.2559, p=0.0077; H5).

There are many potentially additional variables that might be included as control variables in studies of companies' use of MCS (Chenhall et al, 2011). This study includes size and industry. Size is measured by the number of employees in the strategic business unit (SBU) of the executive manager who has participated in the survey. However, most large Danish companies only have one SBU, or one very large SBU and one or a few small SBUs. In the present study, in 113 out of the 117 cases, the interviewee and questionnaire respondent was the CEO or the CFO of the entire

Table 3

PLS Weights and Loadings for Strategy, Customer Orientation, use of Benchmark when evaluating Subordinates, Frequency of Formalized Performance Evaluation, and Rules and Procedures.

	Weight	Loadings
Strategy		
1.1	0.2856	0.6444
1.2	0.0857	0.4540
1.3	0.8110	0.9581
Customer Orientation		
2.1	0.1466	0.4743
2.2	0.6354	0.8073
2.3	0.0920	0.5240
2.4	0.5324	0.6936
Evaluation Benchmarks		
3.1	0.2403	0.4924
3.2	0.6443	0.8394
3.3	0.2991	0.4813
3.4	0.2957	0.6661
Frequency of Evaluation		
4.1	0.6625	0.8192
4.2	0.5945	0.7692
Rules and Procedures		
5.1	0.6525	0.8099
5.2	0.2471	0.4759
5.3	0.5098	0.6942

company or of the largest SBU of the company. The remaining four respondents were other executive managers, such as the COO of the entire company or of the largest SBU of the company. Table 4 shows that size has near to a 10% significance path on ROA (-0.1429, p=0.108), which indicates that use of the included MCS has a more powerful influence in small SBUs / companies than in larger ones. Industry is categorized into three groups: Manufacturing (N = 54
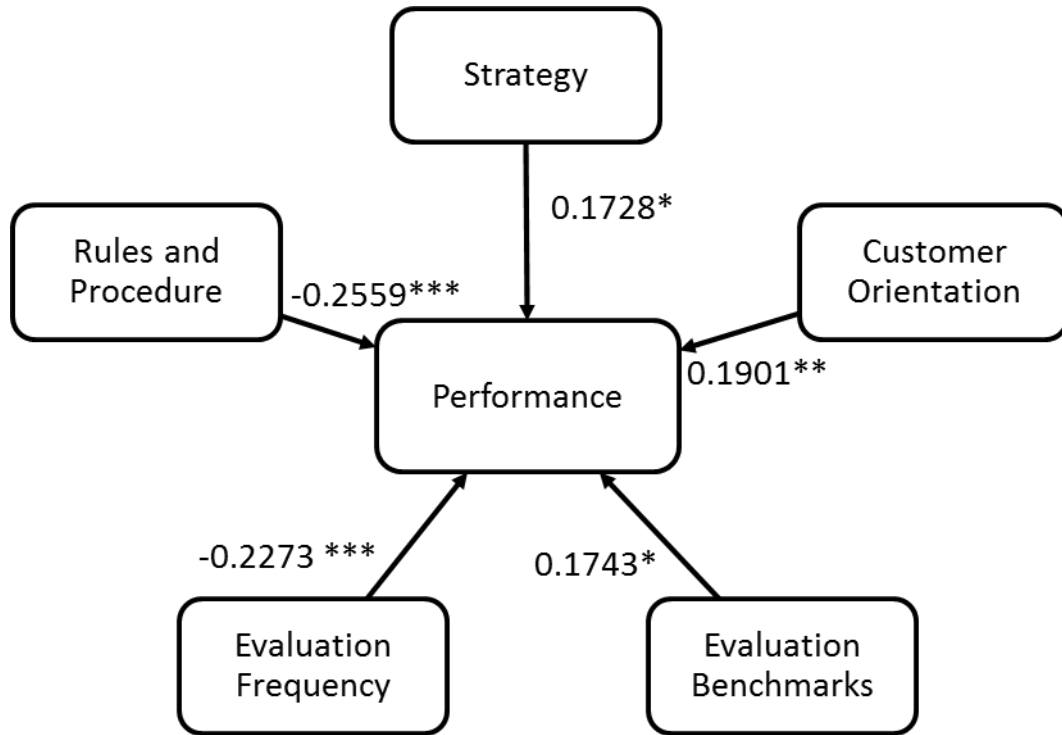
(46%)), service (N = 44 (38%)), and trade (N = 19 (16%)) (wholesale and retail). The percentage distribution between the three groups is the same as in the quality-checked total list of 318 large companies. The control variable 'industry' shows no significant paths of using the MCS to development in company performance (Table 4). Finally, the fit of the model is calculated by R^2. The result of R2 is 0.2163, which compared to other studies within the MCS literature (e.g. Chenhall et al, 2011) is accepted.

Table 4

**Results of PS Regressions
(path coefficients and P-values, R^2 for inner-model)**

Paths from	Estimates for ROA	Std. error	P-values
Strategy	0.1728	0.0925	0.0645
Customer Orientation	0.1901	0.0939	0.0452
Evaluation Benchmarks	0.1746	0.0926	0.0625
Frequency of Evaluation	-0.2273	0.0868	0.0100
Rules and Procedures	-0.2559	0.0943	0.0077
Size (log10)	-0.1429	0.0882	0.1081
Industry	-0.0867	0.0905	0.3402
Multiple R^2	0.2163		

***, **, * Indicate significant at < 1 percent, 5 percent and 10 percent, respectively

Figure 3
Results of Estimating PLS Regressions
(after including controls of size and industry)


```
              ┌──────────┐
              │ Strategy │
              └────┬─────┘
                   │ 0.1728*
                   ▼
┌───────────┐          ┌─────────────┐
│ Rules and │ -0.2559***│  Customer   │
│ Procedure │──┐    ┌──│ Orientation │
└───────────┘  ▼    │  └─────────────┘
          ┌──────────────┐
          │ Performance  │ 0.1901**
          └──────────────┘
        ▲                ▲
 -0.2273***         0.1743*
┌────────────┐    ┌────────────┐
│ Evaluation │    │ Evaluation │
│ Frequency  │    │ Benchmarks │
└────────────┘    └────────────┘
```

***, **, * Indicate significant at < 1 percent, 5 percent and 10 percent, respectively.

Discussion

The aim of this paper is through the use of an analytical path model to explore the relationships between executive managers' use of some MCS and development in company performance. Audited archival data and survey data on how executive managers in large companies use MCS are used to examine the relationships. The purpose is to explore how large extents and the frequency of using certain MCS affect companies' financial performance, by identifying some general characteristics in executive managers' use of MCS and test for correlations with the companies' development in ROA, and thereby identify how the effectiveness of using the MCS can be increased. The results of the correlated path model indicate direct cause and effect

relationships between the selected characteristics of managers' use MCS and companies' development in financial performance. The results of the correlations are presented in Figure 3 and Table 4. All of these are significant, which indicates that characteristics in the design and use of MCS have effects on companies' development in financial performance and thus shareholder value.

The focus of interest is how to improve companies' financial performance by use of MCS, through identifying characteristics of how managers' use of the MCS affects employees' behavior towards effectiveness and improvement of company performance. The first MCS investigated is executive managers' design and use of strategy. With a significant p-value on 0.06 the model finds a link between design and use of strategy and company performance. This result indicates that companies where executive managers put larger weight on specifying strategic objectives, programs and resources, and plan for a longer strategic period, tent to gain a higher financial performance than companies that do not. Second MCS investigated is customer orientation. The results show a positive relationship ($p < 0,05$) between high focus on customer orientation and higher financial performance. Looking at table 1 the descriptive statistic shows that the larger companies in general have focused on creating long-lasting customer relationships and satisfying customers' need. Large companies have more resources, tent to work globally, often employ specialists and work closely with suppliers and customers (Chenhall, 2003). These competence and close associations may give large companies business advantage, and if they are able to use this to get higher customer satisfaction, this will properly lead to higher profitability.

Third and fourth MCS concerns evaluation of subordinates. The result indicates that use of objective performance goals and benchmarking when evaluates subordinates, and more often conducting of evaluations of subordinates, are related to higher company performance. More often performance evaluations will give managers and subordinates ongoing opportunities to adjust, correct or act upon incidence that are not in line with business plans. Finally, the relations between extent of using rules and procedures, and development in financial performance, are tested. With a significant level below 0,01 the result shows that use of rules and procedures to a higher extent may have a negative influence on companies financial performance.

Conclusion and Limitations

Companies are composed of multiple variables and work in a complex and multivariate world. Studying the impact of one or two variables in isolation would seem relatively inconsequential and artificial. However, to include them all would be impossible. This study builds a path model that predicts relationships between managers' use of five MCS and company performance. The results show that 'the extent' and 'the frequency' of using the MCS have effects on the companies' development in financial performance. While there are many studies of MCS, fewer studies estimate the effectiveness of the uses of the MCS or quantify the effectiveness of using MCS in terms of financial performance. This paper presents results which clearly signal how managers can increase the effectiveness, hence financial performance, of using MCS by following some very specific characteristics in the design and use of the MCS.

The purpose of this paper is to contribute to the body of knowledge concerning practitioners' use of MCS, and how this, combined with MCS theory, can enhance company financial performance. The paper examines how managers' use of MCS affects companies' financial performance, in order to find more evidence on how MCS can be used more effectively to increase fulfillment of company objectives. A PLS path model is used to provide a basis of testing hypotheses. The hypotheses are used to isolate the selected MCS, and latent variables are constructed of items (questions) that measure characteristics of executive managers' use of these MCS. The latent variables and the underpinning items all demonstrated accepted levels of construct validity and internal reliability. The measures were all found useful in the research.

The results contribute to the MCS literature in several ways. Overall, this study shows that the effectiveness of using the MCS on the development in a company's financial performance is determined not only by the type of theory that practitioners choose to guide and direct their subordinates to meet company objectives, but also by 'how' the managers use the chosen theory. The first area of MCS that is investigated is the relationship between design and use of strategy and development in financial performance. The findings of this study not only stress the importance of managers choosing the theory of strategic archetypes that fits and supports their company best, they also need to emphasize the importance of the length of the strategic period

and the extent to which managers set targets for strategic objectives, programs and resources when designing strategy.

Next, managers' extent of focus on customer orientation is related to financial performance. The results show a significant positive correlation, which indicates that stronger customer orientation leads to higher financial performance. These findings confirm previous research within the field (Guilding an McManus, 2002; Ittner and Larcker, 1998; Banker et al. 2000). Additionally, statements given by the executive managers who have participated in the survey also direct focus to the use of customer orientation to enlarge revenue growth, customer profitability, and consequently company financial performance. The financial crisis that started in late 2008 resulted in large decreases in revenue for most of the companies, and to recover this, some of the executive managers point out how they have turned focus in their organizations toward customer needs, customer satisfaction, and new customer and market opportunities.

Third, use of preset numbers, benchmarks, and trend-based evaluation also show a positive influence on the companies' financial performance. And together with the finding that the frequency of formalized business and leadership performance evaluations for determining compensation or providing individual feedback benefits from being higher, the result provides evidence that both managers and their subordinates perform better if they are more continuously updated with objective performance measurements. The findings do not deny the impact of using less objective performance measures when evaluating subordinates, but they indicate that subordinate performance evaluations will have a positive impact on financial performance if objective performance measures and benchmarks are used to a larger extent. Former research confirms that providing more frequent information is positively related to higher performance (Chenhall and Morris, 1986, XX). However, the managers who participated in the survey do not all agree in the statement that a higher frequency of performance evaluations increases financial performance; in fact, in two of the companies they never perform evaluation of leadership.

The fifth and last MCS investigated in this paper is the extent to which managers' use of roles and procedures when guiding and directing subordinates affect company financial performance. The results show a negative relation between highly strict rules and procedures and financial performance. This indicates that MCS can be too strict, which may cause a drop in performance.

According to Simons (2005) and Mundy (2010), managers need a span of control, with a balanced use of different MCS to be able to create dynamic tensions that can enhance performance.

No study is without limitations. This study focuses on some characteristics of managers' use of five MCS, and the findings will benefit from further studies that can confirm them and perhaps include more theories within the five MCS areas. For example, by including the archetype of strategy used by the companies, both the theoretical strategic method and the characteristics within the executive managers' design of strategy may be compared to the development in financial performance to examine if some theoretical archetypes of strategy would be more beneficial than others of different characteristics in the use of strategy. Another limitation is that size and industry categories are the only control variables included. Moderating effects of other organizational or environmental variables such as: competition, culture, technology or organizational structure, could have been included. Further, survey data do not provide as detailed information as it is possible in case studies, even though the data is gathered through personal interviews. However, the survey method is used to gather a large sample (120 of 318), while the purpose of the paper was to find more general characteristics of use of MCS that effect company' financial performance in broader terms.

Despite these limitations, this study provides evidence of the extent to which MCS variables related to strategy, customer orientation, evaluation of subordinates, and rules and procedure in combination lead to effects in financial performance. In addition, this paper demonstrates how a system approach, using a PLS path model may be applied to MCS research.

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Appendix A

Constructs and Underlying Questions

1. **Design and Use of Strategy**
   1.1. Please indicate how many years is the strategic planning period in your SBU
   1.2. Please indicate how much weight your SBU's strategic planning puts on specifying objectives
   1.3. Please indicate how much weight your SBU's strategic planning puts on specifying programs and resources

2. **Customer Orientation** / Please indicate to what extent you agree with the following statements

    2.1. Our SBU succeeds because we find creative solutions to satisfy our customers' needs

    2.2. Our SBU succeeds because we find new customer segments and needs

    2.3. Our SBU succeeds because we deepen and create long-lasting customer relationships

    2.4. Our SBU succeeds because we collaborate extensively with different organizations

3. **Use of Benchmarking when Evaluating Subordinates** / Please indicate to what extent SBU top management evaluates subordinates' performance in relation to…

    3.1. Absolute, preset numbers (euros, time, %)

    3.2. Internal benchmarks (league table position)

    3.3. External benchmarks (league table position)

    3.4. Past performance (trend-based evaluation)

4. **Frequency of Formalized Business and Leadership Performance Evaluation** / Please indicate how often formalized performance evaluations (for determining compensation or providing individual feedback) are conducted in your SBU.

    4.1. Leadership performance

    4.2. Business performance

    > 1. Monthly
    > 2. Quarterly
    > 3. Three times a year
    > 4. Twice a year
    > 5. Once a year
    > 6. Less frequently than once a year
    > 7. Never

5. **Extent of Using Rules and Procedures** / In guiding and directing subordinates' behavior, to what extent does the SBU top management…

    5.1. use company-wide codes of conduct or similar statements?

    5.2. review plans before action?

    5.3. specify minimum requirements (e.g. ROI, implementation times) for business opportunities?