

# Employee Performance Measurement Systems and their Links to the Management Control System Package

- A Study of Strategic Business Units within Large Swedish Companies -

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Performance measurement systems (PMS) is one of several management control systems (MCS) which is used within organisations in order to control the behaviour of the employees. Research has shown that these systems are interrelated and that they should not be investigated in isolation but as a package. However, empirical research within this field has been limited. Thus, the aim of this thesis is to investigate the design and use of PMSs and how the PMSs are linked to other parts of the MCS package, as defined by Malmi and Brown (2008). A quantitative study of strategic business units (SBUs) within large Swedish organisations is conducted and different types of PMSs are identified using k-means cluster analysis base on the SBUs' use of financial and non-financial measures in its employee evaluation. The result is five PMS types: Financial, Non-financial, Low Hybrid, Medium Hybrid and High Hybrid PMS. Links between these PMS groups and the other parts of the MCS package are studied and three distinct patterns are found. *Firstly*, a consistency is observed between the methods used within the PMS and the methods used in other parts of the MCS package. *Secondly*, the characteristics of an SBU's PMS are linked to whether the system is focused more on financial or non-financial measures. *Thirdly*, the extent to which the SBUs use financial and non-financial measures in their employee PMS is connected to the links between the PMS and other parts of the MCS.

**Key words:** performance measurement system, management control system package, employee evaluation, large Swedish companies, hybrid measurement system.

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# 1. Introduction

One of the most important aims of any organisation is to achieve its objectives. Organisations consist of individuals and the behaviour of these individuals affects the outcome of the organisation (Otley, 1999). Therefore, this behaviour needs to be controlled and managed in order to secure that the behaviour of the individual employees is congruent with the company's objectives and that it leads to the achievement of the organisational objectives. One way to manage employee behaviour is through performance measurement systems (PMS), where the performance of employees is evaluated against defined measures (Burney & Matherly, 2007). Traditionally, the measures have been financial, since one of the most basic objectives of a commercial organisation is profit (Kaplan, 1983). Though, nowadays many PMSs also include non-financial measures since they can work as indicators for future financial results (Kaplan, 1983) and make the measures more closely connected to the everyday work of each individual employee (Kald & Nilsson, 2000). Researchers have acknowledged that a control system such as the PMS cannot be investigated separately as a stand-alone system, but needs to be observed as one of many management control systems (MCS), which are all interdependent in their function of steering the organisation towards its objectives (e.g. Chenhall, 2003; Fisher, 1995; Otley, 1980). Malmi and Brown (2008) have recently expanded the research stream with a model called the MCS package, aiming at capturing all different MCSs. The model consists of five main elements: cultural controls, planning, cybernetic controls, rewards and compensation, and administrative controls (Malmi & Brown, 2008). The PMS fits in as a part of the cybernetic controls. The model is a theoretical framework and its strength is the breadth rather than the depth that it covers. Malmi and Brown (2008) further recognise that deeper knowledge about individual systems in the package context needs to be pursued by future research. The purpose of this thesis is thus to empirically investigate the PMS and its connections to the MCS package.

To achieve this aim, a survey has been conducted where strategic business units (SBU) within 71 large Swedish firms have answered questions about both their PMS and other control systems. The questionnaire used for the data collection has been created by Teemu Malmi and Mikko Sandelin. Malmi is one of the researchers behind the MCS package model and the questions in the questionnaire are consequently adapted to suit the model. The data collected is also part of an international project aiming at collecting a large amount of data from different countries in order to enable cross-border comparisons of the MCSs. This thesis contributes with an analysis of the Swedish data focusing on the PMSs and their role within the MCS package. Two main questions are addressed:

1. *How are performance measurement systems designed and used in strategic business units of large Swedish companies?*
2. *How do performance management systems in strategic business units of large Swedish companies relate to other variables in the management control system package?*

Different types of PMSs are identified using cluster analysis. The clusters are based on the use of financial and non-financial measures in the SBU's evaluation of their employees. Once the design and use of the PMSs are established, the PMS groups identified are linked to other parts of the MCS package, as defined by Malmi and Brown (2008). The aim is to find patterns between the type of PMS an SBU uses (the

clusters) and other variables within the MCS package. In order to explain these patterns, external variables are controlled for, such as ownership structure and whether the SBU is part of a quoted company or not.

The thesis is structured as follows. First, previous research on PMS and the MCS package is presented and thereafter the methodology used by the authors is explained. This is followed by the results of the cluster analysis, a description of the identified clusters, and of the identified links between the clusters and the MCS package. These results are then analysed and the authors attempt to explain the PMS design and the package links. Further, overarching patterns of the PMS and MCS use are outlined. Lastly, the validity of the thesis is discussed followed by opportunities for future research.

## **2. Literature Review**

### **2.1 Performance Measurement Systems**

Measuring and evaluating the performance of employees is a part of the concept of performance management. There are at least three different types of performance management systems: the managing of organisational performance, the managing of employee performance, and the integrated managing of both organisational and employee performance (Williams, 1998). The concept of performance management is wide, covering management of performance at all levels within the company and incorporating several different components. Two of these components are performance measurement and performance evaluation. Sometimes these two concepts are combined under the notion of performance measurement, as defined by Burney and Matherly (2007, p. 49): “PM systems are information systems that transform performance data into assessments of organisational and individual performance.” This definition of performance measurement systems (PMS) will be used throughout the thesis. An empirical investigation of organisational PMSs has been executed by Kald and Nilsson (2000) who conclude that the organisational PMSs of business units within large Nordic companies overall are well developed systems using a mix of financial and non-financial measures. In contrast to the research by Kald and Nilsson (2000), the focus of this thesis will be on the performance measures that are used for evaluation of individual employees.

Cleveland et al. (1989) have confirmed that organisations often use PMSs for a multitude of purposes, for example for assessing the need for training, for personnel planning, or as a base for determining economic rewards. The investigation of a PMS can be divided into three main parts: content (what is being assessed), process (how it is being assessed), and outcome (how efficient the system is) (e.g. Fletcher, 2001; Otley, 1980). The *Content* of a PMS is defined by the chosen set of performance measures (Burney & Matherly, 2007) and can be split into measures of *what* should be done and measures of *how* things should be done (Beer, 1981). Theory often differentiates between objective and subjective measurements, where objective measures set clear targets and are easy to measure, for example EBIT, and where subjective measures are more difficult to evaluate and to quantify, for example leadership skills (e.g. Govindarajan & Gupta, 1985). Subjective measures might make it easier for the subordinate to influence the evaluation since such measures to some extent can be discussed (Beer, 1981). The *process* of a PMS includes variables such as participation in target setting (Penno, 1990) and frequency, i.e. how often is performance measured and evaluated. In the case of a PMS, the term

*outcome* can have several meanings, for example employee satisfaction, employee efficiency, and the effects on organisational performance (e.g. Kaplan & Norton, 1992). Measuring and evaluating the results of a PMS is often highly complex and difficult. The first step of studying a PMS is to look at the content of the system. The content needs to be understood in order to be able to investigate the process and the outcome of the system. Therefore, the focus of this thesis will be on studying the content and also include some parts of the processes of the PMSs used by SBUs within large Swedish firms to measure and evaluate employee performance. Hence, PMS outcomes will not be covered. When investigating what is being measured, the authors will differentiate between financial and non-financial measures. Financial measures include all economic measures such as economic results, turnover, profit margin or return on investment. Non-financial measures is a broader category including all other measures used by companies in the evaluation of their employees. Examples of non-financial measures are customer or employee satisfaction, production efficiency, service quality or leadership skills.

Historically, performance measurement systems have focused on pure financial measures (Kaplan, 1983). In the early 80's Kaplan (1983) identified the use of pure financial measures as one of the reasons to why American and European manufacturing companies lost ground to their Japanese competitors. He pointed out that the Western companies should follow the Japanese firms, using a broad spectrum of non-financial measures which worked as indicators for future financial outcomes. This view has gained broad acceptance over time and companies have developed systems with a broader set of measures, including both financial and non-financial measures (e.g. Burney & Matherly, 2007). One example of a more complex PMS is the Balanced Scorecard, where equal importance should be assigned to the four areas *financials*, *customers*, *business-processes* and *innovation and learning* (Kaplan & Norton, 2001). Since financial measures only constitute one fourth of the total measures in the Balanced Scorecards, this system can be said to be focused on non-financial measures. Malmi and Brown (2008) have in their model chosen to divide measurement systems into financial, non-financial and hybrid systems. Comparing the Malmi and Brown (2008) and the Burney and Matherly (2007) approaches, it could be argued that the latter only includes the financial and the hybrid PMS since Burney and Matherly (2007) talk about adding non-financial measures to a system with financial measures. In that way they are not including systems which only/mainly focus on non-financial measures. In this sense, Malmi and Brown's (2008) division of financial and non-financial measures is broader than the Burney and Matherly (2007) theory, including a wider set of PMS types. In order not to lose possible groups of non-financial PMSs in this study, Malmi and Brown's (2008) concept will be used when clustering the PMSs.

Several different research streams have covered the topic of performance measurement, for example management accounting research, information system research, participation literature, and behavioural research (e.g. Burney & Matherly, 2007; Cleveland et al., 1989; Fletcher, 2001; Otley, 1980). One of the main purposes identified of a PMS is to direct employee behaviour (Otley, 1999). However, several researchers recognise that PMS is only one of the control systems with this purpose and acknowledge that all these systems should be investigated as a whole, as a package, and not separately (e.g. Fisher, 1995; Malmi & Brown, 2008; Otley, 1980). The term management control system (MCS) is commonly used to group these systems aiming at directing and controlling employee behaviour. A review of the existing literature within the MCS stream is presented below, followed by a presentation of Malmi and Brown's (2008) model of the MCS package.

## 2.2 Management Control Systems as a Package

### 2.2.1 Management Control Systems

The concept of MCS is not new, but whereas traditional MCSs were aimed at monitoring organisational outcomes with a strong focus on financial numbers (Anthony, 1965; Hofstede, 1978), the modern systems include flexibility and the presentation of a broad range of information (Atkinson et. al, 1997; Chenhall, 2003; Kloot, 1997; Simons, 1990). MCS has been defined in many different ways, sometimes as broad systems covering an array of methods (Chenhall, 2003) and sometimes as more narrow systems aimed at directly controlling employee behaviour (Merchant & Van der Stede, 2007). Zimmerman (1997, 2000) differentiates between decision-making support systems and systems used to control employee behaviour. A decision-support system only *provides information* upon which decisions can be made, in contrast to a control system which *controls* employee behaviour. Malmi and Brown (2008) have adopted Zimmerman's (1997, 2000) idea of dividing pure decision-making support systems and control systems and define MCS as follows:

*[...] management controls include all the devices and systems managers use to ensure that the behaviours and decisions of their employees are consistent with the organisation's objectives and strategies, but exclude pure decision-support systems. (p. 290)*

This definition, which is broader than the narrow MCS definitions (Merchant & Van der Stede, 2007) but due to its exclusion of pure decision-making support systems it is not as broad as that of Chenhall (2003), is the definition used throughout this thesis.

Organisations use many different types of MCSs, for example budgets (e.g. Hopwood, 1972), PMS (e.g. Williams, 1998), organisational structure (e.g. Otley, 1980), and rewards (e.g. Bushman, 1996). Many authors have recognised that these systems do not operate in isolation, that they are influenced by contingent variables (e.g. Chenhall, 2003; Otley, 1980). The contingency theory is frequently used in the management control research and researchers define contingent variables as variables which the organisation cannot control (Chenhall, 2003; Fisher 1995; Otley, 1980). As research has developed, so has the classification of these variables. Variables that used to be considered contingent are now seen as something that the organisation can in fact control. Sometimes, such variables have even been reclassified as a MCS, for instance organisational structure (e.g. Hopwood, 1972). What started as an identification of contingent variables has over time developed into something defined as an MCS package (Otley, 1980). This research argues that control systems cannot be seen as stand-alone systems but should rather be considered to work together as a whole (Chenhall, 2003; Dent, 1990; Fisher, 1998; Flamholtz et al., 1985; Otley, 1980). Malmi and Brown's framework of the MCS package builds on the work of Brown (2005) and is inspired by earlier research such as Chenhall (2003), Fisher (1995, 1998), Flamholtz et al. (1985), Langfield-Smith (1997), Otley (1980) and Simons (1995). The model (Figure 1) is a conceptual framework aimed at aiding empirical studies of MCS as a package (Malmi & Brown, 2008) and will be the theoretical basis of this thesis. MCS is seen as a way of controlling employee behaviour and according to Malmi and Brown (2008) an MCS package consists of five different controls: cultural controls, planning, cybernetic controls, reward and compensation, and administrative controls. Cultural controls are placed at the top of the model due to their broad and subtle function. In the centre of the model, the tightly connected processes of planning, cybernetic control (budget, measurement,

evaluation) and reward are placed in what can be seen as a chronological order. In the bottom, one finds the administrative controls due to their function of bringing structure to the planning, cybernetic and reward controls. The model is broad which put constraints on the depth in which each parameter can be discussed. The broadness is at the same time the strength of the model since many of the variables in previous research have been investigated separately without considering the links to several other MCS components (Fisher, 1995; Malmi & Brown, 2008; Otley, 1980). Below, each part of the MCS package will be explained in more detail.

| Cultural Controls       |                 |                        |                               |                                   |                            |                         |
|-------------------------|-----------------|------------------------|-------------------------------|-----------------------------------|----------------------------|-------------------------|
| Clans                   |                 | Values                 |                               |                                   | Symbols                    |                         |
| Planning                |                 | Cybernetic Controls    |                               |                                   |                            | Reward and Compensation |
| Long range planning     | Action planning | Budgets                | Financial Measurement Systems | Non Financial Measurement Systems | Hybrid Measurement Systems |                         |
| Administrative Controls |                 |                        |                               |                                   |                            |                         |
| Governance Structure    |                 | Organisation Structure |                               |                                   | Policies and Procedures    |                         |

Figure 1: MSC Package by Malmi & Brown (2008, p. 291)

### 2.2.2 Cultural Controls

Culture can be identified on different levels, for example national culture, company culture and subunit culture (Dent, 1991; Flamholtz et al., 1985; Fletcher, 2001; Henri, 2006; Hofstede, 1980). Company culture or organisational culture is defined by Flamholtz et al. (1985) as “the set of values, beliefs and social norms which tend to be shared by its members and, in turn, influence their thoughts and actions” (p. 158). Organisational culture is the level of culture used in the MCS model by Malmi and Brown (2008) and they recognise three different cultural controls within the model; value controls, symbol controls and clan controls. *Value controls* are those affecting employees’ values and beliefs which can be done in three different ways: when recruiting, through socialization within the organisation and thirdly through value statements and similar systems which influence employees to behave according to certain values, no matter what their personal beliefs are (Malmi & Brown, 2008). *Symbols* are visible expressions which symbolize and also create a certain culture, for instance dress codes or open door policies (Malmi & Brown, 2008). The last type of cultural control recognised in Malmi and Brown’s (2008) model, *clan control*, is a concept developed by Ouchi (1979) and further acknowledged by Dent (1991). The idea is that subcultures are developed within the organisation and that these subcultures affect the organisational culture (Ouchi, 1979). Dent (1991) demonstrates that companies have different cultures by showing the example of an organisation with a strong engineering culture and the challenges it faces when changing into a more accounting oriented culture. Another type of clan control could be whether things typically are quantified or not. Mikes (2009) investigates the enterprise risk management (ERM) in two banks and finds out that ERM is very differently conducted depending on whether the company has a tradition or culture of using quantitative or qualitative tools. She thus concludes that a company can have for example a calculative culture.

### 2.2.3 Planning Controls

In the model, planning is divided into long-range planning and action planning where action planning is defined as goals and actions for the immediate future, that is one year or less, whereas long-range planning refers to a period longer than one year (Malmi & Brown, 2008). Otley (1980) considers organisational objectives to be a contingent variable. Malmi & Brown (2008) on the other hand include the objectives which the organisations themselves can control in the MCS package. In Malmi and Brown's (2008) definition the concept of planning includes setting out goals of functional areas, providing standards to be achieved in relation to the goals and enabling co-ordination through goal alignment. Dent (1990) makes the distinction between corporate strategy and business level strategy where business levels strategy is focused on "the identification of optimal competitive strategies in each business" (p. 7), this type of strategy is what will be called long-range planning in the thesis. The corporate strategy, including decisions of for instance what business the SBU should be in, is assumed to be outside the control of the SBU management and is therefore seen as a contingent variable.

The concept of strategy as long-term planning is used in a variety of literature and is according to Dent (1990) an elusive concept. Research on the correlations between control systems and strategy, where strategy is seen as a contingent variable, has been conducted in earlier studies. One example is Merchant (1985) who divided companies into different strategy clusters depending on their growth and found that rapid growth was connected to greater budget pressure. Another example is Simons (1990) who looked at how control systems differ depending on the strategy, dividing the companies into groups of defender/cost and prospector/differentiation strategies. The first group was found to have tight financial budget goals with a top down approach while the latter strategy group set their strategies on a business unit level. Both Merchant (1985) and Simons (1990) separate strategy (long-range planning) from control, a view that is different from Malmi and Brown's (2008) concept of seeing planning as a part of the MCS. Another research line integrating the strategy and control concepts is the idea of Strategic Performance Measurement Systems (SPMS) or Strategic Management Systems (Chenhall, 2005; Kaplan & Norton, 1992, 1996, 2001) which is dominated by the Balanced Scorecard model. Within this research stream, the idea of integrating planning and control is developed.

Planning can have different purposes, either to make decisions on future activities or to commit employees to the plans (Malmi & Brown, 2008). Commitment can be built during the planning process by letting the employees take part in and have influence on the goal-setting process (e.g. Flamholtz et al., 1985). Though, Penno (1990) points out that the influence should be indirect, meaning that employees should not set the targets upon which they themselves are evaluated.

### 2.2.4 Cybernetic Controls

Malmi and Brown (2008) refer to the Green and Welsh (1988) definition of cybernetic controls:

*[...] a process in which a feedback loop is represented by using standards of performance, measuring system performance, comparing that performance to standards, feeding back information about unwanted variances in the systems, and modifying the system's component. (p. 289)*

Four basic cybernetic systems have been identified by Malmi and Brown (2008): budgets, financial measurement systems, non-financial measurement systems and hybrid measurement systems. Budget is

defined as a control mechanism which focuses on the acceptance levels of behaviour and on the evaluation against these plans (Malmi & Brown, 2008). Targets for performance evaluation are often set within the budgetary system, leading to an interest among the employees to participate in the formation of the budget and thereby affect the level of the targets they will later be evaluated on (Penno, 1990). Penno (1990) concludes that employee participation in the budgetary process can have a negative effect for the organisation if the employees are able to directly affect the level of the targets on which they will be evaluated. The financial measurement systems, as defined by Malmi and Brown (2008) is a broader concept which includes the measurement of financial targets which can also lie outside the budgetary system. Non-financial measurement systems are used more and more in practice when companies are moving from financial measures only to more comprehensive measurement systems in an attempt to overcome the limitations and the inflexibility of pure financial measures (Burney & Matherly, 2007; Malmi & Brown, 2008). Finally, the hybrid measurement systems combine financial and non-financial measures (Malmi & Brown, 2008). One common practice of a hybrid measurement system is the Balanced Scorecard (Kaplan and Norton, 1992, 1996, 2001). Financial, non-financial, and hybrid measures can be summarised under the concept of PMS. Although this concept is a part of Malmi and Brown's MCS package (2008), it is not developed in detail. This is a conscious choice by the two authors, who have focused on creating a framework that gives a good overview of the package. They explicitly suggest that future researchers should look into more detailed aspects of the framework. This thesis attempts to give further insights into how PMS fits into the package and how it relates to other parts of the package.

### **2.2.5 Reward and Compensation**

The aim of rewards is to achieve congruence between individual and organisational goals and to motivate employees to increase performance (Bonner & Sprinkle, 2002; Malmi & Brown, 2008). Three additional objectives with rewards and compensation are presented by Malmi and Brown (2008): to direct employee effort, to increase the effort duration, and to enhance the effort intensity. Rewards can be either extrinsic or intrinsic (Flamholtz et al., 1985) and research has during many years mainly focused on extrinsic rewards (Ittner and Larcker, 2001). Existing research on extrinsic rewards examines for example to what extent CEO bonuses are based on individual performances (Bushman, Indjejikian, & Smith, 1996), the link between strategy and management bonuses (Govindarajan & Gupta, 1985), and the impact of diversity and subjectivity in the evaluation for bonuses (Moers, 2005).

Rewards are sometimes tightly connected to cybernetic controls but research shows that managers are not only rewarded on cybernetic control measures but also on more subjective parameters (Moers, 2005). Malmi and Brown (2008) also point out that rewards can be used for other reasons than rewarding employees for their performance, for instance as a method for employee retention or for strengthening the group through group rewards. Based on these arguments, Malmi and Brown (2008) have decided to separate rewards and compensation from cybernetic controls in the model.

### **2.2.6 Administrative Controls**

Administrative controls are seen as the base of structures and rules upon which the organisation relies and is therefore placed at the bottom of the MCS package model. Three different types of administrative controls are identified by Malmi and Brown (2008): organisation design and structure, governance structures within the firm, and procedures and policies. *Organisational design* can for instance be used to

make the employees work closer with certain colleagues and is therefore considered a control tool. It is seen as a contextual variable by some researchers (see Chenhall, 2003) but Malmi and Brown (2008) conclude that the organisational design is something the managers can control and it is therefore seen as a part of the MCS package. The *governance structure* creates formal lines of authority and accountability and includes controls such as agenda-setting and meeting schedules. The last type of control, *policies and procedures*, includes bureaucratic controls such as action controls (Merchant & Van der Stede, 2007), rules and policies (Simons, 1987) and standards (Macintosh & Daft, 1987). The effects of the use of policies and procedures is a topic heavily debated in previous literature, and the research points in different directions (Adler & Borys, 1996). On the one hand, it is argued that formalisation such as rules and procedures has a negative effect on employee commitment and leads to stress, absence, less innovation and lower job satisfaction among the employees (Rousseau, 1978). On the other hand, another research stream argues that rules and procedures increase work satisfaction since they facilitate the work and reduce role conflicts (Jackson & Schuler, 1985). To align both streams Adler and Borys (1996) take inspiration from contingency theory and conclude that formalisation is positive or negative depending on whether the rules implemented enable the employees to perform their tasks better or not.

## 2.3 Contingent Variables

Variables which are assumed to be outside the control of the management team are placed outside the MCS package (Malmi & Brown, 2008). One variable outside the control of the SBU management team is the owner structure of the organisation. Different types of owners can have different objectives which they wish for the organisation to achieve and different ideas on how the MCS should be designed. In some cases, for instance for quoted companies, laws and regulations demand that an MCS includes certain controls and measures certain variables, for instance rewards for the management team (Svensk kod för bolagsstyrning, 2010). The stock market pressures quoted companies to deliver short-term earnings which in turn affects the corporate level control systems to focus more on financial than non-financial measures (Kraus & Lind, 2010). However, research has also shown that the financial focus of the control systems is not only due to the external pressure on quoted companies. It is also due to managers' perceptions that they should have more financially focused control systems since they are a quoted company (Kraus & Strömsten, 2010). Another example of an owner structure which has proven to affect the MCS is venture capitalist or private equity owners. Silvola (2008) provides empirical evidence indicating that for companies with venture capitalist owners the importance of producing profit is higher than for organisations with other owner structures. Further, evidence presented by Bloom et al. (2009) indicates that organisations owned by private equity companies are better managed than companies with other types of owners both regarding people management and operations management practices when testing for variables such as monitoring performance of individuals, target setting and incentive plans. The environmental and company factors mentioned above will be used in our analysis to help explain the results and the characteristics of the PMSs and their links to the other MCSs.

## 3. Methodology

### 3.1 Research Approach

This thesis will take an abductive approach by using both theory and empirical material to draw new conclusions. Based on a number of different research streams the empirical results on how SBUs in large Swedish firms work with their employee PMSs and with other control systems will be investigated.

There are three basic methods for investigating the underlying reasons for a control system's design: the situation-specific approach, the universalistic approach, and the contingency approach (Hambrick & Lei, 1985). When applying the *situation-specific approach*, the assumption is that each situation is unique and that each system is affected by unique variables. Thus, it is difficult to make generalizations from one firm to another. The *universalistic approach* on the other hand states that there are some control system designs that are optimal, and that are possible to use in all settings and in all types of firms, at least to some extent (Fisher, 1995). These approaches represent two extremes, and the *contingency approach* is to be found in between. According to this method it is not possible to find a universalistic approach that is always optimal; however, it is possible to draw some general conclusions about contingent variables affecting the MCS design (e.g. Otley, 1980; Fisher, 1995). The research of Malmi and Brown (2008) which is extensively used in this thesis has used the contingency approach and it is thus naturally to use the same theoretical foundation. In the literature, comparability is often sought after and by applying the same theoretical approach as previous research, the comparability of our thesis increases.

In order to achieve the aim of being able to draw broader conclusions from the results, this thesis will take a quantitative approach and investigate the control systems in a number of large Swedish firms. In earlier research it has been recognised that a deeper understanding of the individual systems is obtained using a qualitative method (e.g. Fischer, 1995; Otley, 1980). Though, since this study aims at providing a broader picture and investigating patterns across a wide range of companies, a quantitative approach is appropriate.

### 3.2 Data Collection

#### 3.2.1 Questionnaire

The decision of making a quantitative investigation leads to the requirement of a formalised way of collecting the data and making it standardized and comparable. The use of questionnaires is proven to be an effective way of collecting an extensive amount of information (Tackakkori & Teddlie, 2003). Two major critiques have been expressed towards this type of collection method. Firstly, the alternatives in a questionnaire constrain the possibility for the interviewees to answer in an exact way and instead they will choose the most suitable answers given the different alternatives. Secondly, there is a risk of misunderstandings and differentiations in the interpretations of the questions which makes the answers less reliable and comparable. In order to reduce these two problems related to the chosen method, one or two of the researchers have been present when the interviewees have filled out the questionnaire. The fact that the researchers have been present lowers the risk of the representatives answering the multiple choice questions without thinking the answers through, a problem which have been noticed in earlier research (Tackakkori & Teddlie, 2003). Also, the person interviewed has been able to ask

questions during the process and notes have been made by the researchers in a few cases when the alternatives in the questionnaires have been inadequate. The answers to these specific questions have then been handled as missing values in order to not let them affect the validity of the results. One advantage of using questionnaires when collecting empirical data is that the perceived anonymity is higher compared to a regular interview with open-ended questions (Tackakkori & Teddlie, 2003). This is an advantage for this study since the information regarding the control systems in many cases is confidential and the anonymity is of great importance to the participating organisations. Another crucial advantage of the multiple choice questions is that it facilitates the comparability between the observations and makes it possible to compare the results without having to interpret and classify the answers from open-end questions.

The questionnaire used in this study was created by Teemu Malmi and Mikko Sandelin at Aalto University in Finland. One of their aims was to be able to compare results across industries and across countries. Therefore, the data collection has been extended to a total of twelve European countries. The questionnaire is based on a number of different theories but the main theory is that of MCS as a package by Malmi and Brown (2008). Since this thesis is based upon the same theoretical foundation as the questionnaire, the data which is generated by the questionnaire is well suitable to serve as the empirical basis of the thesis.

For the majority of the questions, the alternative answers are on a seven-point Likert scale with alternatives such as “not at all” and “very typical” on the extremes. This scale has been proven to have a high validity and reliability by researchers within the questionnaire design field (e.g. Krosnick & Tahk, 2011; Preston & Colman, 2000). One problem which might occur is though that the same number can be perceived to have different values for different individuals. Another problem is that the subjectivity in questions such as “how well does it work...?” will affect the answer; optimistic persons will say that they are good at everything while pessimistic persons will put a lower number with the motivation that there is always room for improvement. Bertrand and Mullainathan (2001) conclude that there is an error term when the respondents’ subjective opinions may affect the answer and that the size of the error term is hard to measure with confidence, the error term is though concluded to be small and thus have a minor impact on the results.

Malmi and Sandelin’s questionnaire “Effective Management and Control Systems” consists of seven parts: a) strategic planning content and process, b) short-term planning content and process, c) performance measurement and evaluation, d) rewards and compensation, e) organisational structure and management processes, f) organisation culture and values and f) organisation and environment. The questionnaire has been translated into Swedish and the interviewees have had the opportunity to choose between the English and Swedish version depending on which language they are most comfortable using. Since the corporate language in many Swedish firms is English, some interviewees have preferred the English version although the majority has preferred the Swedish version. The questionnaire is addressing a manager of an SBU within a large organisation and this is the perspective from which the questions have been answered.

### 3.2.2 Sample

Data has been collected from a sample of the largest companies in Sweden. The largest companies are of special interest for this thesis since they in general have a larger and more complex organisation to control, compared to smaller companies. It is therefore natural to assume that their MCSs are more extensive and more developed. The Swedish database Affärsdata was used to identify the largest companies in Sweden based on the number of employees. The cut-off point for a large company was set at 500 employees. Also, the aim was to have an even distribution of companies in the three industries *trade and retail*, *services*, and *industry*. Based on these criteria, a list of 187 Swedish firms was generated. This list thus represents the population of large Swedish firms based on number of employees and industry. The companies are all limited companies registered in Sweden but can have either Swedish or foreign owners. The CEO of the companies have been contacted primarily by telephone and secondarily by e-mail and have been asked to recommend a manager of an SBU within the company who could be interested in participating in the project. The manager has thereafter been contacted and requested to spare approximately one and a half hour for an interview. The majority of the interviewees have had a position as a manager of an SBU but in some cases the CEO or a business unit controller have taken on the interview instead. In cases when the interviewee has not known the answer to a question, a follow-up by e-mail has been done in order to complete the questionnaire. In total 71 companies have given a positive reply and consequently participated in the project. Thus, within the study, 40 % of the population is represented with an SBU. When controlling the final sample for the two parameters number of employees and industry, the distribution equals the distribution within the population, and the sample is hence assumed to be representative for the population. In Sweden, data has been collected by students at the Stockholm School of Economics, the University of Gothenburg and the University of Örebro. All this data will be used as the empirical base in this thesis.

## 3.3 Statistical Analysis

### 3.3.1 Cluster Analysis

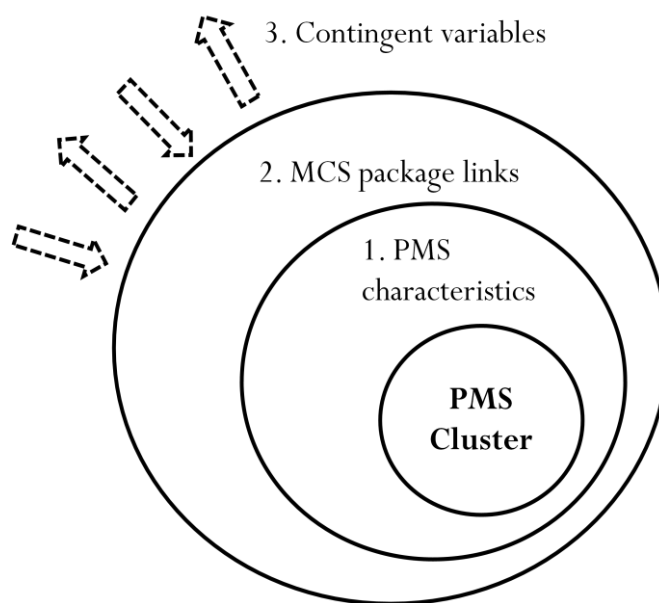
The first aim of this thesis is to investigate which types of PMSs are used by SBUs in large Swedish firms. The large amount of data thus needs to be organised to find which different types of PMSs are used by the sample firms. The method used is cluster analysis, which has proven to be effective when aiming at creating groups out of large data samples (Hair et. al, 1995). The clusters are created based on the extent to which the SBU uses financial and/or non-financial performance measures in its employee PMS. The companies participating in the project have been asked: "*Please indicate to what extent you base your subordinates' performance evaluation on: a) Financial measures and b) Non-financial measures*". The scale used is 1 – 7 where 1 is "*not at all*" and 7 is "*very typical*". All SBUs have provided an answer to this question leading to 71 valid observations and no missing values. There are two main methods for creating clusters: hierarchical clustering and non-hierarchical clustering (k-means clustering). Hierarchical clustering orders the observations into a hierarchy of clusters where level one is one cluster for each observation and the last level is one cluster including all observations. Hierarchical cluster analysis is susceptible to outliers (Hair et. al, 1995). Though, non-hierarchical (ex. K-means) cluster analysis is more sensible to outliers if the seed points are random, i.e. if the researchers do not specify the observations which should be the base of each cluster. This is due to one of the main disadvantages of k-means clustering, the fact that the order of the observations affects the clustering. The problem is possible to minimize by running a number of cluster analyses and chose the one which is considered to

be the most representative for the sample (Hair et. al, 1995). When handling large samples, non-hierarchical procedures are to prefer. Since this study has a large sample and since the main disadvantage of this method can be adjusted for, as described above, a non-hierarchical k-means cluster analysis is chosen for this study.

The observations in this study have been processed in IBM SPSS Statistics 19 using a k-means cluster analysis. When using a k-means cluster analysis, the number of clusters has to be chosen manually. The approach when choosing the number of clusters was to start with a theoretical approach, three clusters for the three PMS groups defined by Malmi & Brown (2008): financial, non-financial and hybrid. When testing for three clusters, the data showed a high concentration on hybrid systems. Given this result, the analysis was adapted to the empirical data and a new cluster analysis with five clusters was performed in order to control whether sub-clusters existed within the hybrid group. The k-mean analysis was redone and the result showed five relatively distinct clusters which are presented more closely in *Chapter 4*. A number of analyses were conducted, sorting the observations in different orders to verify that the most representative clustering was chosen. Although the results changed marginally when changing the order of the observations the main tendencies remained and the conclusion was consequently that the five clusters were representative for the sample.

### 3.3.2 Descriptive Variables

In order to further specify the content of the PMS clusters and the relation to other MCSs, an analysis of descriptive variables has been conducted. This analysis involves three steps: PMS characteristics, MCS package links, and contingent variables (Figure 2). In the first step, variables further explaining the design and use of the PMS are analysed using SPSS Descriptive Statistics. An example of such a variable is to what extent leadership is measured in the evaluation of subordinates' performance. The second step expands the analysis to include descriptive variables from other parts of the MCS package, for instance planning and corporate culture while the third and last step controls for differences in the environment of the SBUs



**Figure 2: The levels of analysis of descriptive variables connected to the PMS clusters**

looking at contingent variables such as owner structure. Two different types of descriptive analyses have been conducted. For questions where the interviewee have had numerical alternatives (on a scale from 1 – 7) the mean values for each cluster has been calculated in SPSS. In order to more thoroughly be able to investigate the spread in the answers, a frequency analysis has also been conducted for each cluster and each descriptive parameter. The frequency analysis presents how many observations in each cluster that have marked the same answer (for instance, 25 % have answered 1 and 10 % have answered 7). Frequency analyses have also been conducted for questions which have non-numerical answers, e.g.

when the answer is divided in different periods ranging from for example a) quarterly to e) less frequently than once a year. The descriptive variables are only used to describe the cluster characteristics, no cause-effect is established since one of the main thoughts of the MCS package by Malmi and Brown (2008) is that all the components within the package affect and are affected by each other. Neither is a cause-effect relation established regarding the contingent (environmental) variables and the clusters.

## 4. Performance Measurement System Types

### 4.1 Identification of Performance Measurement System Types

As has been described above, Malmi and Brown (2008) have identified three different types of PMSs: financial, non-financial, and hybrid which is a combination of the two. With this theory in mind, the two parameters financial and non-financial measures were used as the basis for the clustering. All SBUs participating in the study have answered the question “Please indicate to what extent you base your subordinates’ performance evaluation on: a) financial measures and b) non-financial measures”. The word subordinate here refers to the direct subordinates of the SBU manager. A k-mean cluster analysis has been conducted based on these two parameters resulting in five clusters consisting of SBUs using financial and non-financial measures to different extents (see Figure 3).

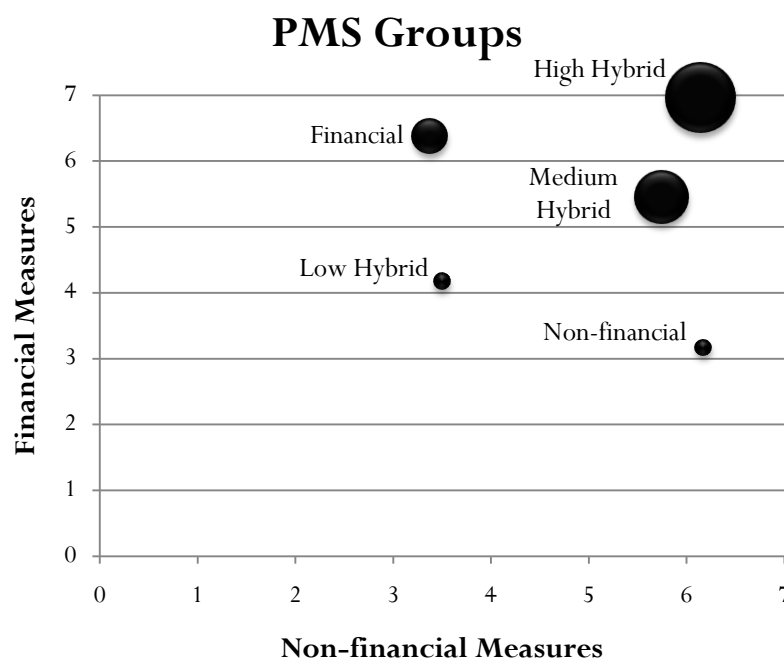


Figure 3: The positioning of the mean points of the five clusters with the size of the dot indicating the size of the cluster.

Firstly, it can be observed that no cluster is neither a pure financial PMS nor a pure non-financial PMS. Instead, all five clusters use different mixes of financial and non-financial measures. Two of the clusters are relatively small, containing only six observations each. In such a situation one has to consider whether these are real clusters existing within the population or whether they are outliers which should be eliminated (Hair et. al, 1995). In this case, the two small clusters have specific characteristics: one has a strong focus on non-financial measures and one has a lower focus on measures overall. The clusters will therefore be included in the analysis in order to represent these characteristics.

The first cluster has a strong focus on financial measures and will thus be named the **Financial PMS**. This group contains 13 SBUs, representing 18.1 % of the total sample. This indicates that every 5<sup>th</sup> or 6<sup>th</sup> SBU within large Swedish companies uses primarily financial measures when evaluating subordinates performance within a strategic business unit. Contrary to the Financial PMS, one cluster has a significantly stronger focus on non-financial measures in its PMS. This group will consequently be named the **Non-financial PMS**. With its six member SBUs, the cluster is approximately half the size of the Financial PMS. This amounts to 8.5% of the total sample indicating that every 11<sup>th</sup> or 12<sup>th</sup> SBU within large Swedish companies uses primarily non-financial measures when evaluating the performance of employees. The remaining three clusters use financial and non-financial measures to a relatively equal extent and will be categorized as *hybrid clusters*. The difference between the three hybrid clusters can be seen in the extent to which they use financial and non-financial measures when evaluating their employees. The **High Hybrid PMS** uses both financial and non-financial measures to a high extent, with a slight overweight on financial measures, when evaluating the employee performance. It is the largest cluster with 26 SBUs, equalling 36.6 % of the sample. These results indicate that every 3<sup>rd</sup> SBU within large Swedish companies uses both financial and non-financial measures to a large extent when evaluating individual performance. The **Medium Hybrid PMS** is the second largest cluster with 20 companies equalling 28.2 % of the sample, indicating that every 3<sup>rd</sup> or 4<sup>th</sup> SBU within large companies in Sweden has this type of PMS. Like the High Hybrid PMS cluster, the Medium Hybrid PMS cluster uses both financial and non-financial measures but consider both to be slightly less important compared to the High Hybrid PMS cluster. The Medium Hybrid PMS group focuses slightly more on non-financial measures than financial measures. The fact that the High and Medium Hybrid PMS clusters together contain a majority of the companies is well in line with research by for instance Burney and Matherly (2007) which states that companies nowadays complement the financial measures with non-financial measures. Further, the **Low Hybrid PMS** cluster, uses financial and non-financial measures to the lowest extent of the three hybrid clusters. Financial measures are considered to be slightly more important than non-financials. The cluster is of the same size as the Non-financial PMS group with six SBUs corresponding to 8.5% of the sample.

## 4.2 Characteristics of the Performance Measurement System Types

To further describe the five types of PMSs, a number of system features will be presented below. These features will cover the characteristics of the measures, the standards against which the performance is evaluated, the purpose of the PMS, the frequency of formalised performance evaluation, and the importance the PMS groups attach to the PMS.

### 4.2.1 Measure Characteristics

In this section, the types of measures used by the PMS groups are investigated in more detail. Firstly, the extent to which the groups use detailed and aggregate measures is established. Thereafter, two different types of non-financial measures are investigated. These are measures of leadership achievements and measures of actions and decisions taken. Further, the SBUs have been asked to what extent they evaluate their employees based on individual efforts. This variable indicates if the evaluation in a specific PMS group is created to measure what each employee has achieved individually. Finally, the total number of performance measures used by each PMS group is presented.

When measuring performance both detailed and aggregate measures can be used. A detailed measure can for instance relate to a specific budget line item (ex. raw material cost) whereas an aggregated measure can be the total profit for the department. Looking at the extent to which the five PMS groups use detailed and aggregate measures it can be seen that both are used to a relatively high extent by almost all groups (see Table 1). However, the Low Hybrid PMS group stands out by indicating a low use of detailed measures compared to the other groups. If looking at the aggregate measures, the Non-financial PMS group has indicated the lowest use. It can also be seen that the three groups which have a relatively higher focus on financial measures than non-financial measures (the Financial PMS, the High Hybrid PMS and the Low Hybrid PMS) use aggregate measures to a greater extent than they use detailed measures. The two PMS groups which focuses more on non-financial measures consider the two types equally important (the Non-financial PMS) or consider the detailed measures to be more important (the Medium Hybrid PMS).

**Table 1: The use of detailed and aggregate performance measures**

|                    | Detailed measures | Aggregate measures |
|--------------------|-------------------|--------------------|
| <b>Fin. PMS</b>    | 4.31              | 5.77               |
| <b>Non-Fin.</b>    | 4.33              | 4.33               |
| <b>Low Hybrid</b>  | 2.83              | 5.50               |
| <b>Mid Hybrid</b>  | 5.05              | 4.80               |
| <b>High Hybrid</b> | 5.12              | 5.69               |

Leadership, actions and decisions taken as well as individual efforts are factors which may form part of the evaluation of subordinates' performance. Such factors might be expressed in non-financial measures or as a more subjective evaluation or discussion based on the manager's observations (Beer, 1981). These parameters can also indicate whether the subordinates of an SBU manager are evaluated on their individual contribution to the company. In contrast to financial and non-financial measures which can be either on an individual level, a department level or a business unit level, these are parameters which the subordinates with confidence can affect and which they hence can be held directly responsible for. When analysing the data it can be observed that the three PMS groups which use non-financial measures to the greatest extent (High Hybrid, Medium Hybrid, and Non-financial PMS) tend to incorporate leadership achievements, actions and decisions, and individual efforts to the highest extent. The PMS which puts less weight on non-financial measures on the other hand tend to not include these parameters to the same extent (Table 2).

**Table 2: The incorporation of leadership, actions and individual measures along with the number of measures incorporated**

|                    | Leadership | Actions and decisions | Individual efforts | Number of measures |
|--------------------|------------|-----------------------|--------------------|--------------------|
| <b>Fin. PMS</b>    | 4.31       | 4.15                  | 4.62               | 5.58               |
| <b>Non-Fin.</b>    | 5.67       | 6.17                  | 5.83               | 3.67               |
| <b>Low Hybrid</b>  | 4.33       | 4.00                  | 4.00               | 5.80               |
| <b>Mid Hybrid</b>  | 5.10       | 5.50                  | 5.55               | 5.75*              |
| <b>High Hybrid</b> | 5.27       | 5.27                  | 4.96               | 6.73               |

\*Excluding the outlier of 30 measures

When looking at how many measures the SBUs use in their PMSs, it can be observed that five measures is the most common number of measures for the whole sample (Figure 4). Also, the majority of the SBUs use between three and ten measures. The three hybrid groups use more measures than the two other PMS groups. The High Hybrid PMS group uses the most measures and is the only group with SBUs that use eleven and more measures (except for the outlier in the Medium Hybrid PMS group

which uses 30 measures). That the hybrid groups use the highest number of measures seems reasonable since these groups use a broader range of both financial and non-financial measures. The lowest number of measures can be observed in the Non-financial PMS group where no SBU has indicated more than five measures. Although the Low Hybrid PMS group has stated that it does not use financial and non-financial measures to such a great extent when evaluating employee performance, the group still holds its employees responsible for as many measures as the Medium Hybrid PMS group. That is, the fact that the measures are not in focus during the evaluation in the Low Hybrid PMS group does not mean that it does not have measures for evaluation purposes.

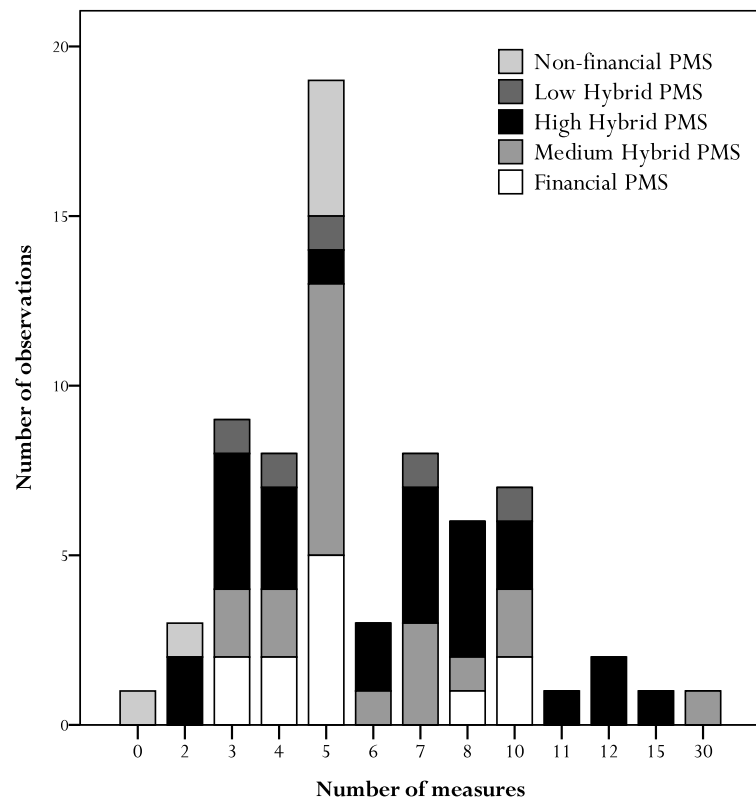


Figure 4: Number of measures the subordinates are kept responsible for indicating cluster membership

#### 4.2.2 Performance Standards

When measuring the performance of an employee, this performance needs to be evaluated against a standard in order to tell how well the employee has in fact performed. Four commonly used methods for comparison are included in the survey: absolute and preset numbers (EUR, time, %), internal benchmarks, external benchmarks, and previous achievements (i.e. trend based).

Looking at the whole sample, it can be concluded that absolute, preset numbers is the most commonly used standard. Internal and external benchmarks on the other hand are not as common in the PMSs. Absolute, preset numbers is the most common standard in all PMS groups except for the Non-financial PMS group where comparisons to past performance is more common. The hybrids, which consider both financial and non-financial measures to be important for the employee evaluation, use the widest range of performance standards. As can be seen in Table 3, almost all SBUs in the High Hybrid PMS group use more than one performance standard in its PMS. This can possibly be linked to their use of different types of measures which demand different types of performance standards.

Table 3: Performance standards used by the different PMS types

|                    | Absolute,<br>preset numbers | Internal<br>benchmarks | External<br>benchmarks | Past<br>performance | Use of multiple<br>standards* |
|--------------------|-----------------------------|------------------------|------------------------|---------------------|-------------------------------|
| <b>Fin. PMS</b>    | 6.23                        | 4.00                   | 2.92                   | 4.54                | 62%                           |
| <b>Non-Fin.</b>    | 3.83                        | 1.83                   | 2.67                   | 4.00                | 50%                           |
| <b>Low Hybrid</b>  | 5.50                        | 3.00                   | 2.50                   | 3.83                | 67%                           |
| <b>Mid Hybrid</b>  | 5.70                        | 4.85                   | 3.75                   | 5.15                | 75%                           |
| <b>High Hybrid</b> | 6.50                        | 4.27                   | 3.81                   | 5.31                | 92%                           |

\* Degree of SBUs that have indicated more than one standard as commonly used (5 or above on a scale from 1-7).

#### 4.2.3 The Purposes of Performance Evaluation

It has been established that all SBU managers use both financial and non-financial measures to different extents to evaluate the performance of their subordinates. A related question when further explaining the different PMSs is whether there are differences in which purpose(s) a PMS has. Three different purposes of the PMS have been investigated: if the system aims at providing feedback for learning and improving future performance, if it aims at awarding those that deserve it, or if it aims at directing subordinates' attention to important issues.

Looking at the whole sample, it can be observed that the purpose employed the least by all PMS groups is to award the subordinates who deserve it. Instead, the PMS groups which use financial measures to a greater extent than they use non-financial measures (Financial, Low Hybrid, and High Hybrid) mostly use their PMS to direct subordinates' attention to important issues. The groups which focus primarily on non-financial measures (Non-financial and Medium Hybrid PMS) on the other hand mostly use their PMS to provide feedback to the subordinates so that they can improve their future performance. It can thus be concluded that the PMS focus is related to the purpose of the PMS. When investigating how many purposes the groups attach to their PMS it can be concluded that the High Hybrid, the Medium Hybrid, and the Financial PMS groups have the broadest range of purposes of their PMS (see Table 4). It is interesting to note that the Financial PMS group use its PMS for as many purposes as do the two largest hybrid groups. It is also interesting that the third hybrid, the Low Hybrid PMS group has a more narrow use of its PMS.

Table 4: The purpose of the performance measurement systems

|                    | Provide feedback<br>for learning | Award those who<br>deserve it | Direct subordinates'<br>attention | Cover all<br>purposes* |
|--------------------|----------------------------------|-------------------------------|-----------------------------------|------------------------|
| <b>Fin. PMS</b>    | 5.54                             | 5.46                          | 5.62                              | 69%                    |
| <b>Non-Fin.</b>    | 5.33                             | 4.33                          | 5.33                              | 50%                    |
| <b>Low Hybrid</b>  | 4.50                             | 4.17                          | 5.00                              | 17%                    |
| <b>Mid Hybrid</b>  | 6.00                             | 5.60                          | 5.80                              | 70%                    |
| <b>High Hybrid</b> | 6.27                             | 5.65                          | 6.35                              | 80%                    |

\* Degree of SBUs that have indicated all three purposes as important (5 or above on a scale from 1-7).

#### 4.2.4 Frequency of Formalised Performance Evaluations

Moving on from the content of the PMS to the process of the performance evaluation, the frequency of formalised performance evaluations will now be investigated. By including this parameter it is possible to see if there are any connections between how often performance is formally evaluated and the PMS content (i.e. the financial or non-financial measures). The frequency of formal performance evaluations for both *leadership achievements* and *business achievements* is investigated in order to study whether there are

any differences across the PMS groups and between the business performance and the softer variable leadership achievements. What must be noted is that only *formalised* performance evaluations are included in this study and that the SBUs might use less formalised types of evaluations as well.

As can be seen in Figure 5, most SBUs (56% of all SBUs) evaluate leadership achievements once a year. The two PMS groups which, in absolute terms, do not use non-financial measures to such a high extent (Financial and Low Hybrid PMS) evaluate leadership achievements less frequently than the other groups. This can be illustrated by the fact that only 23% of the SBUs in the Financial SBU evaluates leadership more than once a year whereas 50% of the SBUs in the Medium Hybrid and the Non-financial PMS groups formally evaluate leadership more than once a year. When comparing these results with the results from the leadership parameter discussed in the measurement characteristics section a pattern can be seen: the PMSs which use non-financial measures the most (Non-financial, High Hybrid, and Medium Hybrid) and which tend to put more weight on leadership achievements in their performance evaluation also tend to evaluate leadership performance more frequently than the other two PMS groups.

When moving on to the frequency with which business achievements are evaluated one can see that business achievements are evaluated more frequently than leadership performance in all five PMS groups. Again, the Financial PMS group evaluates performance less frequently than the other groups: 54% of the responding SBUs in this group have formal business evaluations more than once a year. For the Medium Hybrid and the Non-financial PMS groups approximately 80% of the SBUs do this. To summarise, it can be concluded that the Non-financial and the Medium Hybrid PMS groups which have a higher focus on non-financial measures evaluate both leadership and business performance formally more often than the other PMS groups with a more financial focus.

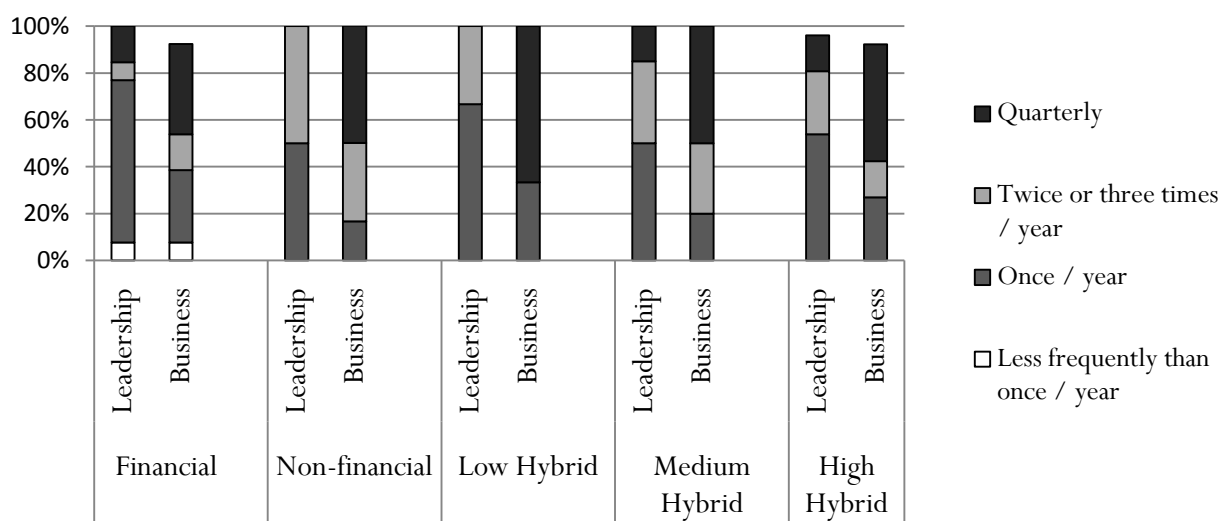


Figure 5: Frequency of formalised leadership and business evaluation per PMS group

#### 4.2.5 Importance of Performance Measurement and Evaluation

Another parameter included in the study is to what extent the SBU perceives the performance measurement and evaluation system to be an important management control system. As can be seen in Table 5, all PMS groups consider the system to be important. The three hybrids consider the system to be more important than do the Financial and Non-financial PMS groups. Of all five groups, the Non-financial PMS considers the system to be of least importance.

Table 5: Importance of performance measurement and evaluation

| Importance of PMS  |      |
|--------------------|------|
| <b>Fin. PMS</b>    | 5.69 |
| <b>Non-Fin.</b>    | 5.33 |
| <b>Low Hybrid</b>  | 6.00 |
| <b>Mid Hybrid</b>  | 6.10 |
| <b>High Hybrid</b> | 6.69 |

#### Summary of the PMS types identified and their characteristics

|                                                             | <b>Financial PMS</b>                               | <b>Non-financial PMS</b>                             | <b>Low Hybrid PMS</b>                              | <b>Medium Hybrid PMS</b>                             | <b>High Hybrid PMS</b>                               |
|-------------------------------------------------------------|----------------------------------------------------|------------------------------------------------------|----------------------------------------------------|------------------------------------------------------|------------------------------------------------------|
| <b>Measurement characteristics</b>                          | Less use of leadership, actions, individual effort | Higher use of leadership, actions, individual effort | Less use of leadership, actions, individual effort | Higher use of leadership, actions, individual effort | Higher use of leadership, actions, individual effort |
| <b>Performance standards</b>                                | Preset numbers                                     | Lowest number of measures                            | Less detailed measures                             |                                                      | Highest number of measures                           |
|                                                             |                                                    | Previous achievements                                | Preset numbers                                     | Preset numbers                                       | Preset numbers                                       |
| <b>Purpose</b>                                              | All purposes of importance                         | Narrow range of standards                            |                                                    | Wide range of standards                              | Wide range of standards                              |
|                                                             |                                                    | Semi-narrow range of purposes                        | Narrow range of purposes                           | All purposes of importance                           | All purposes of importance                           |
| <b>Evaluation Frequency</b>                                 | Leadership: once a year                            | Leadership: once or twice a year                     | Leadership: once a year                            | Leadership: once a year                              | Leadership: once a year                              |
|                                                             | Business: quarterly or once a year                 | Business: quarterly or more frequently               | Business: quarterly or more frequently             | Business: quarterly or more frequently               | Business: quarterly or more frequently               |
| <b>Importance of Performance Measurement and Evaluation</b> | Important, but less than for hybrids               | Important, but less than for hybrids                 | Important                                          | Important                                            | Important                                            |

## 5. Performance Measurement System Types and Links to other Management Control Systems

After looking at the use of financial and non-financial measures when evaluating employees and concluding that different types of PMSs with varying characteristics exist within SBUs in large Swedish organisations, the next step is to see if any links between the PMSs and other parts of the MCS package exist. A number of indicators have been chosen to represent each part of the MCS package. Since PMS belongs to the cybernetic systems in the MCS package by Malmi and Brown (2008), the remaining component of that system, *the budget*, will firstly be investigated. Thereafter, links between the PMSs and the remaining parts of the MCS package; *planning*, *reward*, *administrative controls* and *cultural controls* will be presented.

### 5.1 Cybernetic Controls

As mentioned above, the budget forms part of the cybernetic system just like the PMS. It is therefore of interest to see if there are any connections between the identified PMSs and the budget to observe the characteristics of the total cybernetic systems for the different PMS groups. Below, the extent to which *traditional* and *non-traditional* functions of the budget are used within the PMS groups is investigated. Two functions are considered to be traditional, namely, if the budget is used to identify critical performance variables and to set targets for these performance variables. Also the non-traditional use of the budget is illustrated by two functions: to what extent the budget is used to focus attention on strategic uncertainties and to what extent the budget is used to encourage dialogue between subordinates.

Table 6: Functions of the budget used by the PMS types

|                    | Identify<br>Performance<br>Variables | Set targets for<br>performance<br>variables | Focus<br>attention on<br>strategic<br>uncertainties | Encourage<br>dialogue<br>between<br>subordinates |
|--------------------|--------------------------------------|---------------------------------------------|-----------------------------------------------------|--------------------------------------------------|
| <b>Fin. PMS</b>    | 5.46                                 | 5.46                                        | 3.46                                                | 4.23                                             |
| <b>Non-Fin.</b>    | 5.00                                 | 5.50                                        | 2.33                                                | 3.50                                             |
| <b>Low Hybrid</b>  | 5.50                                 | 5.33                                        | 4.50                                                | 4.33                                             |
| <b>Mid Hybrid</b>  | 5.50                                 | 5.72                                        | 4.17                                                | 4.39                                             |
| <b>High Hybrid</b> | 5.65                                 | 5.81                                        | 4.42                                                | 5.69                                             |

With regards to the two traditional functions there are no significant differences between how the PMS groups use the budget (see Table 6). All groups use the traditional functions of the budget to a large extent. When looking at the non-traditional functions of the budget it is observed that these areas of use are generally less common than the traditional and that they are not considered to be too important functions of the budget. The three hybrid PMS groups use the non-traditional functions of the budget to the largest extent. The Non-financial PMS group on the other hand uses these non-traditional functions of the budget the least of all five PMS groups. Concluding, the hybrid PMS groups do not only have an extended mix of financial and non-financial performance measures, they also have the broadest areas of use of the budgetary system. Of the five PMS groups, the Non-financial group has the narrowest usage

of the budget, focusing almost solely on traditional using areas. As has been described earlier, most PMS groups evaluate their employees' performance against preset numbers. Since the results in this section show that the budget is commonly used for setting targets it can be concluded that the budget seems to be one tool used when choosing and setting these performance targets.

## Summary of the budgetary system's characteristics for the PMS types

|                                 | Financial PMS                   | Non-financial PMS     | Low Hybrid PMS                            | Medium Hybrid PMS                         | High Hybrid PMS                           |
|---------------------------------|---------------------------------|-----------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|
| <b>Use of budgetary systems</b> | Primarily traditional functions | Traditional functions | Traditional and non-traditional functions | Traditional and non-traditional functions | Traditional and non-traditional functions |

## 5.2 Planning

In the MCS package model, Malmi and Brown (2008) divide planning into long-range and action planning. Long-range planning is used for when SBUs plan for one year ahead or longer and action planning is used to describe the more short-term planning for periods shorter than a year.

### 5.2.1 Long-range Planning

For the long-range planning four areas are investigated. Firstly, the content of the long-range plans is investigated. Thereafter, the extent to which the PMS groups document these plans is investigated, followed by information on how long the planning period is for the different groups. Lastly, the organisational level on which the long-range planning is performed is studied.

The *content* of the long-range plans is divided into three parts: the extent to which the goals are qualitatively expressed, the extent to which the goals are quantitatively expressed, and the extent to which goals are expressed in detail. As can be seen in Table 7, the three hybrid PMS groups express goals both qualitatively and quantitatively to a high extent. The Financial PMS group on the other hand uses quantitative goals to a higher extent than qualitative goals. The Non-financial PMS group display the opposite method as the Financial PMS, using more qualitative goals than quantitative. Next, the detail level of the long-range plans is investigated. Detailed goals refer to goals that specify in detail what should be achieved and that leave little room for interpretations. Among the five identified PMS groups a tendency can be seen that the PMS groups which use non-financial measures to the greatest extent in their PMSs specify their long-range goals in more detail. Thus, the three groups with the highest use of non-financial PMSs (Non-financial, Medium Hybrid, and High Hybrid) are also the groups which use qualitative goals the most and which express these goals in greatest detail. An exception is the Low Hybrid PMS group which uses qualitative goals in its long-range planning but which does not express these goals in the same detail as the other hybrid groups.

Table 7: The use of qualitative , quantitative, and detailed goals in long-term planning for the PMS types

|                    | Qualitative | Quantitative | Detailed | Documentation | Length of planning period (years) |
|--------------------|-------------|--------------|----------|---------------|-----------------------------------|
| <b>Fin. PMS</b>    | 4.2         | 5.3          | 3.78     | 5.00          | 3.25                              |
| <b>Non-Fin.</b>    | 5.5         | 4.8          | 4.50     | 5.83          | 4.33                              |
| <b>Low Hybrid</b>  | 5.3         | 5.0          | 3.83     | 5.67          | 4.00                              |
| <b>Mid Hybrid</b>  | 5.7         | 5.6          | 4.15     | 5.75          | 3.40                              |
| <b>High Hybrid</b> | 5.6         | 5.6          | 4.19     | 5.88          | 3.65                              |

All five PMS groups *document* their long-range plans to a high extent (Table 9). Though, the Financial PMS group documents its long-range plans to the least extent of all the PMS types. The *length of the planning period* refers to how far into the future the SBU plans in its long-range plans. The most common length for the planning period is three years for all PMS groups (Figure 6). Although some differences in the mean length of planning period can be observed (Table 7), the length of the strategic planning period does not seem to be related to the PMS used by the SBU.

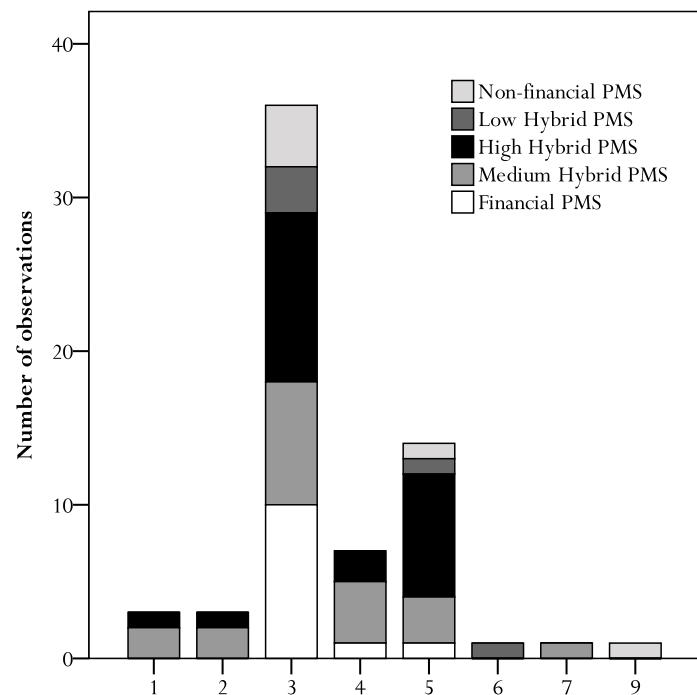


Figure 6: Length of planning period indicating the PMS types

The last parameter when investigating how the PMS groups are linked to long-range planning is on which *organisational*

*level* the long-range planning process is executed. This section differentiates between the planning of ends (goals) and the planning of means (methods used to reach the goals). The SBUs' strategic ends and means can be formulated on three different organisational levels: 1) the corporate management and/or the top management of the SBU can formulate the plans, which is called a top-down approach, 2) the SBU management and managers one level below can formulate the plans together, which is called an intermediate approach, and 3) SBU management and/or managers two or more levels below can formulate the plans together, which is called a bottom-up approach<sup>1</sup>. As can be seen in Figure 7, applying a top-down approach in the process of formulating long-range plans is most common for all PMS groups. However, what can also be noticed is that the groups which focus on financial measures (Financial, Low Hybrid, and High Hybrid PMS) display the most top down approaches. Also, the groups which consider non-financial performance measures to be more important than financial (Non-financial and Medium Hybrid PMS) are using less of a top-down approach. Thus, it seems as if a financial PMS focus is related to more hierarchical planning structures for long-range planning and that a non-financial

<sup>1</sup> Initially, the SBU could choose from five different levels for the long-range planning. These five alternatives have been merged to three alternatives in order to illustrate the results more clearly. Readers interested in the initial data points are encouraged to look at Appendix A.

PMS focus correspondingly is related to less hierarchical planning structures. Another observation is that the three hybrid groups plan ends and means on different levels. Means are usually planned at a lower organisational level than are ends in the hybrid PMS groups.

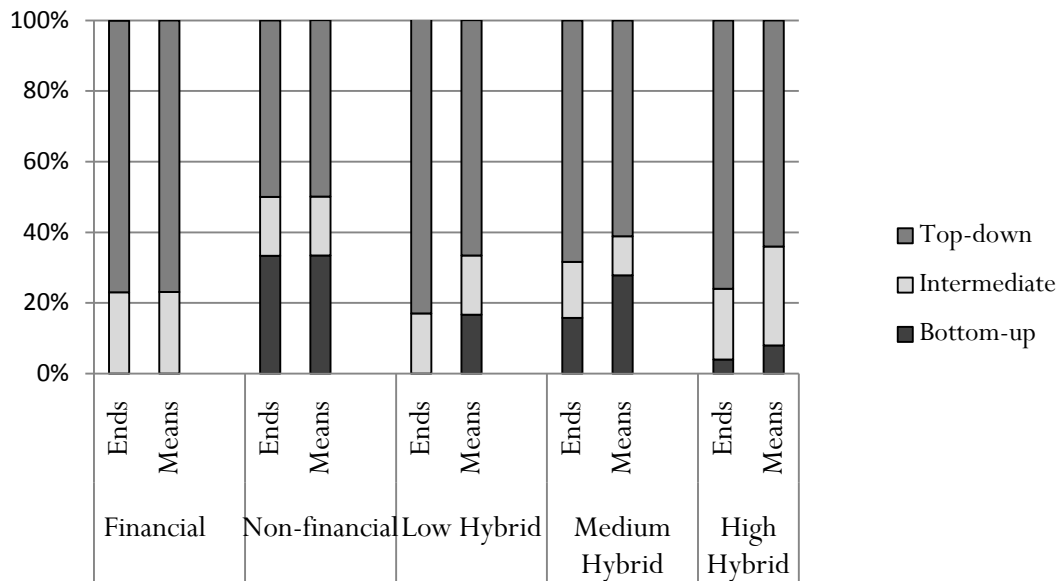


Figure 7: Organisational level of formation of long-range plans

### 5.2.2 Action Planning

The links between the five PMS groups and action planning are investigated in two steps. First, the content of the action plans is covered and second, information is presented on which level in the organisation short-term targets are set.

To study the *content* of the action plans, the SBU managers have been asked to indicate how important it is that their subordinates' action plans include information about: schedule for and progress of activities, coordination of activities, and formation of cross-functional teams. All three types of information are considered to be of importance to all PMS groups (see Table 8). Also, all groups display the same priorities, where the most important information to include in the action plans is stated to be information about the scheduling and progress of activities. Based on the similarities between the PMS groups the conclusion can be drawn that the type of PMS used by an SBU is not linked to the content of the SBU's action plans.

Table 8: Content of action plans

|                    | Scheduling of activities | Coordination of activities | Formation of cross-functional teams |
|--------------------|--------------------------|----------------------------|-------------------------------------|
| <b>Fin. PMS</b>    | 5.92                     | 5.15                       | 4.31                                |
| <b>Non-Fin.</b>    | 5.67                     | 5.00                       | 4.67                                |
| <b>Low Hybrid</b>  | 5.50                     | 5.17                       | 5.00                                |
| <b>Mid Hybrid</b>  | 6.35                     | 5.20                       | 4.95                                |
| <b>High Hybrid</b> | 6.58                     | 5.23                       | 4.61                                |

Next, it is investigated on which organisational level short-term targets are set. The targets can either be set by top management (top-down), through negotiations between top management and subordinates, or by subordinates (bottom-up)<sup>2</sup>. As for long-range planning, the Financial and the Low Hybrid PMS groups are the most top-down controlled PMS groups. The Non-financial PMS group is the one where subordinates have the most influence on the target-setting and the group thus continues to be the least hierarchical (see Figure 8). It can also be noted that the Medium Hybrid and the High Hybrid PMS groups are more similar when it comes to the organisational level of short-term target setting than when looking at organisational level of the formation of long-range plans. Also for short-term target setting the three hybrids differentiate between the formation of ends and means and let the subordinates influence the formation of means to a greater extent than the formation of ends. The differences between where ends and means are formulated are larger in action planning than in long-range planning for the hybrids. Another observation is that the Financial PMS group also allow subordinates to influence means more than ends. For long-range planning this group does not differentiate between ends and means.

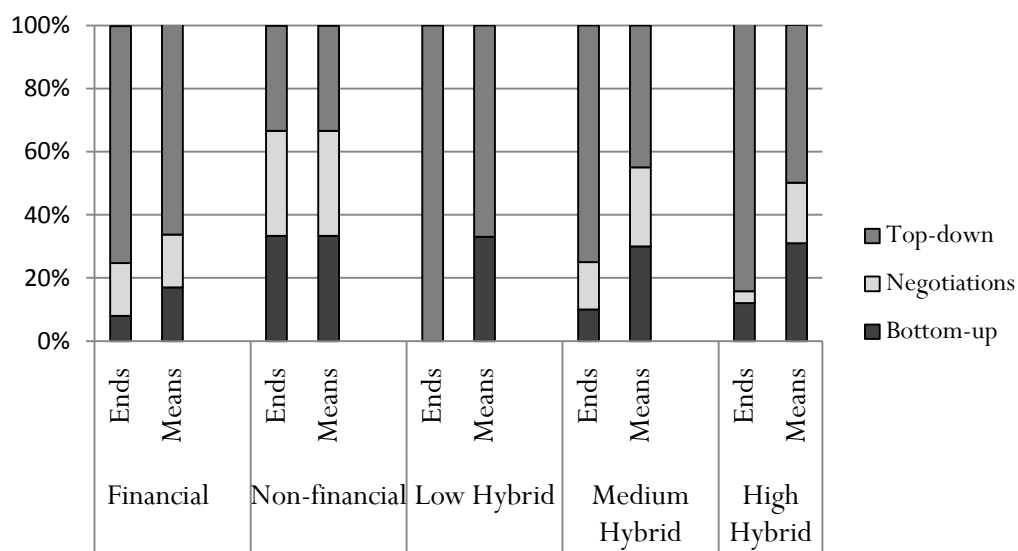


Figure 8: Organisational level of short-term target setting

<sup>2</sup> Initially, the SBU could choose from five different levels for the action planning. These five alternatives have been merged to three alternatives in order to illustrate the results more clearly. Readers interested in the initial data points are encouraged to look at Appendix B.

## Summary of planning controls and their characteristics for PMS types

|                                                    | Financial PMS                                                     | Non-financial PMS                            | Low Hybrid PMS                     | Medium Hybrid PMS                  | High Hybrid PMS                    |
|----------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| <b>Content of Long-term planning</b>               | Quantitative goals<br><br>Less detailed and less documented goals | Qualitative goals<br><br>Most detailed goals | Quantitative & qualitative goals   | Quantitative & qualitative goals   | Quantitative & qualitative goals   |
| <b>Organisational level of long-term planning</b>  | Top-down, similar for ends and means                              | Least top-down, similar for ends and means   | Top-down, less for means than ends | Top-down, less for means than ends | Top-down, less for means than ends |
| <b>Organisational level of short-term planning</b> | Top-down, less for means than ends                                | No clear pattern, similar for ends and means | Top-down, less for means than ends | Top-down, less for means than ends | Top-down, less for means than ends |

### 5.3 Reward and Compensation

When looking at rewards, the type of rewards used is firstly investigated. The types of rewards are divided in a similar way as the performance measures and a differentiation is made between financial and non-financial rewards. This provides an understanding of the extent to which the SBUs within the PMS groups have the same policy when rewarding the employees as they have in the evaluation. Financial rewards in this case include both bonuses and share-based rewards while non-financial rewards include all other types of rewards such as recognition, promotion and training. Secondly, it is investigated how the SBUs calculate their financial rewards by looking into the extent to which they use quantitative metrics and predetermined criteria. If an SBU uses predetermined criteria to a great extent, then the subordinates have more information in advance on how their financial reward is calculated. Also, predetermined criteria can be seen as a way to formalise the financial rewarding. The last variable studied is how important the SBUs perceive rewards (both financial and non-financial) to be as a control system.

Starting off by investigating the extent to which the rewards are financial or non-financial the data shows that financial rewards are by far the most common for all PMS types except from the Non-financial PMS (Table 9). In the Non-financial PMS, the focus is relatively equally divided between financial and non-financial rewards.

**Table 9: The use of financial and non-financial rewards within the PMS groups**

|                    | Financial | Non-financial |
|--------------------|-----------|---------------|
| <b>Fin. PMS</b>    | 6.0       | 2.6           |
| <b>Non-Fin.</b>    | 4.3       | 4.0           |
| <b>Low Hybrid</b>  | 5.8       | 2.7           |
| <b>Mid Hybrid</b>  | 6.0       | 3.0           |
| <b>High Hybrid</b> | 6.5       | 3.5           |

After concluding that financial rewards are commonly used within large Swedish companies, the way they are calculated is explored in more detail, firstly by looking into the extent to which quantitative metrics are

used to calculate financial rewards. As can be seen in Table 10, the use of quantitative metrics for calculating the budget follows the same pattern as the use of financial performance measures. The higher a PMS group is on the financial axis (Figure 3), the more does the group use quantitative reward metrics. The use of predetermined criteria on the other hand does not seem to be related to the type of PMS used by an SBU since all five PMS groups state that they use predetermined criteria to a high extent. That is, independent of whether the PMS has a financial, non-financial or hybrid focus, predetermined criteria are used when establishing the size of the financial reward. Finally, the SBUs have been asked to indicate the importance of rewards as a MCS and all PMS groups have indicated that rewarding is perceived to be an important control tool.

**Table 10: The use of quantitative metrics and pre-determined criteria for rewards within the PMS types**

|                    | Quantitative | Predetermined | Importance |
|--------------------|--------------|---------------|------------|
| <b>Fin. PMS</b>    | 5.7          | 6.1           | 4.85       |
| <b>Non-Fin.</b>    | 4.2          | 5.8           | 5.00       |
| <b>Low Hybrid</b>  | 5.0          | 5.0           | 5.50       |
| <b>Mid Hybrid</b>  | 5.5          | 5.7           | 5.20       |
| <b>High Hybrid</b> | 6.1          | 5.8           | 5.60       |

## Summary of rewards as a control mechanism and its characteristics for the PMS types

|                                | Financial PMS | Non-financial PMS                                                     | Low Hybrid PMS | Medium Hybrid PMS | High Hybrid PMS                                      |
|--------------------------------|---------------|-----------------------------------------------------------------------|----------------|-------------------|------------------------------------------------------|
| <b>Type of rewards</b>         | Financial     | Financial and Non-financial<br><br>Lowest use of quantitative metrics | Financial      | Financial         | Financial<br><br>Highest use of quantitative metrics |
| <b>Importance of rewarding</b> | High          | High                                                                  | High           | High              | High                                                 |

## 5.4 Administrative Controls

In the next section three different types of administrative controls are investigated in accordance with Malmi and Brown's (2008) definition of administrative controls. First, the governance structure in the SBU is studied. Second, the organisation structure is investigated and thirdly, policies and procedures are covered.

### 5.4.1 Governance Structure

The governance structure is covered by looking into the broadness and the stability of the management team. The broadness of the management team refers to who is a member of the team. A narrow team includes mostly responsibility centre managers, whereas a broad management team also includes operative middle-level managers and/or experts. If the management team of an SBU usually consists of the same people it is considered to be stable. If the team members on the other hand change frequently,

the team is considered to be dynamic. In relation to the PMS groups, no clear patterns can be seen for the broadness and the stability of the management team (Table 11). Thus, it can be concluded that there is no strong relationship between the governance structure and the type of PMS used.

**Table 11: The broadness and stability of the management team structure within the PMS types**

|                      | <b>Broadness</b> | <b>Stability</b> |
|----------------------|------------------|------------------|
| <b>Financial</b>     | 3.31*            | 4.23*            |
| <b>Non-financial</b> | 3.33*            | 4.00*            |
| <b>Low Hybrid</b>    | 3.50*            | 4.33*            |
| <b>Medium Hybrid</b> | 3.30*            | 4.20*            |
| <b>High Hybrid</b>   | 3.31*            | 4.50*            |

\* The scale used for this section is 1 – 5.

### 5.4.2 Organisation Structure

The organisational structure is divided in two parts where the first one is related to if the subordinates have multiple roles and/or multiple reporting lines and where the second is related to relevant information being shared through formal or informal communication channels. In Table 16, it can be observed that neither multiple roles nor multiple reporting lines are very common in any of the PMS groups. What can be said is that it is more common in the PMS groups which use non-financial measures to the greatest extent (High Hybrid, Medium Hybrid, and Non-Financial PMS) to let the subordinates assume more than one role. Another interesting observation is that the Financial PMS group is the only group which uses multiple reporting lines to a greater extent than multiple roles.

When it comes to sharing relevant information within the SBU the subordinates can either receive this information through formal or informal communication channels. Starting by looking at the extent to which the PMS groups tend to use informal discussions to share relevant information it can be seen that all groups have indicated that it is common (Table 12). The Non-financial PMS group is the group which uses informal discussions to the highest extent whereas the Financial PMS group uses them to the least extent. This implies that a higher focus on non-financial measures is related to more informal discussions. Moving on to the use of formal communication channels it can be seen that all PMS groups also find these important for information sharing, though, the Financial PMS group also uses this information channel to the least extent. To conclude, it can be seen that the hybrid groups use formal and informal communication channels to an almost equal extent and that the Non-financial PMS group uses informal discussions to a higher extent than they use formal communication channels. Also, it is noticed that the Financial PMS group uses both types of communication to the least extent which indicates that this group puts less emphasis on communication than the other PMS groups.

Table 12: The structure of roles and communication within PMS types

|                      | Multiple<br>roles | Multiple<br>reporting<br>lines | Informal<br>discussions | Formal<br>communication |
|----------------------|-------------------|--------------------------------|-------------------------|-------------------------|
| <b>Financial</b>     | 3.62              | 3.85                           | 4.92                    | 4.23                    |
| <b>Non-financial</b> | 4.50              | 3.00                           | 5.67                    | 4.83                    |
| <b>Low Hybrid</b>    | 3.33              | 2.67                           | 5.17                    | 5.00                    |
| <b>Medium Hybrid</b> | 4.30              | 3.50                           | 5.25                    | 5.40                    |
| <b>High Hybrid</b>   | 4.27              | 3.50                           | 5.42                    | 5.73                    |

#### 5.4.3 Policies and Procedures

Four different types of policies and procedures are investigated: the use of companywide codes of conduct or similar statements, the employment of written authorization levels and decision rules, the employment of written guidelines stipulating specific areas for opportunity search, and the specification of minimum requirements for business opportunities.

Table 13: The use of rules and procedures within the PMS groups

|                      | Codes<br>of<br>conduct | Authorization<br>levels | Opportunity<br>search<br>guidelines | Minimum<br>requirements<br>specification |
|----------------------|------------------------|-------------------------|-------------------------------------|------------------------------------------|
| <b>Financial</b>     | 4.38                   | 4.85                    | 4.23                                | 4.92                                     |
| <b>Non-financial</b> | 3.67                   | 3.83                    | 3.83                                | 3.67                                     |
| <b>Low Hybrid</b>    | 5.17                   | 6.00                    | 4.67                                | 4.67                                     |
| <b>Medium Hybrid</b> | 5.55                   | 5.60                    | 4.65                                | 5.20                                     |
| <b>High Hybrid</b>   | 5.54                   | 6.42                    | 4.46                                | 5.12                                     |

Codes of conduct are documents describing how employees should act and behave. As indicated in Table 13, the three hybrid PMS groups use such documents most extensively. These are also the groups that employ written authorisation rules to the greatest extent. Such rules indicate who is allowed to authorise certain decisions. Guidelines on opportunity search refer to documents that state specific areas where business opportunities should be searched for, or areas where employees should avoid business opportunities. Such guidelines do not seem to be used to such a great extent by any of the PMS groups. Specifying minimum requirements for business opportunities (e.g. ROI or implementation time) is most common among the PMS groups that use financial performance measures to a high extent (High Hybrid, Medium Hybrid, Financial PMS group). To summarise, the Non-financial PMS group uses policies and procedures to the least extent of all PMS groups, followed by the Financial PMS group. The three hybrid groups on the other hand employ policies to a greater extent. This could be an indication of hybrid PMS groups having more formalised administrative control systems than the Financial and Non-financial PMS groups.

## Summary of administrative controls and its characteristics for the PMS types

|                                | Financial PMS                                            | Non-financial PMS                 | Low Hybrid PMS                              | Medium Hybrid PMS                 | High Hybrid PMS                   |
|--------------------------------|----------------------------------------------------------|-----------------------------------|---------------------------------------------|-----------------------------------|-----------------------------------|
| <b>Governance structure</b>    | Medium broad, stable                                     | Medium broad, stable              | Medium broad, stable                        | Medium broad, stable              | Medium broad, stable              |
| <b>Organisation structure</b>  | Multiple reporting lines more common than multiple roles | Multiple reporting lines uncommon | Multiple roles and reporting lines uncommon | Multiple reporting lines uncommon | Multiple reporting lines uncommon |
|                                | Lower importance of communication channels               | Informal communication            | Informal and formal communication           | Informal and formal communication | Informal and formal communication |
| <b>Policies and Procedures</b> | Second least common                                      | Least common                      | Common                                      | Common                            | Common                            |

### 5.5 Culture Controls

Malmi and Brown (2008) define three types of cultural controls: value controls, clan controls, and symbol controls. In the following section only value controls are covered since the other cultural controls demand a closer investigation of the SBU. The value controls are divided in two parts where the first describes the extent to which the PMS groups formalise their culture and where the second describes practices and methods to spread the culture among the employees.

When asked to what extent the SBU counts on value, mission, and vision statements guiding actions of the subordinates, the Medium Hybrid PMS group show the highest level of trust for these systems (Table 14). This indicates that this group

**Table 14: Formalised cultural control within the PMS groups**

|                      | Guiding value/mission statements | Guiding vision statement | Formal vision documents |
|----------------------|----------------------------------|--------------------------|-------------------------|
| <b>Financial</b>     | 4.00                             | 3.75                     | 4.67                    |
| <b>Non-financial</b> | 4.50                             | 4.00                     | 6.17                    |
| <b>Low Hybrid</b>    | 4.17                             | 4.67                     | 5.17                    |
| <b>Medium Hybrid</b> | 4.75                             | 5.20                     | 5.75                    |
| <b>High Hybrid</b>   | 3.81                             | 4.50                     | 5.38                    |

uses such statements as part of the control system. The group that documents its vision to the highest extent is the Non-financial PMS group, followed by the Medium Hybrid PMS group. Although the Non-financial PMS group documents its vision formally, it does not seem to trust in the system to guide the employees' behaviour which indicates that this group does not see such systems as so important for

control purposes. It should also be noted that the High Hybrid PMS group differs from the Medium Hybrid group in that it does not count on value and mission statements to guide subordinates actions. To summarise, it can be seen that the Medium Hybrid PMS group tend to trust cultural statements to guide employee behaviour to a higher extent than do the other groups. Also, it is observed that the Financial PMS group trust these systems the least to guide employee behaviour and that this group documents its vision the least. This indicated that the formalised culture is not so important to the Financial PMS group.

In order to spread the culture to employees across the SBU, different types of social events as well as mentoring, orientation, and induction programs can be used. The three hybrid groups indicate that they use these types of control to a higher extent than the other PMS groups (Table 15). The Low Hybrid PMS group uses it slightly more than the other two hybrids. The group which uses such methods the least is the Financial PMS group. In summary, the Medium Hybrid PMS group uses formalised cultural controls to the highest extent and the Low Hybrid PMS group uses practical approaches to spreading the culture the most. The Financial PMS group on the other hand does not seem to use these types of cultural controls to such a high extent.

**Table 15: Practical cultural control within the PMS groups**

|                      | <b>Social events</b> | <b>Mentor programs</b> |
|----------------------|----------------------|------------------------|
| <b>Financial</b>     | 4.33                 | 4.08                   |
| <b>Non-financial</b> | 4.50                 | 4.67                   |
| <b>Low Hybrid</b>    | 5.33                 | 5.50                   |
| <b>Medium Hybrid</b> | 5.20                 | 5.10                   |
| <b>High Hybrid</b>   | 5.08                 | 4.85                   |

## Summary of cultural controls and its characteristics for the PMS types

|                          | <b>Financial PMS</b> | <b>Non-financial PMS</b> | <b>Low Hybrid PMS</b> | <b>Medium Hybrid PMS</b> | <b>High Hybrid PMS</b> |
|--------------------------|----------------------|--------------------------|-----------------------|--------------------------|------------------------|
| <b>Formal culture</b>    | Lowest focus.        | Medium focus             | High focus            | Highest focus            | High focus             |
| <b>Culture practices</b> | Lowest focus.        | Medium focus             | Highest focus         | High focus               | High focus             |

## 5.6 Contingent Variables

The five parts of the MCS package as defined by Malmi and Brown (2008) (cybernetic controls, planning, rewards, administrative controls, and cultural control) have been covered above. In this section, links between the PMS groups and a number of contingent variables are tested. These contingent variables are divided into three parts, one relating to environmental factors, one relating to company factors and one relating to the SBU's prioritised performance areas.

First, the environmental factor is investigated. This variable is described by looking into the complexity and the hostility of the market on which the SBU operates. The market complexity is illustrated by the

diversity of products and services that the customers demand and by the diversity of competitors' strategies. The market hostility on the other hand is measured by the competition intensity and by the difficulty to obtain necessary inputs for the business. No clear patterns between the PMS groups have been found related to these variables (Table 16). All groups display answers across the whole range, from uncomplicated market situations to complex, and from low competition intense markets to high competition intense markets. This finding is in itself interesting since it implies that the PMS used is not related to the market conditions.

**Table 16: Environmental factors for the SBUs**

|                      | Diversity in<br>customer<br>demands | Diversity of<br>competitors'<br>strategies | Competition<br>intensity | Difficulty<br>to obtain<br>input |
|----------------------|-------------------------------------|--------------------------------------------|--------------------------|----------------------------------|
| <b>Financial</b>     | 3.83                                | 3.75                                       | 4.92                     | 3.42                             |
| <b>Non-financial</b> | 3.50                                | 2.50                                       | 5.67                     | 3.00                             |
| <b>Low Hybrid</b>    | 3.83                                | 4.50                                       | 5.00                     | 4.00                             |
| <b>Medium Hybrid</b> | 3.25                                | 3.75                                       | 5.30                     | 3.75                             |
| <b>High Hybrid</b>   | 3.50                                | 3.69                                       | 5.46                     | 4.27                             |

Moving on to factors related to the company to which the SBU belongs, two parameters are looked into. First, a test is made to see to which extent the SBUs in each PMS group belongs to a quoted company. Second, the ownership structure of the company is investigated. In Table 17, the distribution of quoted companies in each of the PMS groups is displayed. The two groups with the highest use of financial performance measures in their PMSs (Financial and High Hybrid PMS) are also the groups which have a majority of quoted owners. In the High Hybrid group there are almost twice as many quoted companies as unquoted. The Medium Hybrid group and the Non-financial PMS group on the other hand have an equal amount of quoted and unquoted companies. The Low Hybrid PMS group instead displays a majority of unquoted companies. However, it must be noted that it is a small group with only six members where the information about just one company has a large impact on the whole group's result. Thus, the two PMS groups with a majority of quoted companies are using financial measures to the largest extent (Financial and High Hybrid PMS).

**Table 17: Percentage of quoted companies within each PMS group**

|                      | Quoted<br>companies |
|----------------------|---------------------|
| <b>Financial</b>     | 62 %                |
| <b>Non-financial</b> | 50 %                |
| <b>Low Hybrid</b>    | 33 %                |
| <b>Medium Hybrid</b> | 50 %                |
| <b>High Hybrid</b>   | 64 %                |

When looking at the ownership structure (Figure 9), it is evident that all PMS groups display an array of different ownership types. What can also be seen is that large institutional investors is the largest group of owners. Because of the scattered results, patterns related to the PMS groups are hard to find. However, two patterns can be found. First, venture capitalists is an important owner group in the Medium Hybrid group. The total number of venture capitalist owners in the sample amounts to seven. Out of these seven, six are to be found in the Medium Hybrid PMS group indicating that this type of owner tend to use a Medium Hybrid PMS. A similar pattern can be seen for the government and municipalities where the majority of the SBUs with these owner types uses a High Hybrid PMS.

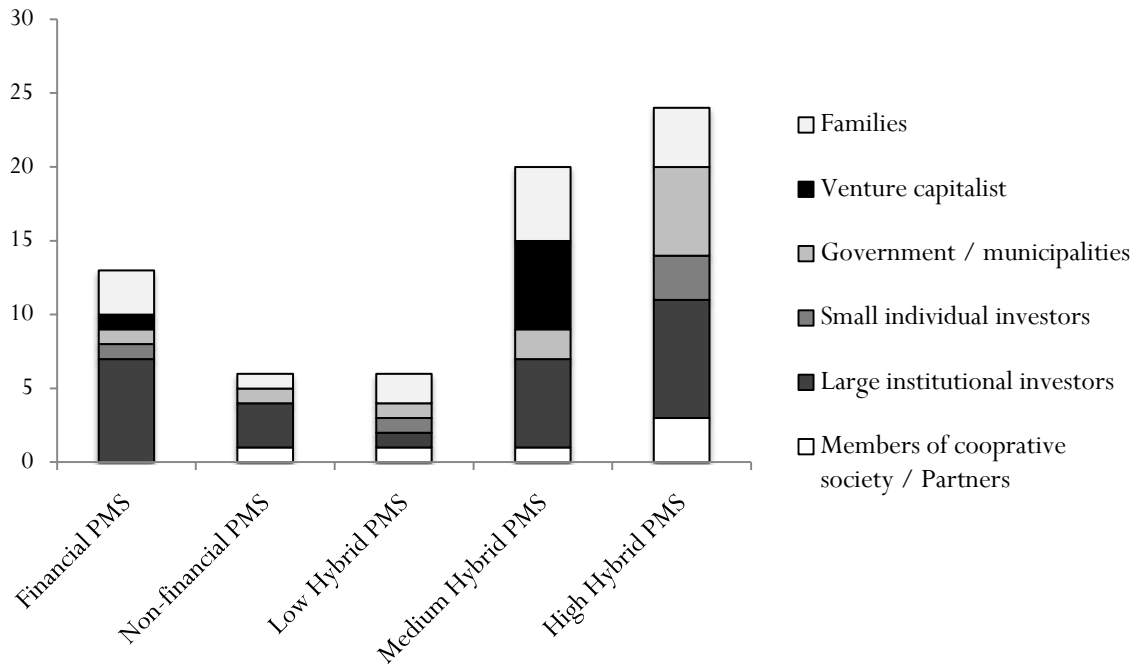


Figure 9: Ownership structure for the different PMS types

The interviewees have been asked to indicate the priority of a variety of performance areas for SBU. The areas are on the one hand financial results and on the other hand more qualitative variables: customer relations, employee relations, operational performance, and quality. No major differences can be seen between the PMS groups. All groups indicate that both qualitative results and financial results are of importance. Of all SBUs in the sample, 94% have answered that financial results are very important (answer of 6 or 7 on a scale from 1-7). Although the differences between the PMS groups are limited, it is observed that the Financial and the Medium Hybrid PMS groups indicate that financial results are most important whereas the other three PMS groups indicate that customer relations is the most important performance area.

Table 18: Organisational priorities for the different PMS types

|                      | Financial results | Customer relations | Employee relations | Operational performance | Quality |
|----------------------|-------------------|--------------------|--------------------|-------------------------|---------|
| <b>Financial</b>     | 6.54              | 6.00               | 5.69               | 5.46                    | 5.92    |
| <b>Non-financial</b> | 6.33              | 6.50               | 6.00               | 6.00                    | 5.33    |
| <b>Low Hybrid</b>    | 6.33              | 6.50               | 5.83               | 5.50                    | 5.83    |
| <b>Medium Hybrid</b> | 6.55              | 6.35               | 5.70               | 5.75                    | 5.70    |
| <b>High Hybrid</b>   | 6.50              | 6.65               | 5.92               | 6.00                    | 5.88    |

## Summary of environmental and company factors characterizing the PMS types

|                                   | Financial PMS                 | Non-financial PMS             | Low Hybrid PMS     | Medium Hybrid PMS                   | High Hybrid PMS                             |
|-----------------------------------|-------------------------------|-------------------------------|--------------------|-------------------------------------|---------------------------------------------|
| <b>Market conditions</b>          | No clear patterns             | No clear patterns             | No clear patterns  | No clear patterns                   | No clear patterns                           |
| <b>Quoted</b>                     | Quoted majority               | Equal distribution            | Unquoted majority  | Equal distribution                  | Quoted majority                             |
| <b>Ownership structure</b>        | Large institutional investors | Large institutional investors | No clear pattern   | Venture capitalists overrepresented | Governments/ municipalities overrepresented |
| <b>SBU performance priorities</b> | Financial results             | Customer relations            | Customer relations | Financial results                   | Customer relations                          |

## 6. The Performance Measurement System Types and their Package Characteristics

The results presented above show how the PMS groups are linked to different parts of the MCS package. In the following section, each PMS group and its main package attributes will be presented and discussed.

### 6.1 The Financial PMS

The Financial PMS group has a strong financial focus in its PMS. It uses mainly financial measures and its use of non-financial measures such as leadership skills, actions, and individual effort is limited. When looking at how the SBUs in the Financial PMS group use other control systems, one can see that the financial focus recurs in other systems as well. SBUs in this PMS group tend to quantify all parts of the control system that are possible to quantify. Some parts of the MCS package are harder to quantify than others, for example the use of formal and informal communication channels as well as policies and procedures. Such controls are also the ones which are used the least by the Financial PMS group.

Formalised culture such as a documented vision and cultural practises such as mentoring programs are uncommon in the group. This does not have to mean that culture is not important to SBUs in the Financial PMS group. Instead, the culture might take other forms, for example it might show through the financial traditions that the SBUs apply. Mikes (2009) investigated the enterprise risk management in

two banks and found that depending on the traditions within the company, the employees tended to use quantitative and qualitative methods to different extents. The Financial PMS type seems to belong to the group which Mikes calls a calculative culture, where one quantifies when possible. The majority of the firms in the Financial PMS group are quoted companies. Kraus and Lind (2010) have investigated the control systems on a corporate level within large quoted Swedish firms and have concluded that such companies have a strong focus on financial measures in their control systems. This financial focus was also concluded to be partly due to the pressure to present good numbers in the quarterly reports. The results from our investigation could be an indicator of that this financial focus does not only exist on the corporate level within these firms, but also on an SBU levels. It could further be argued that the financial focus is not only a result of external pressure, but could also be due to managers perceiving that quoted companies should be managed with a focus on financial measures (Kraus & Strömsten, 2010). The financial focus and calculative culture existing within the Financial PMS could thus have several causes, including tradition (Mikes, 2009), external pressure (Kraus & Lind, 2010) and managers' perceptions of which type of MCS to apply (Kraus & Strömsten, 2010).

## **6.2 The Non-financial PMS**

As the name indicates, the Non-financial PMS group has a strong focus on non-financial measures in the PMS and it includes qualitative variables such as leadership skills, actions taken, and individual efforts in its employee evaluations. The trend that the Non-financial PMS group avoids quantifying is present in both the PMS and in other parts of the MCS package. To start with, it is the only group which primarily compares employee performance to previous achievements instead of using preset numbers as performance standards, which is the preferred standard of the other PMS types.

The Non-financial PMS is also the group keeping its employees responsible for the lowest number of measures indicating that the group does not quantify measures to the same extent as in the other PMS types. When it comes to rewards, the Non-financial PMS is the only group using non-financial rewards to the same extent as financial rewards. The group rarely uses quantitative metrics to determine the size of the rewards. With regards to the long-range planning, there is a difference between the Non-financial PMS group and the Financial PMS group, where the first has a focus on qualitative and detailed plans and the latter is focused on quantitative and less detailed plans. When investigating how the Non-financial PMS group uses the budget, a somewhat surprising result has been observed. The group uses the budget almost solely for traditional purposes of identifying and setting targets for crucial performance variables and not for non-traditional, more non-financially oriented purposes. One could easily presume that the non-traditional purposes should be more important to a group where the financial focus is low. Though, the budget itself is a financially oriented control tool and might therefore be used to a more narrow extent by the Non-financial PMS group which prefers non-financially oriented tools. The Non-financial PMS group has the highest use of informal discussions and a lower use of formal information channels than the other PMS groups. This means, that the Non-financial PMS group tends to share information through informal communication channels to a greater extent than the other PMS groups.

The Non-financial PMS group is the only group where non-financial measures are used to a much larger extent than financial measures for performance measurement and evaluation purposes. It is therefore the PMS group which is most in line with the original balanced scorecard idea presented by Kaplan and

Norton (1992, 1996, 2001), where only one fourth of the measures should be financial. On the other hand, the Balanced Scorecard literature advocates quantified measures to provide a clear evaluation of the non-financial aspects. This quantification is not done by the SBUs within the Non-financial PMS group which instead focus on qualitative targets.

Looking at planning, the Non-financial PMS group is the least top-down oriented, suggesting the group to be less hierarchical than the other PMS groups. One proved advantage with this approach is that it creates commitment to the plans if the subordinates are involved in the planning process (e.g. Flamholtz et al., 1985). Penno (1990) on the other hand points out the risk that the subordinates will set the targets on a lower level if they can influence the process. It should though be noticed that the Non-financial PMS group overall has a top-down approach for target setting although it is weaker than for the other PMS groups. Formal policies and procedures are not seen as such important control tools by the Non-financial PMS group. This could be connected to the less hierarchical control approach which is identified for the Non-financial PMS type in comparison with the other PMS groups, indicating that the top management perceives a lower need to control the organisations both through target setting and through policies and procedures. Concluding, the Non-financial PMS group is characterized by the high focus on non-financial measures and the extensive use of qualitative targets and methods. It is also the least top-down oriented PMS type which is reflected both in the target-setting process and in the lower use of policies and procedures.

## **6.3 The Hybrid PMSs**

### **6.3.1 Common Characteristics for the Hybrid Performance Measurement Systems**

The three hybrid PMS groups have many common features. The first similarity is the fact that they all consider financial and non-financial measures to be almost equally important when measuring and evaluating the employees in contrast to the Financial and Non-financial PMS types which focus more on one type of measure. The hybrid groups have also indicated that they place an equal focus on quantitative and qualitative goals in their long-range planning which differs from the other two groups that focus on one each. Further, the hybrids use the budget both for traditional purposes such as identifying and setting targets for critical performance variables as well as non-traditional purposes such as focusing attention on strategic uncertainties and encouraging dialogue and information sharing between subordinates. When it comes to the organisation structure, the hybrids consider both formal communication channels and informal discussions as important for sharing relevant information among employees. In comparison to the Financial and the Non-financial PMSs, the hybrids have an overall broader focus of both their PMS and the surrounding MCS package. However, the three hybrid PMS types also have features distinguishing them from each other which will be presented and discussed in the following sections.

### **6.3.2 The Low Hybrid PMS**

The low hybrid PMS group uses both financial and non-financial measures to a relatively low extent and does not use detailed measures, which is a significant difference between this PMS group and the other hybrid groups. Sometimes, the Low Hybrid PMS group is more closely related to the Financial PMS group than to the hybrids. For example both groups tend to use measures that are aggregate and leave out measures of leadership, actions taken, and individual efforts in its PMS.

Having a lower and more narrow use of both the PMS and other types of control systems in the package has proven to be a trend for the Low Hybrid PMS group. The group has a narrow range of purposes for its PMS and uses the budget for target setting to the least extent of all groups. It also has the lowest use of predetermined reward criteria, and subordinates with more than one role or one reporting line are most uncommon in this group. This might indicate that although the Low Hybrid PMS group uses both financial and non-financial measures as well as quantitative and qualitative methods, it does not perceive the formal and structured control systems to be so important. However, the Low Hybrid PMS group seems to have a high focus on practises and methods to spread its culture among the employees, something which can be seen in the high extent to which it uses social events and mentoring and/or induction programs. This could indicate that although the group seems to have a lower focus on formal control systems, it might work more with less formal forms of control. Mikes (2009) identifies a calculative company culture where everything is quantified, and Dent (1991) investigates an engineering culture where the role of accounting tools is limited. In the same way, a culture with less focus on formal control systems seems to exist within the Low Hybrid PMS group. Instead, indications have been observed of a higher focus on informal controls.

### **6.3.3 The Medium Hybrid PMS**

The Medium Hybrid PMS uses non-financial measures to a slightly higher extent than financial measures. This has sometimes led to the group displaying similarities to the Non-financial PMS group. For instance, the Medium Hybrid PMS group does not have such a clear top-down structure as the other hybrids. The SBUs within this PMS group display a wider spread in SBU management styles, both concerning long-range planning and action planning, compared to the other hybrids.

Another characteristic distinguishing the Medium Hybrid PMS from the other PMS groups is the higher use of formal culture controls and a relatively high use of policies and procedures. The formal culture controls can be seen as more generally formulated types of rules and the two types of control both include formulations aimed at guiding the employees and affecting *how* they work towards the goals. The members of the Medium Hybrid PMS are consequently the most eager to rely on written rules, guidelines, recommendations and similar systems as control tools. This control method has been debated in research. Some argue that it leads to lower commitment (Rousseau, 1978) while others argue that it has a facilitating effect and decreases conflicts (Jackson & Schuler, 1985). Thus, it cannot be concluded whether this characteristic is positive or negative. The cultural control is overall strongest within the Medium Hybrid PMS, which also uses social events and mentor programs to reinforce the culture established in the formal culture control documents.

One interesting fact regarding the Medium Hybrid PMS is that six out of seven companies in the sample owned by venture capitalists or private equity firms are to be found within this PMS group. Earlier research indicates that venture capitalists run companies with relatively well developed control systems (Bloom, Sadun, & Van Reenen, 2009). The Medium Hybrid PMS group is also the only group out of the three hybrids which consider financial results to be a more important performance area for the SBU than customer relations. To have high demands on financial results has also been identified as a characteristic of venture capitalist owned-firms in comparison to other owner structures (Silvola, 2008). The result from our analysis though, shows that even though the Medium Hybrid PMS group has financial results as its prioritised performance area, a range of non-financial measures and qualitative methods are used to

reach this goal. Concluding, distinguishing for this PMS group is its strong focus on cultural control and the fact that venture capitalist owned companies are overrepresented.

#### **6.3.4 The High Hybrid PMS**

Just as the Low Hybrid PMS group, the High Hybrid PMS group has a slightly higher focus on financial measures than non-financial. Also, the High Hybrid PMS group uses both types of measures to a greater extent than the other hybrids. The High Hybrid group also keeps its employees responsible for a higher number of performance measures than the Medium Hybrid group.

It is also shown that the High Hybrid PMS, which has the highest use of financial measures of all groups, is a bit more keen on quantifying than the other hybrids. This is for instance visible in the fact that it has the highest use of quantitative metrics for calculating financial rewards. This could also have to do with the fact that the majority of the companies are quoted which puts pressure on the management to use transparent and quantitative metrics for the rewards (Svensk kod för bolagsstyrning, 2010). The High Hybrid PMS tends to quantify also non-financial aspects to a large extent, something which is advocated in the Balanced Scorecard literature (e.g. Kaplan & Norton, 1992; 1996; 2001). Though, the equally large focus on financial and non-financial measures is not in line with the original theory by Kaplan and Norton who favour a higher focus on non-financial measures. Returning to the discussion about the MCS of quoted companies, Kraus and Lind (2010) concluded that quoted companies tend to have a strong financial focus on the corporate level. A similar focus on financial measures could be seen in the Financial PMS group. However, the High Hybrid PMS group, which also consists of a majority of quoted companies, has incorporated more non-financial measures on the SBU level. Hence, this indicates that although quoted companies normally have a financial focus on the *corporate level*, more non-financial parameters are often incorporated on an *SBU level* within the High Hybrid PMS.

The High Hybrid PMS group tends to perceive all parts of the management control package as highly important and they also tend to have a variety of controls in place to monitor different angles and parts of the SBU. This could possibly indicate that both the PMSs and the other control systems within the package are more developed within this group than within the other groups (Burney and Matherly, 2007). The High Hybrid PMS group is the largest of the PMS groups, indicating that a large share of the SBUs within large Swedish organisations has this type of control system. These findings are in line with the findings of Kald and Nilsson (2000), who concluded that large Nordic companies have highly developed PMSs.

## 6.4 Management Control System Patterns

After discussing the individual PMS groups more in detail in the last section, the focus will now be on three overarching patterns which can be observed in the analysis when analysing the data from different angles.

The *first* and most significant pattern is that all five PMS groups are consistent in the use of different approaches throughout their MSC package. The Financial PMS group has a strong focus on financial aspects and quantification in both its PMS and its other control systems. Some of the control methods which are not as easily quantifiable, such as cultural control, are given less attention within this group. The Non-financial PMS group on the other hand has a strong focus on non-financial aspects and tends to use qualitative methods both in its PMS and its other control systems. The Hybrid PMS groups are to be found in between, since they focus on financial as well as non-financial aspects and use both quantitative and qualitative methods in their control systems. Thus, all PMS types found are consistent in their design and use of the MCSs.

The *second* pattern which can be observed is that the relative focus on either financial or non-financial measures of an SBU's PMS is connected to the PMS characteristics. The High Hybrid and Low Hybrid PMS groups do, although they are both hybrids, use financial measures to a slightly higher extent than non-financial measures while the Medium Hybrid PMS has a relatively larger focus on non-financial measures (Figure 10). When establishing the PMS design and use, a pattern was found showing that the Medium Hybrid PMS group with its non-financial focus sometimes shows similarities with the Non-financial PMS while the two financially focused hybrids show more similarities with the Financial PMS group. This pattern is primarily demonstrated for the links within the PMS and not for the links to the other parts of the MCS package.

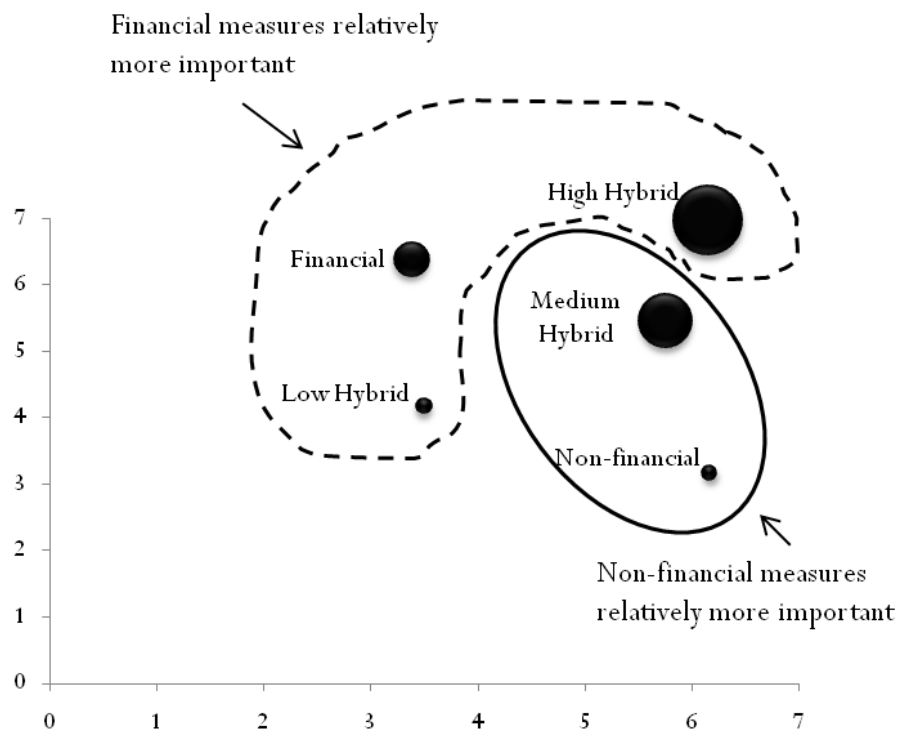


Figure 10: Pattern two, the relative importance of financial and non-financial measure

The *third* pattern highlights that it is the absolute and not the relative use of financial and non-financial measures in the PMS that is of importance for the links between the PMS and the other systems in the MCS package. For instance, an SBU which uses financial measures to a high extent (in absolute terms) in its PMS tends to also use quantitative metrics to a higher extent when determining the size of financial rewards. As can be seen in Figure 11, the Financial, Medium Hybrid and High Hybrid PMS groups use financial measures the most, and the groups using the most non-financial measures are the Non-financial, Medium Hybrid, and High Hybrid PMS groups. The PMS groups that belong to the same category have showed similar trends for links in their MCS package, as has been mentioned above.

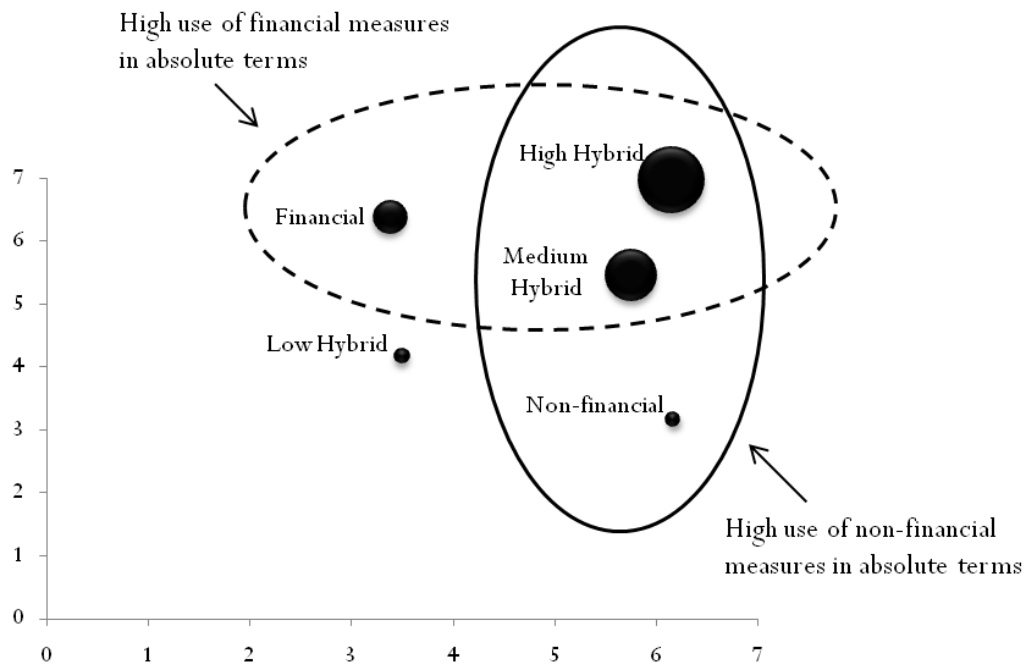


Figure 11: Pattern three, low or high use of financial respectively non-financial measures

## 7. Concluding Remarks

### 7.1 Summary

The behaviour of individual employees within an organisation can affect that organisations achievements and controlling this behaviour is thus a crucial task for any organisation. One system for controlling employee behaviour is the PMS where the achievements of the employees are measured and evaluated. However, no control system operates on its own, instead, such systems should be studied together, as a whole (Otley, 1980). Thus, the aim of this thesis has been to investigate how a PMS is designed and used and how the PMS is related to other systems within the MCS package.

In order to investigate these topics, a quantitative study with a sample of 71 SBUs from large Swedish companies has been conducted. In a questionnaire, the interviewees have answered questions about their PMS and about other control systems in the MCS package. First, the different PMSs used by SBUs in large Swedish firms were identified using k-means cluster analysis. The clusters were based on the extent to which the SBUs based their evaluations of employee performance on financial and non-financial measures. Five distinct groups with different PMS types were identified: the Financial PMS group which primarily focuses on financial measures, the Non-financial PMS group which primarily focuses on non-financial measures, and three hybrid groups (High Hybrid, Medium Hybrid, and Low Hybrid) which use both financial and non-financial performance measures. The majority of the SBUs are to be found within the High and Medium Hybrid PMS groups.

In order to cover the second question posed in the thesis, the investigation was extended to study links between the five identified PMS groups and the other parts of the MCS package as defined by Malmi and Brown (2008) (planning, cybernetic systems, rewards, administrative controls, and cultural controls). Three overarching patterns have been observed: 1) the SBUs work consistently in a similar way with all control systems in the package and have either a financial approach, a non-financial approach, or a hybrid approach, 2) the characteristics of an SBU's PMS are linked to whether the system is focused more on financial or non-financial measures, 3) the extent to which the SBUs use financial and non-financial measures in their employee PMS is connected to the links between the PMS and other parts of the MCS.

### 7.2 Validity

When concluding that the three hybrid groups are relatively similar, with the main difference that one of the groups has consequently answered higher numbers on a scale from 1 to 7 (High Hybrid PMS) and one group has tended to answer lower numbers (Low Hybrid PMS), one needs to ask if the interviewees just perceive the same numbers to have different values, i.e. a 5 for one person is a 7 for another. What can be seen in the data is that, even though the High Hybrid PMS has answered with higher numbers on average, and the Low Hybrid PMS has answered with lower numbers, there are still situations where the roles are switched. For example, the High Hybrid PMS group has indicated the lowest trust for mission and value statements guiding employees actions and the Low Hybrid PMS group has indicated the highest use of mentoring and introduction programs. This fact supports the validity of the data and diminishes the risk that the differences found between the hybrid groups are only due to the interviewees perceiving the values of the numbers in the questionnaire differently. Another issue with the results is that two of the groups, the Non-financial PMS and the Low Hybrid PMS groups, are

relatively small with six observations in each. The results of the analysis show that these groups do have their individual characteristics which differentiate them from the other PMS groups and thus, it is considered to be proven that they are in fact real groups existing within the population SBUs of large Swedish companies. To avoid that the size of these groups becomes a problem for the validity of the conclusions, the implications drawn from the data on the small groups have been carefully handled and in situations where the answer of only one SBU makes a big difference on the results, no generalizations regarding the whole group have been done.

### **7.3 Suggestions for Future Research**

Given that the data which is used in this thesis forms part of an international science project, intending to collect comparable data from a range of countries, an international comparison would be of interest. Earlier research has concluded that differences in national culture affect the design of performance management systems (Fletcher, 2001), of which PMSs is a part. But it would be interesting to conduct studies across national borders in order to see if the PMSs look the same in other countries, if the same PMS groups can be identified and if they are similar in size. Such a comparison could provide an answer to the question how national culture affects the PMS and its connections to the MCS package. This study has investigated the MCS package from a PMS perspective, i.e. the focus has been on the PMS and thereafter links between the design of the PMS and the design of other parts of the control systems have been investigated. For future research, it would be of interest to further investigate the empirical implications of Malmi and Brown's MCS package (2008) from different angles and using additional methods. Such research could add on to the existing knowledge and in the end provide a comprehensive understanding of how the MCS package is used in practice. The analysis in this thesis has focused on the content, and to some extent the processes, of the PMS and its connections to the other parts of the MCS package. This type of analysis is what Dent (1990) identifies as Level 1 of contingent control analysis in his research. The next step is conducting different types of analyses measuring the outcome, that is, the efficiency of different types of PMSs with connected MCS packages. Outcome analyses are frequently requested in research (e.g. Dent, 1990, Fisher, 1995) and it would be a natural next step to build on the results of this thesis and investigate whether there is a system which is more efficient than the others.

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# Appendices

## Appendix A: Participation in Long-range Planning

In Chapter 4, the participation in the long-range planning is described on three levels: top-down, intermediate, and bottom-up. These general definitions are created in order to make the analysis more clear and easy to understand for the reader. However, for the readers that are interested in the initial data which was used as a basis for the general definitions, this information will be presented below.

When answering the question of who participates in the formation of the SBU's long-range planning, the interviewees could choose between the following answers: *a) Top management of SBU with corporate management, b) Only top management of the SBU, c) Only SBU management, including one level below the CEO of the SBU, d) Only SBU management, including two levels below the CEO of the SBU, e) More than two levels below the CEO of the SBU.*

In the general definitions, answers a) and b) were considered to illustrate a top-down approach, answer c) an intermediate approach, and answers d) and e) a bottom-up approach.

Below, the percentage of SBUs in each PMS group which use certain participation structure answers is presented.

### Formation of ends

|                    | a)  | b)  | c)  | d) | e)  |
|--------------------|-----|-----|-----|----|-----|
| <b>Fin. PMS</b>    | 69% | 8%  | 23% |    |     |
| <b>Non-Fin.</b>    | 50% |     | 33% |    | 17% |
| <b>Low Hybrid</b>  | 67% | 17% | 17% |    |     |
| <b>Mid Hybrid</b>  | 42% | 26% | 16% |    | 16% |
| <b>High Hybrid</b> | 64% | 12% | 20% |    | 4%  |

### Formation of means

|                    | a)  | b)  | c)  | d)  | e)  |
|--------------------|-----|-----|-----|-----|-----|
| <b>Fin. PMS</b>    | 62% | 15% | 23% |     |     |
| <b>Non-Fin.</b>    | 50% |     | 17% | 17% | 17% |
| <b>Low Hybrid</b>  | 50% | 17% | 17% | 17% |     |
| <b>Mid Hybrid</b>  | 39% | 22% | 11% | 11% | 17% |
| <b>High Hybrid</b> | 40% | 24% | 28% | 4%  | 4%  |

## Appendix B: Participation in Short-term Target Setting

As for long-range planning, also the process of short-term target setting is described on three general levels: top-down, negotiations, and bottom-up. These general definitions are created in order to make the analysis more clear and easy to understand for the reader. However, for the readers that are interested in the initial data which was used as a basis for the general definitions, this information will be presented below.

When answering the question of who participates in the short-term target setting, the interviewees could choose between the following answers: *a) Top management sets targets and passes them to subordinates, b) Top management sets targets, but revises them in negotiations with subordinates, c) Target setting is a quite long, iterative negotiation process between organisational levels, d) Subordinates set autonomously targets but they are subject to top management acceptance, e) Subordinates set autonomously targets and top management interfere them little, if at all..*

In the general definitions, answers a) and b) were considered to illustrate a top-down approach, answer c) a negotiation approach, and answers d) and e) a bottom-up approach.

Below, the percentage of SBUs in each PMS group which use certain participation structure answers is presented.

### Formation of ends

|                    | a)  | b)  | c)  | d)  | e)  |
|--------------------|-----|-----|-----|-----|-----|
| <b>Fin. PMS</b>    | 25% | 50% | 17% | 8%  |     |
| <b>Non-Fin.</b>    | 17% | 17% | 33% | 33% |     |
| <b>Low Hybrid</b>  | 50% | 50% |     |     |     |
| <b>Mid Hybrid</b>  | 25% | 50% | 15% |     | 10% |
| <b>High Hybrid</b> | 19% | 65% | 4%  | 12% |     |

### Formation of means

|                    | a)  | b)  | c)  | d)  | e)  |
|--------------------|-----|-----|-----|-----|-----|
| <b>Fin. PMS</b>    | 8%  | 58% | 17% | 17% |     |
| <b>Non-Fin.</b>    |     | 33% | 33% | 33% |     |
| <b>Low Hybrid</b>  | 17% | 50% |     | 17% | 17% |
| <b>Mid Hybrid</b>  | 20% | 25% | 25% | 10% | 20% |
| <b>High Hybrid</b> | 12% | 38% | 19% | 27% | 4%  |