

**DECENTRALIZATION, PERFORMANCE EVALUATION AND
GOVERNMENT PERFORMANCE**

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Abstract

In order to improve the organizational performance of governmental entities, there has been a tendency in many countries to introduce management reforms that are believed to prevail in private companies. The term 'NPM' (New Public Management) was coined to label these reforms. NPM stresses – among many other things - that public services have to be rationalized and emphasis put on quantification as a means of demonstrating achievements (efficiency gains, new levels of performance) and of holding responsible people accountable. In the Netherlands, many municipalities have adopted NPM reforms.

This paper considers the results of these NPM reforms. In particular, it focuses on two reforms: the decentralization of decision making authority to middle managers and the greater emphasis on accounting criteria for performance evaluation. This research explores whether managers are indeed motivated by such measures using a contingency-type approach.

In this paper, the survey data (214 observations) are analyzed by using Partial Least Squares (PLS). The analysis shows that the performance evaluation system of municipal departments is hardly related to the level of decentralization. Furthermore, it is shown that the effect of the use of accounting performance measures for evaluation purposes on the performance is moderated by the level of environmental uncertainty: the use of these accounting criteria results in more goal clarity at higher levels of uncertainty. However, we also found that managers are more concerned about their performance evaluation in these circumstances. These findings confirm the claim of Hartmann (2000) that environmental uncertainty may have multiple effects. Organic processes are found to be an important moderator: especially open communication increases the positive effects of using accounting performance measures at higher levels of environmental uncertainty and it mitigates the negative effects. The use of objective nonfinancial indicators (such as indicators expressing the quality of services) overall has a positive effect. For the use of subjective nonfinancial indicators we found opposite effects. Finally, we show that goal clarity of the managers and agreement on evaluation criteria are positively related to the performance of municipal departments.

Keywords: Qualitative analysis; Partial Least Squares; Reliance on Accounting Performance Measures (RAPM); Environmental Uncertainty

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1. INTRODUCTION

Starting from the 1980s important management changes have been introduced in the public sector in many countries. These changes are frequently labeled 'New Public Management' (NPM) (Hood, 1995). NPM should not be considered as an overall theory, but rather as a set of ideas, theories and techniques that aim to improve government. NPM has two important characteristics. The first characteristic is the introduction of market-based techniques in the public sector, such as the introduction of competition within the government and with organizations outside the government. The second characteristic aims at shifting the emphasis in control orientation: instead of focusing on the processes, the control should focus on the results.

In actual practice, governments in many countries have indeed made considerable efforts to introduce results oriented control. In the Netherlands, the country which this paper focuses on, especially the local governments have taken many initiatives to modify their planning and control processes. Many municipalities decentralized their organizational structure and gave middle managers the authority as well as the responsibility for the management of their entities. Performance management facilitated the introduction of results control: measurable and explicit goals should be formulated, results should be measured and managers should be evaluated on their performance. At the end of the eighties, the Ministry of Internal Affairs introduced the Policy and Management Instruments (PMI) project¹, which stimulated municipalities to apply private sector tools, such as output budgeting, responsibility accounting and cost allocation (ter Bogt, 2004, p. 244). This project can be considered one of the key manifestations of NPM in the Netherlands.

Although research shows that the reforms attracted considerable attention in Dutch local government, there is considerable doubt about the successfulness of these changes. Several evaluation studies have been published which were critical of the successes of the PMI project (van Helden, 1998; Aardema, 2002). These findings correspond with international literature which on the one hand shows that NPM-like reforms have been implemented to a large extent and on the other hand question the success of these changes (e.g., Pollitt and Bouckaert, 2004;

Guthrie et al., 2005). One might expect that time would be taken in order to evaluate the reforms, but in daily practice this is not the case: some recent studies presenting an overview of governmental reforms claim that NPM is ‘... here to stay’ (Lapsley, 2008) and ‘... there is no way back’ (OECD, 2005). At the same time, these studies suggest that more attention should be paid to the characteristics of the organization and its environment, in order to consider the appropriateness of the reforms for the organization.

This project focuses on the way Dutch municipal middle managers are evaluated by their superiors. These managers have a superior in the bureaucracy, most often the division manager or the municipal executive, as well as a superior in the political system, one of the aldermen. Budding (2004) found that these managers seem not to be evaluated regularly by the aldermen, but (only) by their direct civil superiors. Furthermore, this study revealed that these managers are evaluated on a rather broad range of criteria, in which results and costs oriented criteria are equally important as other criteria, such as the way they handle their personnel. This finding is supported by ter Bogt (2003) who finds that municipal aldermen evaluate municipal top managers on a broad range of criteria. Based on his analysis, he adds one evaluative style to the styles as distinguished by Hopwood (1973), namely the facilitating style. In this style, considerable attention is paid to the extent to which a manager acts as a ‘facilitator’, i.e. ensures that the organization and alderman concerned perform well in the short and long term (ter Bogt, 2003, p. 316). This finding corresponds with BSC literature advocating the use of a rather broad set of criteria to evaluate the performance of organizations and their respective managers (Kaplan and Norton, 1992).

The main goal of this paper is to explore the antecedents and effects of the performance measurement systems (PMS) of Dutch municipalities. In accordance with the contingency literature, special attention is paid to conditions that seem to be important for the appropriateness of PMSs.

The structure of this paper is as follows. The next section gives a short overview of literature on the appropriateness of PMSs. Then the research object, i.e. the Dutch municipalities, is introduced. This is followed by a literature review in which the hypotheses and research questions are introduced. The next section describes the study design and method. We will then present the findings of this study. At the end of the paper the main findings are discussed and some avenues for further research are suggested.

¹ In Dutch: het BBI (Beleid en Beheers Instrumentarium) project

2. APPROPRIATENESS OF PMS

In analyzing the appropriateness of PMS, three streams of literature especially seem to provide relevant insights: the Reliance on Accounting Performance Measures (RAPM) literature, the contingency-based research in management accounting (hereafter referred to as contingency-based research) and the Balanced Scorecard/nonfinancial measures literature (hereafter referred to as BSC literature). The RAPM literature is about the behavioral and organizational effects of using accounting performance measures for the performance evaluation of subordinate managers. The contingency-based research analyses Management Control Systems (MCS) within its organizational context, attempting to explain the effectiveness of MCS by examining designs that best suit the organization's environment, technology, size, structure, strategy and culture. The BSC literature claims that financial measures provide a rather narrow overview of the results of organizations and suggests that nonfinancial measures should be added to these measures.

RAPM

The starting point for the RAPM literature in management accounting is frequently traced back to the studies by Hopwood (1972) and Otley (1978). Hopwood (1972) analyzed the behavioral consequences of evaluation styles of managers. He distinguished three evaluation styles (Hopwood, 1972, p. 160):

1. Budget Constrained Style – in organizations using this style the evaluation is primarily based on the subordinate manager's ability to meet the budget on a short-term basis.
2. Profit Conscious Style – the performance of the subordinate manager is evaluated on the basis of his ability to increase the general effectiveness of his unit's operations in relation to the long-term purposes of the organization.
3. Nonaccounting Style – accounting data play a relatively unimportant part in the supervisor's evaluation of the subordinate manager's performance.

In his study, Hopwood found that the Budget Constrained Style could lead to higher job-related tension. However, some years later, Otley (1978) replicated Hopwood's study and found contradictory results. In his study, the use of the Budget Constrained Style was associated with higher managerial performance than other performance evaluation styles. Since there are no fundamental differences in the measurement instruments used by Hopwood and

Otley, the differences in their findings might be attributed to situational differences (Hartmann, 2000; Noeverman, 2007).

As Hartmann notes, the contradictory findings of these studies provided a strong incentive for further empirical research (Hartmann, 2000, p. 454). In 2000, more than 20 years after Otley's publication, a special issue of *Accounting, Organizations and Society* was published dealing with the state of affairs in RAPM research. Although it concluded that there is now a vast number of papers in management accounting and control literature on RAPM (Hartmann reports 57 papers in his 2000 AOS publication), another finding was that these studies still fail to provide clear insight into the behavioral consequences of using accounting measures for performance evaluation. Furthermore, the studies show contradictory findings. These contradictory findings might be attributed to differences in measurement and the selection of contingency factors.

Otley and Fakiolas (2000) show that the conceptualization and the measurement instruments used vary among researchers. The main differences in measurement result from the different ways of scoring the items. In Hopwood's study a ranking procedure was used to determine the evaluation style. First, he asked the respondents to give a 5-point Likert importance score to the eight questionnaire items. Hereafter, the respondents were asked to rank the three most important factors in order of their importance by attaching the ranks '1', '2' and '3'. Only this ranking information was then used to determine the evaluation style:

- If the item "meeting the budget" was ranked in the top three ranks given, but the item "my concern with costs" did not appear in these top three ranks, then the style was categorized as Budget-Constrained.
- If the item "my concern with costs" was ranked in the top three ranks given, but the item "meeting the budget" did not appear in these top three ranks, then the style was categorized as Profit-Conscious.
- If neither of the two items above appeared in the top three ranks given, then the style was categorized as Non-Accounting.
- If both items appeared in the top three ranks given, the style was categorized as Budget-Profit (Otley and Fakiolas, 2000, p. 500).

Brownell (1985) was the first published paper in which the evaluation style was set by using the importance scores instead of the ranking scores. He used a single overall ranking score that was calculated by summing up the accounting related items ("meeting the budget" and

“concern with costs”). The other items were not taken into account. Otley and Fakiolas (2000) critically remark that this approach should be grounded by reporting a high inter-correlation of these items, which Brownell (1985) fails to do. The Brownell (1985) approach was also used by other authors. Dunk (1989 and 1990) used this score to dichotomize between high and low reliance on budgetary control. However, as Otley and Fakiolas show, this overall score can only be used to distinguish the non-accounting (low score) from the other styles (score of 6 and higher). Harrison (1992 and 1993) divided the score of the accounting items by the non-accounting items, expressing the relative importance of the accounting items to the non-accounting items. In none of the studies reported by Hartmann (2000) a distinction is made between different kinds of non-accounting items. All items are treated as a common group.

Most researchers used Hopwood’s original items, but modified instruments were also developed, some with only small (cf. Otley, 1978; Brownell, 1985; for an overview see Otley and Fakiolas, 2000, p. 499) and some with mayor modifications (Hirst, 1983). The primary reason for adapting the instruments was to modify them to the organizational context in which the research project was conducted. Some authors considered Hopwood’s original instrument as too much focused on manufacturing companies (Hirst, 1983; Hirst and Yetton, 1984), which is questioned by other authors (Otley and Fakiolas, 2000).

Although nowadays there is a vast amount of papers in management accounting and control literature on RAPM, these papers mainly focus on manufacturing companies (refer to Table 4-1). Only 2 of the 54 papers in this overview focus on public sector organizations (Williams et al., 1990; Macintosh and Williams, 1992), whereas 4 papers use data from public and private organizations, without treating these organizations as subsamples (Macintosh and Daft 1987; Ross, 1994 and 1995; Hartmann, 2005). Furthermore, most studies use a survey approach, examining middle managers’ responses to budgetary control. Most studies are conducted in the US, Australia, UK and Singapore. Only two papers (van der Stede, 2000; Hartmann, 2005) research organizations in continental Europe.

*** insert Table 4-1 about here ***

Contingency-approach

In Management Control literature, considerable attention has been paid to the suitability of performance measurement systems in specific circumstances (Chenhall, 2003). In this contin-

gency approach, fit is understood as a positive impact on performance due to certain combinations of context and structure. It is assumed that high-performing as well as low-performing firms do exist as a result of more or less successful combinations of context and structure (Gerdin and Greve, 2004, p. 307). Starting from the 1970s this approach has been used by many authors (Otley, 1980). Especially the following aspects were explored: the nature of the environment, technology, size, structure, strategy and national culture (Chenhall, 2003). In RAPM studies, this contingency approach also became quite popular (Hartmann, 2000).

However, one of the most important problems in a contingency-based approach is that it 'all depends'. It is very hard to select those contingency factors that are important, because so many variables may have influence. This has also important implications for the data collection and analysis, as it would be desirable to include all relevant variables in one model, in order to analyze their relative importance. As Chapman (1997) remarks, this has resulted in the observation that 'Contingency studies have come to be seen as large scale, cross sectional, postal questionnaire based research, which examines the interaction of a limited number of variables.' Many review articles have been published (Otley, 1980; Dent, 1990; Langfield Smith, 1997) showing a lack of an overall framework which could have helped to explain the sometimes even contradictory findings (Chapman, 1997, p. 189). However, Chapman (1997) and Hartmann (2000) both point to uncertainty that seems to be an underlying element for differences in findings. Hartmann (2000) demonstrates that 'no support exists for a universal negative effect of uncertainty on the appropriateness of RAPM' (p. 472) and that the results of a positive effect of uncertainty on the appropriateness of RAPM are neglected. This project aims at providing more insight into the effects of uncertainty on the use of accounting measures for performance evaluation.

Nonfinancial measures

In the late 1970s and 1980s, authors expressed a general dissatisfaction with traditional performance measurement systems. These traditional systems, developed from costing and accounting systems, were criticized for encouraging short termism, lacking strategic focus, encouraging local optimization, encouraging minimization of variance rather than continuous improvement and not being externally focused (Bourne et al., 2000). Furthermore, they fail to signal changes in the company's economic value, as an organization makes substantial investments (or replaces past investments) in intangible assets, such as the skills, motivation, and capabilities of its employees, customer acquisition and retention, innovative products and service, and information technology (Kaplan, 2001, p. 357). In an attempt to overcome these

criticisms, performance measurement frameworks have been developed to encourage a more balanced view. The most well known instrument resulting from these attempts is the Balanced Scorecard (BSC), developed by Kaplan and Norton (1992). Kaplan and Norton call their scorecard balanced as it represents a balance between 1. external measures for shareholders and customers and internal measures for critical business processes, innovation, learning and growth, 2. the measures are balanced between the outcome measures – the results from past efforts – and the measures that drive future performance and 3. the measures are balanced between objective, easily quantified outcome measures and subjective, somewhat judgmental, performance drivers of the outcome measures (Kaplan and Norton, 1996, p. 10). The Balanced Scorecard translates mission and strategy into objectives and measures, organized into four perspectives: financial, customer, internal business process, and learning and growth. Therefore, the BSC does not only focus on (more short term) financial indicators, but also pays attention to enablers of (longer term) success. Although the BSC was originally developed for the private sector, some recent studies also demonstrate the usefulness of the BSC for non-profit (Kaplan, 2001) and government organizations (Wisniewski and Olafsson, 2004).

3. NPM at DUTCH MUNICIPALITIES

This study analyses decentralization and the use of accounting measures for performance evaluation in Dutch municipalities. Local government in the Netherlands is considered the most important and visible level of sub-national government in the Dutch decentralized unitary state (Hendriks and Tops, 2003). It has an autonomous position and can initiate local policies it considers important for the local community. This freedom is constrained by general rules and requirements set by national and regional governments – governments that in turn are constrained by a general commitment to subsidiarity, power sharing and decentralization, and a particular dependence upon local knowledge and implementation capacity vested in local government (Hendriks and Tops, 2003). Municipalities employ important activities such as physical planning, public housing, transport, social services, education, culture and welfare. Some of these activities are obligatory; some are at the discretion of the municipality. Municipalities consist of two systems: the political bodies (the municipal council and the board of mayor and aldermen) and the bureaucracy.

Since the mid-1980s, Dutch municipalities have implemented a variety of management reforms (ter Bogt and van Helden, 2000; ter Bogt, 2001). These developments were stimulated

by spending cuts, national legislation and the Policy and Management Instruments (PMI) project². In this paper we will focus on two reforms: internal decentralization – that is the transfer of decision making authority to subordinate managers – and changes in performance evaluation. Many municipalities changed their organizational structure from a more central model to a decentralized model, in which subordinate managers were given more comprehensive decision making authority and which were more focused on customers or custom-related processes. Furthermore, many municipalities changed their planning and control processes, aiming to provide more transparency and linking municipal policy and budgets.

Although the reforms attracted considerable attention in Dutch public sector – especially the PMI project -, we do not know much yet about the results achieved (van Helden and Jansen, 2003). After a review of several studies, Aardema (2002) concludes that the PMI project did not have much impact on management practices in Dutch municipalities (see also van Helden, 1998). Furthermore, ter Bogt and van Helden (2000) have shown that there is a wide gap between formal accounting changes and their actual application, implying that the formal level of implementation (such as reporting performance indicators) is not a good indication for the actual changes in daily practice. However, ter Bogt (2008) and Groot and Budding (2008) reveal a somewhat more optimistic view of the successfulness of the management reforms. They interviewed and surveyed more than 100 people actively involved in public sector management and most respondents reported (slightly) improvements in performance, partly because of NPM reforms.

4. Development of hypotheses

Performance Measurement Systems

As has been shown in the previous section, many Dutch municipalities decentralized their organization structure in the 1990s. Decentralization is viewed here as the locus of decision making authority that is delegated to the department manager by his/her superiors (cf. Govindarajan, 1986). In most Dutch municipalities, managers were given more comprehensive decision making authority (DMA) with regard to financial as well as personnel affairs, generally as an important component of implementing *integral management*. We do not know, however, if this decentralization also led to changes in the performance measurement system. NPM

² In Dutch: het BBI (Beleid en BeheersInstrumentarium) project

calls for both decentralization and accountability for results. Both reforms seem to be interrelated: More freedom for middle managers also means an obligation for them to provide more and better information and to account for their actions (ter Bogt and van Helden, 2000). We expect this information to be explicit and related to clearly defined targets (Hood, 1995), i.e. result oriented and objective.

In Management Accounting Research there is only limited understanding of the antecedent conditions that influence the design of management accounting systems (Bouwens and Abernethy, 2000, p. 221). Chenhall and Morris (1986) found that decentralization is associated with a preference by decentralized managers for aggregated and integrated information. This finding is confirmed by Abernethy et al. (2004) who found that corporate management relies more on divisional summary performance measures (rather aggregated and decision specific information) when they have delegated authority to divisions (Abernethy et al., 2004, p. 547). In a study using hospital data, Abernethy and Lillis (2001) found that autonomy is positively related to the use of the performance management system, especially the use of resource management data (including cost and productivity data). Based on a study among 34 firms, Gordon and Narayanan conclude that decentralization leads to the use of more external, nonfinancial and ex ante information (Gordon and Narayanan, 1984, p. 42).

Based on both NPM and Management Accounting literature therefore our first hypotheses are:

- H1 Decentralized Decision Making Authority (DMA) is positively associated with the use of (a) Accounting Measures (AM) and (b) objective nonfinancial measures (NF) for performance evaluation.
- H2 Decentralized Decision Making Authority (DMA) is negatively associated with the use of subjective nonfinancial measures (SUB) for performance evaluation.

PMS effects

In this project, we want to find out under what circumstances it is appropriate to hold managers accountable for results which might lead to improved organizational performance. In the RAPM literature, the question is discussed how the appropriateness of APM should be meas-

ured. In this paper, we follow Hartmann (1997) and focus on two aspects, goal clarity (GC) and agreement on evaluated criteria (AEC). We think that one of the most important consequences of PMS is that it provides more clarity over the goals to be attained. Recent literature has shown that in order to manage human capital effectively and to attain strategic success, it is essential for employees to have “line of sight” with their organization’s strategic objectives (Boswell, 2006). Therefore, management must clearly communicate these objectives. This claim is supported by the goal setting theory. This theory states that, given goal commitment, a specific challenging goal leads to higher task performance than a vague goal, such as ‘do your best’ (Locke and Latham 1990). This assertion has been supported in numerous empirical studies (Locke and Latham, 2002).

However, evidence of this theory in public sector is scarce. Using data derived from hospital managers, Bouillon et al. (2006) demonstrate that significant economic benefits occur when organizations realize goal congruence (manager consensus). Hyndman and Eden (2001) interviewed the chief executives of nine agencies and they indicated that a focus in mission, objectives, targets and performance measures had improved the performance of the agency. Using data from 93 managers of Dutch public sector organizations, Verbeeten concludes that the definition of clear and measurable goals is positively associated with both quantity performance (efficiency, production targets) as well as quality performance (accuracy, innovation, employee morale) (Verbeeten, 2008, p. 441-442).

Another important attribute of a PMS is that it adds to fairness of the evaluation. Hartmann (1997, p. 40) argues that prior RAPM studies suggest that disagreement with evaluation criteria is an important *consequence* of using APM in uncertain environments, and an important *cause* of subsequent job-related tension. Such tension negatively influences the organization’s performance.

In this study, we explore the effects of different groups of performance measures. We distinguish between three groups: accounting measures (AM), objective nonfinancial measures (NF) and subjective nonfinancial measures (SUB). In RAPM literature the attention is rather limited to the use of accounting measures (refer to paragraph 3). BSC literature has shown the importance of using a broader set of performance measures, as nonfinancial measures may express important conditions for more long-term organizational success.

The RAPM literature provides mixed evidence with regard to the effects of using accounting performance measures (AM). AM are rather objective measures which can be measured and defined. The use of AM can function as a 'buffer': budgets provide a buffer between the wider, strategic and external environment of the organization, and the manager's narrower, functional and internal working environment (Hartmann, 2005, p. 244). The use of accounting measures may provide structure and certainty, particularly for those managers whose roles have been defined ambiguously (Marginson and Ogdon, 2005, p. 436). However, the use of accounting performance measures may imply controllability problems, i.e. managers are held accountable for results beyond their control. There can be more debate at evaluations about the aspects managers should be held accountable for.

Therefore, our hypotheses with regard to the use of AM are as follows:

- H3 The use of accounting measures (AM) for performance evaluation is (a) positively associated with Goal Clarity (GC) and (b) negatively associated with Agreement on Evaluation Criteria (AEC).

Recent performance measurement literature emphasizes the positive attributes of using nonfinancial measures for performance evaluation. Banker et al. (2000) have shown that by including nonfinancial measures in the compensation contract, managers more closely align their efforts along the dimensions emphasized by those measures, resulting in improvements in performance³. Lau and Sholihin (2005) state that the use of nonfinancial measures may contribute to the perceived fairness of the evaluation procedures. Subordinates generally view these measures as meaningful and relevant. They provide a broader overview of a subordinate's accomplishments than if only financial measures are used. The nonfinancial measures comprise both lagging and leading indicators, thereby including measures that drive future performance. This may add to the fairness as perceived by subordinates investing in long-term objectives (Lau and Sholihin, 2005, p. 393). Using a dataset of 70 Indonesian manufacturing organizations, Lau and Sholihin show that the use of nonfinancial measures indeed contributes to the subordinate's perceived fairness of the evaluation procedures. Said et al. (2003) hypothesize that the performance consequences of using nonfinancial measures may depend on contextual factors, environmental factors, and strategic plans of firms. They expect that regulated industries more extensively use nonfinancial measures for performance evaluation,

³ See also Anderson et al. (1994), Amir and Lev (1996) and Behn and Riley (1999) amongst others for studies showing positive effects of using nonfinancial measures.

because in these industries the regulator is likely to link profits or rate increases to the achievement of nonfinancial goals, such as customer satisfaction, reliability and employee safety. Using a dataset of 1,441 observations from various industries, they indeed find support for the hypothesis that nonfinancial measures are used more intensively by regulated industries (see also Ittner et al, 1997). In our sample, we analyze the performance evaluation of municipalities, which are strongly regulated by central government. Following Said et al. (2003), we therefore expect the positive effects of using nonfinancial measures to be even greater than in other industries.

Based on this literature overview, we hypothesize:

H4 The use of objective nonfinancial measures (NF) for performance evaluation is positively associated with (a) Goal Clarity (GC) and (b) Agreement on Evaluation Criteria (AEC).

As discussed before, the introduction of New Public Management's practices in Dutch municipalities called for the use of more objective instead of subjective indicators for performance evaluation. However, ter Bogt (2003) and Budding (2004) have shown that in daily practice these subjective performance indicators, such as having a feeling for political wishes and needs, showing initiative, having good relations with superiors and contributing to a positive image of the municipality⁴, are still used frequently. We expect, however, that the use of these measures for performance evaluation is not considered positive by the subordinate managers. The measurement of these indicators is subjective, they heavily depend on the perception of the superior. Therefore, there can be more debate about the measurement and the interpretation of these indicators. Furthermore, they do not provide more clarity over the goals, as these measures do not express clear tasks or responsibilities of the managers. Therefore, our hypothesis is as follows:

H5 The use of subjective nonfinancial measures (SUB) for performance evaluation is negatively associated with (a) Goal Clarity (GC) and (b) Agreement on Evaluation Criteria (AEC).

⁴ The first two items are mentioned in ter Bogt's study (2003), the last two in Budding (2004).

Contingencies

Based on the RAPM literature and the findings from previous research (Budding, 2004), we analyse five groups of contextual variables that might influence the relation between managers being held accountable and organizational performance. These four groups are: 1. Environmental Uncertainty (EU), 2. Task Uncertainty (TU), 3. Funding Uncertainty (FU), and 4. Organic Processes (OP). For hypothesizing the effects of these groups of uncertainty, we mainly use arguments derived from RAPM literature and analyze the influence of these uncertainties on the relationship between the use of accounting measures (AM) and our output variables, Goal Clarity (GC) and Agreement on Evaluation Criteria (AEC). We choose to focus on the accounting measures, because New Public Management especially advocates the use of these measures. Although we also analyzed the effects of using objective and subjective nonfinancial measures (NF and SUB respectively) on our output variables and the influence of the moderators on these effects, we do not develop hypotheses for these relationships, as the literature on the moderating effects of using nonfinancial measures on performance is still rather limited⁵. Therefore, these effects are analyzed in an exploratory way. The inclusion of the nonfinancial measures enables us to compare the effects of different measures and analyze their relative effects.

Environmental Uncertainty (EU)

Managers feel they are confronted with many uncertainties. Some of these have to do with the environment of the departments, such as uncertainties stemming from the clientele and the behavior of suppliers. These uncertainties are more or less the same as in a private sector environment (e.g. Buchko, 1984; Milliken, 1997). We expected that uncertainties stemming from the political environment would also be important. Because these uncertainties are comparable to commercial organizations, we follow the arguments that are used in RAPM literature to analyze the influence of environmental uncertainty (EU) on the relation between the use of accounting measures (AM) for performance evaluation and the outcome variables Goal Clarity (GC) and Agreement on Evaluation Criteria (AEC).

In RAPM literature there is mixed evidence with regard to the (interaction) effect of EU on the relation between the use of accounting measures for performance evaluation and output

variables, such as performance. Some studies showed a negative effect of environmental uncertainty on the relationship between reliance on the use of accounting measures for performance evaluation and performance (Hirst, 1981 and 1983; Brownell, 1987; Govindarajan, 1988), while other studies do not give evidence for this effect (Merchant, 1984; Brownell, 1985; Lau et al., 1995). However, empirical evidence is increasingly showing that using accounting measures for performance evaluation is especially useful under conditions of high environmental uncertainty (Ezzamel, 1990; Marginson and Ogden, 2005).

Hartmann (2000) states that there seems to be a paradox with regard to uncertainty. On the one hand there are the negative effects of using AM under high environmental uncertainty. These negative effects seem to stem especially from violating the controllability principle (Hartmann, 2000, p. 471). This principle is about the effects of evaluating managers on items beyond their control. Generally, it is opposed that evaluating managers on items beyond their control is considered negative by the subordinates. Therefore, evaluating managers on accounting measures that are not controllable by them may result in tension because the performance measurement may be incomplete and irrelevant (Hartmann, 2000, p. 471) and therefore, not considered 'fair'.

On the other hand, the use of AM may also be useful under high environmental uncertainty. Using budgets enhances managers' autonomy. Furthermore, uncertain conditions require more information sharing, which mostly takes place within the context of formal accounting and control procedures (Hartmann, 2005, p. 244). Finally, budgets may have a buffering function against the influence of environmental uncertainty. In uncertain conditions, the accounting measures provide clarity with respect to the goals to be attained and the evaluation criteria (e.g., simply not overrunning the budget). Analyzing an organization in the 'global communications business', with a fast-moving business environment, Marginson and Ogden (2005) indeed show that in this organization budgets offer 'a source of structure and certainty' for the managers. Hartmann (2005) supports this finding and shows that high environmental uncertainty is associated with a more positive opinion of managers about the appropriateness of using accounting measures for performance evaluation.

Because of the mixed empirical findings thus far, we formulate the hypothesis in the null-form:

⁵ Said et al. (2003) is a positive exception. They show that the association between nonfinancial measures and firm performance is contingent on whether the use of nonfinancial measures matches the

H6 The effect of using accounting measures (AM) for performance evaluation on (a) Goal Clarity (GC) and (b) Agreement on Evaluation Criteria (AEC) is not affected by Environmental Uncertainty (EU).

Task Uncertainty (TU)

Managers are also confronted with uncertainties that stem from the tasks they perform. If the tasks of the manager and his employees are less repetitive and there is less knowledge as to how to perform the tasks, it may be more complex to define the goals and for the manager to know what should be done (cf. Hirst, 1987). Task uncertainty may also lead to confusion about the evaluation. If tasks are highly uncertain, it is more difficult to draw up budgets, because reliable information is missing. Furthermore, under such circumstances it is also harder to measure accomplishments. Therefore, the use of accounting measures is less appropriate. Several studies have proved that higher task uncertainty is indeed negatively associated with the use of accounting based controls (Hirst, 1983; Rockness and Shields, 1984; Abernethy et al., 1997; see also Chenhall, 2003 for an overview).

With respect to the interaction effect on GC, RAPM literature gives mixed evidence. First, accounting performance measures may add positively to the structure of the working environment, in terms of providing clear and specific objectives. This may be especially appreciated under high task uncertainty and give managers 'line of sight'. The use of accounting measures may give managers direction as to what should be done. On the other hand, task uncertainty leads to confusion about the way in which the budget targets should be attained, because there is limited knowledge with respect to the way this should be realized and more variability in the tasks. Hartmann (2005) shows that managers indeed dislike to be evaluated on accounting performance measures under high levels of task uncertainty. We do not know which effect is stronger and therefore formulate the hypothesis for the effect on GC in null-form.

For AEC, we expect that task uncertainty will lead to job related tension, because managers disagree with the potentially incomplete, irrelevant and uncontrollable accounting performance measures (Hirst, 1983). Therefore, we formulate this part of the hypothesis in the negative direction.

firm's characteristics.

- H7 The effect of using accounting measures (AM) for performance evaluation on (a) Goal Clarity (GC) is not affected by Task Uncertainty (TU) and the effect on (b) Agreement on Evaluation Criteria (AEC) is negatively affected by Task Uncertainty (TU).

Funding Uncertainty (FU)

Funding Uncertainty (FU) refers to a manager not being sure whether his department can get enough resources for operations. In this paper, we aim to analyze the moderating effect of funding uncertainty on the use of accounting criteria for performance evaluation on GC and AEC. Prior literature on this effect is not available, but some studies have been published analyzing the influence of funding uncertainty on the design and use of cost accounting systems. Geiger and Ittner (1996) show that organizations that are required to “pay their own way” by fully covering costs through revenues or fees, implement more elaborate cost accounting systems and also use these systems more intensively. They argue that the requirements to be self funding increase funding uncertainty, which in turn leads to more elaborate cost control. They especially use two arguments for this hypothesis. Firstly, they point to the analytical model of Zimmerman (1976) that suggests that non-profit organizations facing funding uncertainty (Zimmerman uses the concept ‘budget uncertainty’) will place greater emphasis on budgets and costs. Secondly, they draw the parallel between funding and environmental uncertainty, suggesting that both increase the demand for decision-making information. Groot and Budding (2004) found that organizations that were confronted with lower funding as a result of changing funding rules, charge tariffs that better represent actual cost levels. Furthermore, Rockness and Shields (1986) find that research and development organizations facing greater funding uncertainty placed more emphasis on budgetary controls. However, note that these studies provide insight into the effects of funding uncertainty on the *usefulness* of accounting data for decision making and do not give information about the *effects* of using AM for performance evaluation.

We think that on the one hand the use of AM may be considered favorable since they are rather objective criteria. In situations of large funding uncertainty these objective criteria may be experienced even as more useful than in situations with lower levels of funding uncertainty. On the other hand, funding uncertainty may cause even additional tensions that a manager may not have enough resources to reach the goals. As a result, the manager may be confused

as to which goals he should attain first given the limited resources. Furthermore, this may also cause tensions at performance evaluation, because there is a risk of being evaluated negatively for not reaching goals. Therefore, we formulate the hypothesis as follows:

H8 The effect of using accounting measures (AM) for performance evaluation on (a) Goal Clarity (GC) and (b) Agreement on Evaluation Criteria (AEC) is not affected by the level of Funding Uncertainty (FU).

Organic Processes

The previous phase of this research project (documented in Budding, 2004) analyzing the factors that may be contingent upon the effects of using AM for performance evaluation on organizational performance, revealed that in addition to external contingent factors, attention should be paid to internal organizational conditions as well. These internal conditions seem to be under-explored in management accounting research, although some recent publications have drawn attention to this issue. Otley (2003, p. 323) claims that ‘individuals are affected by a range of cultural differences beyond those of the nation in which they are brought up, or in which they currently work.’ and that ‘... All of these aspects remain under-explored...’. Manzoni (2003, p. 40) states that ‘the Management control community should devote more attention to studying *organizational factors* (italics by Manzoni) that make new accounting methods and systems so hard to implement successfully in practice.’ As early as 1967, Hofstede (1967) made a plea to pay attention to organizational conditions that make management control systems work effectively.

Chenhall and Morris (1995) and Emsley (2001) point to open and complete communication as an important condition for the successfulness of using performance evaluation systems. Emsley (2001) shows that the completeness of information that explains budget variances to the superiors, affects subordinate managers’ ability to understand budget variances and explain them to their superiors which, in turn, affects subordinates’ level of job related tension, especially where superiors use a budget-emphasis style of performance evaluation. Chenhall and Morris (1995) analyze the influence of organic decision and communication processes on the use of management accounting systems. They find that the combined effect of organic processes and management accounting systems is associated with superior organizational performance. Although Chenhall and Morris (1995) found two separate dimensions in their construct, they did not analyze the effects of each dimension separately. The first dimension cap-

tured the formality of decision processes and openness of communications, and the second focuses on emphasis of adaptability and change (Chenhall and Morris, 1995, p. 489-490). In this study, we follow the approach of Chenhall and Morris and we use a construct Organic Processes that is calculated by taking the average score of all items.

H9 The effect of using accounting measures (AM) for performance evaluation on (a) Goal Clarity (GC) and (b) Agreement on Evaluation Criteria (AEC) is more positive for higher levels of Organic Processes (OP).

Government Performance

Previously in this paragraph, we discussed how goal clarity and agreement on evaluation criteria may enhance organizational performance as they represent the behavioral effects of using a performance evaluation system. Our last hypothesis is about this expected positive influence:

H10 (a) Goal Clarity (GC) and (b) Agreement on Evaluation Criteria (AEC) is positively associated with Performance of the department (PD).

In Figure 4-1 our research model is displayed.

*** insert Figure 4-1 around here ***

5. Research method and sample

Data and sample selection

In this project, we want to analyze the implementation and consequences of two specific NPM reforms, decentralization and changes in performance evaluation.

We aimed at including as much variation as possible, by sending a questionnaire to all Dutch municipalities. Two municipal departments were the subject of this project: the “department for civil affairs” (DCA) and the social security department (SSD). We included these two different departments, because this enabled us to analyze the influence of departments’ characteristics on the results of our analysis. The department of civil affairs is responsible for the ad-

ministration and execution of marriage law, the provision of a system for the registration of deeds (births, deaths and marriages), the issuing of driving licences and passports and other services to citizens. Municipalities do not have much discretion in executing these activities: they have to provide these services and have to meet certain quality standards (such as keeping passports in a safe). These services can be measured quite easily. Social security departments are responsible for welfare and employment issues, such as providing help in finding employment and paying allowances. In the Netherlands, the execution of these services is the responsibility of municipalities. They have some discretion in executing these tasks: in paying extraordinary allowances they can formulate their own policy, within certain boundaries. Most municipalities have their own social security department, although some municipalities subcontract a part of these services. Because we are interested in the actual results, we chose the level of analysis at which results could be measured. Therefore, managers were contacted in this project at the level of a separate identifiable unit.

In order to obtain the data, in November 2002 a questionnaire was sent to the social security departments (SSD) and the departments of civil affairs (DCA) of almost all Dutch municipalities. In the Netherlands, there were 496 municipalities in 2002. So the total number of questionnaires would theoretically be 992. However, we made some corrections on this research sample. First, we excluded the four largest municipalities in the Netherlands (Amsterdam, Rotterdam, The Hague and Utrecht) because each of them has special legal, administrative and financial arrangements with the state that do not apply to other Dutch municipalities. Second, we excluded the departments that participated in earlier stages of this research project. We approached all other municipalities and asked the name of the manager of the social security department and of the department of civil affairs. In this way, we learned that at some municipalities the manager of the social security department was also in charge of the department of civil affairs. In other municipalities, the tasks of the social security department were contracted out to another municipality or to an external organization in which several municipalities cooperate in executing tasks in the area of social security (an 'Interge-meentelijke Sociale Dienst' or 'ISD'). Lastly, some municipalities informed us that a merger with (an)other municipality(ies) would take place in the short term. Based on these corrections, we came to a research sample of 834 departments. For our data selection we followed the recommendations of Dillman's Total Design Method, such as printing the questionnaire in a booklet format, using several reminders, and making the questionnaire as easy and as interesting to fill in as possible (Dillman, 1991).

The data were collected in the period between November 2002 and April 2003. We sent three reminders. The first one was in the form of a Happy New Year card (December 2002). In January, we sent a second copy of the questionnaire. In February, the respondents received a fax message from us with a reminder. We enclosed a non-response card (January) or sheet (February) to the reminders in 2003, in order to be informed about the reasons for non-response.

We received 236 questionnaires, leading to a response rate of 28.3%. Furthermore, we received 326 non-response cards or sheets, resulting in a total response percentage of 67.4%. The reason given most frequently (refer to Table 4-2) for not responding was that filling in the questionnaire was considered too time consuming. This reason was mentioned 192 times, but many respondents also filled in this reason in the category 'other reasons'. Another frequently mentioned reason for not responding was that the manager had only recently been appointed and therefore considered him/herself as not having enough experience to fill in the questionnaire.

*** inset Table 4-2 about here **

Representation analysis

We also analysed whether our sample offers a good representation of all Dutch municipalities. Therefore, we calculated the mean costs per inhabitant for the DCA. We think this is an appropriate indicator for the efficiency of a municipality, because every municipality has to provide a number of obligatory services in this area. The costs of SSDs were not considered appropriate for measuring the efficiency as municipalities have more freedom to establish their own policy with regard to this policy area. Furthermore, the costs for the SSD depend to a larger extent on the policy and social-demographic characteristics of the municipalities.

Our results (refer to Table 4-3) show that there is only a small difference between the mean costs for DCAs for our sample (EUR 27.31) and the mean costs for all Dutch municipalities (EUR 25.69). The costs of the municipalities from which the managers returned the non-response card are also comparable (EUR 26.31). There are no statistically significant differences in costs between the groups. However, the average size of the municipalities that returned the questionnaire was statistically significantly higher (refer to Table 4-4) suggesting a small bias in our sample (relatively more large municipalities answered our questionnaire).

Furthermore, the mean costs for the DCA are lower for municipalities that responded before the second reminder (EUR 25.75) than for the municipalities that responded after they received this second reminder (EUR 30.44, refer to Table 4-3). However, the differences are not statistically significant.

*** insert Table 4-3 and Table 4-4 about here ***

In several cases (13 times), the name of the respondent did not correspond to the name of the one to which the survey had been sent. For these cases, we checked whether the respondent indeed was a manager of the department. For two cases, this resulted in the exclusion for the analysis. Furthermore, we did a missing value analysis (MVA). This analysis showed that the number of missing values for the ISDs was quite high. This was due to the fact that the control and governance structure of the ISDs differed from the DCAs and SSDs. As a result, some questions did not apply or were not recognizable for the ISD managers. Therefore, we decided to exclude the 6 ISDs from the analysis. We also did a missing value analysis for the remaining cases. 14 cases had more than 2 missing items for one of the constructs in the analysis and were list-wise excluded. As a result 214 surveys were considered appropriate for the analysis (refer to Table 4-5). We used SPSSs Estimation Maximalisation (EM) algorithm to impute the missing values, after ensuring that the data were missing completely at random (MCAR) using Little's MCAR test. We imputed less than 5% of our variables.

The response rate for the DCAs was higher than for the SSDs (refer to Table 4-5). This is partly due to the fact that some municipalities cooperate with other municipalities in social security activities, reducing the number of autonomous SSDs.

*** insert Table 4-5 about here ***

Sample characteristics

Although a municipal department should be considered a business unit, it should be noticed that the average number of employees in the area of responsibility of the respondents is much lower in this research than in other RAPM research projects. The average number at this project is 22.3, whereas the number is 79.0 in the project of Hartmann (1997). Furthermore, the average respondent appears to be mid-aged (47.5), well educated and with a great deal of experience with the organization (12.4 years) and the function (11.2 years).

Measurement of variables

In this paragraph, the design of the measurement instruments used will be briefly discussed. In Table 4-6 some descriptives of the variables are displayed.

*** insert Table 4-6 about here ***

Independent variables

Decentralization

The level of decentralization is measured here as the locus of decision-making authority that is delegated to the department manager by his/her superior (Govindarajan, 1986). Several key decision areas were identified, namely: 1) hiring and firing of personnel on low and mediate hierarchical levels, 2) authorizing large investments, 3) giving bonuses, 4) determining wage-increases and 5) exceeding the budget (cf. Pugh et al., 1968). A self developed eight-item scale (cf. Singh, 1986) was used to measure the degree of decentralization. Factor analysis revealed two dimensions: items related to decision making authorities with regard to financial aspects (such as the authorization of large investments) and those related to personnel aspects (such as hiring and firing of personnel). The dimensions have a satisfactory Cronbach α of 0.89 and 0.61 respectively. As the dimensions are highly correlated ($r=0.52$ at $p<0.001$) and previous literature did not suggest other effects of both dimensions, we added the scores of both dimensions, expressing the decision making authority of a middle manager. The instrument DMA has a Cronbach α of 0.83.

RAPM

The RAPM construct was based on the original instrument of Hopwood (1973), translated to Dutch and modified by Hartmann (1997). This instrument was adapted to a governmental setting. Most important changes were the deletion of the item 'How much profit I make' (municipalities do not strive to make a profit) and the adaptations to the item 'meeting the budget'. Because in Dutch municipalities 'budget' is generally considered as the maximum amount of money which can be spent instead of the combination of performance and the associated costs, this item was split into 'Not overrunning the budget' and 'Meeting the budget at the amount of the agreed upon costs'. Factor analysis revealed four dimensions: 1. accounting measures (AM), 2. objective nonfinancial measures (NF), 3. items related to the relationship with the operational and political superiors and 4. items related to the extent to which initiatives are employed that contribute to a good image of the superiors. The third and the

fourth dimension are both rather subjective; they cannot be measured easily without the risk of human bias, because they depend on the judgment of superiors. Furthermore, the dimensions were highly correlated ($r=0.4$ at $p<0.001$) and we did not expect to have different findings for these dimensions based on prior literature. Therefore, we added the scores of both dimensions, resulting in a score for the extent to which subjective nonfinancial measures (SUB) are used for performance evaluation. The resulting three dimensions (AM, NF and SUB) are also statistically correlated (refer to Table 4-7), implying differences in more explicit and more implicit evaluation styles (i.e., using a rather broad and rather narrow set of measures for performance evaluation respectively). All dimensions have a satisfactory α of 0.70 or higher. We did not calculate an ‘overall’ RAPM score, because we aimed at analyzing the influence of each set of measures separately.

Contingency variables

The construct for Environmental Uncertainty (EU) was based on the instruments developed by Govindarajan (1984) and Merchant (1990), adapted and translated by Hartmann (1997). Based on previous literature⁶, we distinguished four groups of sources of environmental uncertainty: 1. clients (EU_CL), 2. technological developments (EU_TD), 3. suppliers (EU_SUP) and 4. politics (EU_POL). We computed an overall score for EU as the average score of these groups. Because we think that the influence of the uncertainties on the operational management depends on the combined effect of unpredictability and influence, we calculated the scores by multiplying the questions about the unpredictability and the influence.

The construct for Task Uncertainty (TU) aims to measure the uncertainty associated with the tasks of the manager and his/her department. We use the instrument developed by Withey et al. (1983) and translated by Hartmann (1997). Factor analysis showed three dimensions, which refer to 1. the routines / repetitiousness of the tasks of the manager (TU_RM), 2. knowledge about the working procedures of the manager (TU_KM) and 3. the routineness / repetitiousness of the tasks of the employees (TU_RE). The dimensions are positively correlated ($r=0.41$ or higher), which is consistent with theoretical expectations (Perrow, 1967) and prior studies (van de Ven and Delbecq, 1974; Draft and Macintosh, 1981; Abernethy and Stoelwinder, 1991; Abernethy and Brownell, 1997). The reliability of the constructs is adequate (Cronbach α of 0.75, 0.80 and 0.78 respectively). Because of the high intercorrelation of the dimensions and because we did not expect to find other outcomes for the dimensions based on

⁶ As we consider the underlying items as causal indicators and not reflective indicator (cf. Bisbe et al., 2006, AOS), it was not considered appropriately to use factor analysis.

previous research, we computed an overall score for TU as the mean of the scores on the dimensions.

Funding Uncertainty (FU) aims to measure the uncertainty of having not enough resources for executing the departments' activities. We used a self-developed one item instrument for measuring FU.

The instrument for organic processes (OP) was based on the study of Chenhall and Morris (1995). Chenhall and Morris developed an instrument to measure organic processes in organizations, based on previous literature (Khandwalla, 1972) and pilot studies. We added two additional items to this instrument, resulting in twelve items. Factor analysis revealed that items loaded on the same two factors as in Chenhall and Morris' study, capturing the formality of decision processes and openness of communication, while the second dimension focuses on an emphasis of adaptability and change. For comparability purposes and because we did not expect a different effect of both dimensions beforehand, we used one construct in this study, calculated by taking the average score of all items in this instrument. This instrument has a satisfactory Cronbach α of 0.82.

We analyzed whether our independent variables were correlated, indicating possible multicollinearity problems. Table 4-7 shows that none of the contingency variables is correlated, except for a negative statistical significant correlation between funding uncertainty (FU) and organic processes (OP).

*** insert Table 4-7 around here ***

Outcome variables

In this project, we used several variables to measure the performance, expressing the extent to which managers are incentivized to increase the performance, their own (subjective) judgment of the performance and the efficiency of the departments.

Behavioral effects

The behavioral effects of the performance measurement system are measured by the constructs Goal Clarity (GC) and Agreement on Evaluation Criteria (AEC). Both constructs have

been developed by Hartmann (1997). The instrument for GC expresses the degree to which the goals that have to be reached are clear to the manager. This instrument consists of items for goal specificity and role ambiguity. The instrument for AEC aims to measure the degree to which the manager agrees with the way he is being evaluated.

Government performance

In this study we measured the performance of the departments in our study in several ways. The managers were also asked to give a rate (on a scale from 1 to 10) for the functioning and performance of their own department (PD) and their own functioning and performance (PI). Because we think the ultimate goal of managers should be to improve the performance of the department, we use the performance of the department as the output variable in this study. Furthermore, this measure was usable for both departments in our study and we did not have much missing data as for the other performance related data.

Analysis method

We used Partial Least Square (PLS) to test our structural models. PLS is a causal modeling technique that provides an advanced combination of principal component analysis and path analysis. This causal modeling technique is well suited to analyze small sample sizes and does not make distributional assumptions. Furthermore, it allows the inclusion of formative measures (Chin, 1998, p. x) whereas SEM techniques such as LISREL do not allow this. PLS generates standardized β s that are used as path coefficients within the structural model and are interpreted as in OLS regressions (Chenhall, 2004). Bootstrapping provides a basis to evaluate parameter estimates. We use bootstrapping with 500 sample replacement, to assess the significance of each path coefficient. In order to test the robustness of our models, we also ran an Ordinary Least Squares analysis for all models. There were no large differences in our PLS and OLS analyses⁷.

⁷ Tables are available on request.

6. Findings

Performance Measurement Systems

- H1 Decentralized Decision Making Authority (DMA) is positively associated with the use of (a) Accounting Measures (AM) and (b) objective nonfinancial measures (NF) for performance evaluation.
- H2 Decentralized Decision Making Authority (DMA) is negatively associated with the use of subjective nonfinancial measures (SUB) for performance evaluation.

*** insert Table 4-8 and Figure 4-2 around here ***

Table 4-8 and Figure 4-2 show that importance attached to specific groups of measures for performance evaluation is not affected to the level of decentralization. Hypothesis 1, assuming a positive relationship between decentralization and the use of objective performance indicators (AM and NF) is therefore rejected. Hypothesis 2 is also rejected; we did not find a statistically significant relationship between decentralization and the use of subjective nonfinancial measures (SUB) for performance evaluation.

PMS effects

- H3 The use of accounting measures (AM) for performance evaluation is (a) positively associated with Goal Clarity (GC) and (b) negatively associated with Agreement on Evaluation Criteria (AEC).

The use of accounting measures (AM) for performance evaluation level is not associated with the level of GC and AEC, rejecting hypothesis 3a (refer to Table 4-8). Hypothesis 3b is supported: the use of accounting performance measures for performance evaluation is indeed negatively associated with AEC.

- H4 The use of objective nonfinancial measures (NF) for performance evaluation is positively associated with (a) Goal Clarity (GC) and (b) Agreement on Evaluation Criteria (AEC).

Hypothesis 4 is strongly supported by our analysis: the use of objective nonfinancial measures (NF) for performance evaluation is positively associated with the level of GC and AEC. The use of these indicators therefore seems to provide clarity over the goals to be attained and is considered appropriate for discussing the realized performance between superior and subordinate.

H5 The use of subjective nonfinancial measures (SUB) for performance evaluation is negatively associated with (a) Goal Clarity (GC) and (b) Agreement on Evaluation Criteria (AEC).

Hypothesis 5 suggesting that the use of subjective (SUB) performance indicators contributes negatively to goal clarity (GC) and agreement on the performance evaluation criteria (AEC), is partially supported by the analysis. The use of subjective nonfinancial indicators is indeed negatively statistically significantly associated with the level of GC, but not with the level of AEC. However, the direction of the coefficient of SUB is in the expected negative direction. Apparently, the subjective criteria introduce more uncertainty and vagueness over the goals of the manager and do not add to the fairness of evaluation.

Contingencies

Environmental Uncertainty (EU)

H6 The effect of using accounting measures (AM) for performance evaluation on (a) Goal Clarity (GC) and (b) Agreement on Evaluation Criteria (AEC) is not affected by Environmental Uncertainty (EU).

Our analyses do not confirm hypotheses 6 that the effect of RAPM on GC and AEC is not affected by the level of EU. Table 4-8 shows that at higher levels of perceived environmental uncertainty (EU), the use of accounting performance measures (AM) is considered positive for providing more clarity over the goals to be attained. On the other hand, the use of these items at higher levels of EU increases the uncertainty of evaluating subordinates on criteria that are beyond their control. The effect of the use of other performance evaluation criteria (NF and SUB) is not statistically significantly moderated by the level of EU.

Task Uncertainty (TU)

- H7 The effect of using accounting measures (AM) for performance evaluation on (a) Goal Clarity (GC) is not affected by Task Uncertainty (TU) and the effect on (b) Agreement on Evaluation Criteria (AEC) is negatively affected by Task Uncertainty (TU).

The effect of using accounting performance measures (AM) for evaluation purposes on goal clarity (GC) is not statistically significantly moderated by the level of TU, confirming hypothesis 7a. Furthermore, our analysis fails to support hypothesis 7b that the effect of RAPM on AEC is more negative for higher levels of TU. The coefficient is in the hypothesized negative direction, but is not statistically significant. Our analysis also shows that the effect of the use of subjective nonfinancial measures (SUB) for performance evaluation on AEC is positively affected by the level of TU, suggesting that in situations of high task uncertainty managers appreciate it to be evaluated on these subjective criteria. Furthermore, we found a statistical significant negative relationship between TU and GC, implying less goal clarity in situations of high task uncertainty.

Funding Uncertainty (FU)

- H8 The effect of using accounting measures (AM) for performance evaluation on (a) Goal Clarity (GC) and (b) Agreement on Evaluation Criteria (AEC) is not affected by the level of Funding Uncertainty (FU).

Our analysis confirms hypothesis 8 that the effect of using accounting performance measures for evaluation purposes on GC and AEC is not affected by the level of FU. The coefficients are not statistically significant. However, we found two significant relationships that were not hypothesized: First, we found a positive effect of FU on the use of subjective nonfinancial measures for performance evaluation (SUB) on goal clarity, suggesting that using these measures improve the clarity of the goals in situations of high funding uncertainty. This might indicate a compensating mechanism by managers to rely more on interpersonal subjective information sharing in situations of possible insufficient means. By this informal communication, managers can share their ideas about the importance of the goals to be achieved. Second, our analysis showed a direct negative effect of FU on AEC, implicating less reliance on the

performance evaluation in situations where the means might to be sufficient to achieve all goals.

Organic Processes

H9 The effect of using accounting measures (AM) for performance evaluation on (a) Goal Clarity (GC) and (b) Agreement on Evaluation Criteria (AEC) is more positive for higher levels of Organic Processes (OP).

Our analysis does not confirm hypothesis 9 that the effect of RAPM on GC and AEC is more positive for higher levels of OP. We do however find a strong positive main effect of OP on the level of GC and AEC, but OP does not moderate the relationship between RAPM and GC and AEC, except for the effect of using subjective nonfinancial (SUB) performance measures on AEC. This implies that organic processes do add to the goal clarity and the agreement on evaluation criteria, whatever indicators are used for the performance evaluation.

Government performance

H10 (a) Goal Clarity (GC) and (b) Agreement on Evaluation Criteria (AEC) is positively associated with Performance of the department (PD).

Table 4-8 shows that the efficiency of the departments in our study is indeed positively related with the level of GC and AEC, confirming hypothesis 10. The coefficient of both the effect of GC on PD and of AEC on PD is statistically significant and positive. This suggests that having more 'line of sight' (goal clarity) and more evaluation fairness (agreement on evaluation criteria) indeed motivate managers. However, the first mentioned relationship is much stronger, thereby strongly supporting the goal setting theory. Furthermore, the adjusted R^2 for PD is rather low (7.5%) suggesting that several other aspects than the behavioral effects of the performance measurement system may influence the performance of the department.

7. Discussion and conclusions

In this paper we analyzed the results of the implementation of two specific management reforms, the decentralization of decision making authority and the use of accounting measures for performance evaluation. Although these reforms attracted considerable attention, little is known about the effects of these reforms.

We expected these reforms to be interrelated: when managers are given more comprehensive decision making authority, we expect them to be evaluated more extensively on accounting measures, as these express more aggregated and integrated information (Chenhall and Morris, 1986; Abernethy and Lillis, 2001; Abernethy et al., 2004). However, our results indicate that decentralization and the use of accounting measures for performance evaluation are not statistically significantly correlated. This implies that middle managers are not held more accountable for results at higher levels of decentralization. This might indicate a possible lack in the accountability system of municipalities. If more comprehensive decision making authorities for middle managers are not accompanied by modifications in accountability regimes, one might wonder whether these systems ensure adequate control of costs and performance. Furthermore, if accountability systems do not follow responsibilities, then what are the determining factors for the design of evaluation systems? We think these can be institutional factors, such as norms and common practices within municipalities (Oliver, 1991). Another possibility is that the design of the system is affected by personal considerations of superiors (leadership styles). If these institutional or personal factors indeed explain differences in performance evaluation systems, one might question whether the most appropriate system was implemented. However, our findings might also reflect a temporary situation and that there is a significant time-lag between organizational changes and changes in the accountability system.

We also analyzed the effects of using various groups of measures for performance evaluation. To our surprise, accounting performance measures, such as budgets, do not have the most significant impact on our output variables that represent the behavioral effects of performance measurement systems. The use of accounting performance measures is not associated with the level of goal clarity and is even associated with lower levels of agreement on evaluation criteria. Far more and a more positive influence comes from the use of objective nonfinancial indicators, they are positively related to both goal clarity and agreement on evaluation criteria. This supports recent literature that stresses the benefits of using nonfinancial measures to provide a broad view of a subordinate's accomplishments (Ittner and Larcker, 1998; Said et al.,

2003; Lau and Sholihin, 2005). Our analysis revealed that these benefits did not depend on internal or external conditions. Therefore, the use of these objective nonfinancial measures seems to be desirable in all circumstances.

We also found strong statistically significant relationships between our variable *organic processes* and the output variables. This implies that internal conditions, such as having open communication and readiness for changes, lead to more goal clarity and agreement on evaluation criteria.

The effect of using accounting measures for performance evaluation, however, was much more complicated. We did not find a direct effect of the use of these indicators on our output variables. This effect was moderated by the level of environmental uncertainty. The effect of using accounting measures on goal clarity was positively moderated by the level of environmental uncertainty, whereas this moderating effect was negative for the relationship between the use of accounting measures and agreement on evaluation criteria. This implies that the use of accounting measures under high uncertainty may enhance the clarity over the goals to be accomplished by improving the 'line of sight' (Marginson and Ogden, 2005). On the other hand, this introduces more risk for managers being evaluated on aspects beyond their control. This calls for implementing mechanisms to ensure middle managers that their evaluation will be fair, such as using more nonfinancial measures as well as having open communication and trust in superiors (Ross, 1994; Emsley, 2001; Lau and Buckland, 2001; Manzoni, 2003). Both elements are needed to specify responsibilities and to separate the influence of chance from performance effects due to managers' efforts.

In his 2000 AOS paper, Hartmann (2000) made a plea that 'RAPM research should be challenged by finding out whether the appropriateness of RAPM is differently affected by different kinds of uncertainty' (Hartmann, 2000, p. 476). In this study we analyzed several groups of uncertainties: environmental uncertainty, task uncertainty and funding uncertainty. Our correlation analysis revealed that these groups were not statistically correlated. They appear to function as independent sources of uncertainty. Furthermore, the PLS model shows that the effects of these groups of uncertainties on our output variables are not consistent. Task uncertainty is negatively associated with the level of goal clarity, implying that more fluctuating and more difficult tasks contribute negatively to the clarity over the goals to be attained. Funding uncertainty is negatively associated with agreement on evaluation criteria. We think that in situations of probably insufficient resources, managers feel a bigger risk of being eva-

luated on performance that they are incapable of improving, due to lack of resources. Finally, we found that the negative effects of funding uncertainty on goal clarity (although not statistically significant) were mitigated by using subjective performance measures instead of objective performance measures.

In this paper, we used two output variables, goal clarity and agreement on evaluation criteria. Following Hartmann (1997), we think that these variables are important as they express the behavioral effects of performance measurement systems. Goal setting theory shows that clarity over the goals is an important determinant of organizational success. Agreement on evaluation criteria is important as it expresses the fairness of the evaluation by the subordinate. However, we also analyzed whether these output variables were positively and statistically significantly correlated with performance, measured by a self-rated instrument for the performance of the departments. Our analysis shows that the output variables are indeed positively and statistically significantly correlated with this performance measure.

The usual limitations of survey research apply to this paper. Two specific limitations need to be mentioned explicitly. The first is the choice of the departments in this study. We have chosen rather 'production-like' departments, which may influence the use of criteria for evaluation purposes. We expect the use of accounting based criteria to be more modest in other departments. Therefore, we suggest extending this research to other departments with different characteristics. Secondly, because of data limitations we had to use rather subjective criteria for measuring the performance of the departments.

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Tables

Table 1: Overview of research method and object of RAPM papers⁸

Study	Data collection method	Branch	Respondent characteristics	Usable n	Country
Abernethy and Brownell, 1997	Survey (1 st) and interviews (2 nd)	Large industrial company and scientific organization	senior research officers in research and development (R&D) divisions	127	Australia (industrial company) and US (scientific organization)
Barrett et al., 1992	survey	Medium-sized manufacturing companies	senior marketing managers and their subordinates	72	UK
Brownell, 1981	experiment	University students and a large manufacturing company	Students from an undergraduate accounting course and managerial personnel	46 (students) / 48 (man. company)	US
Brownell, 1982	Questionnaire (survey?)	a large manufacturing company	Managers holding cost responsibility and representing separate functional divisions	48	US
Brownell, 1985	Survey (1 st) and interviews (2 nd)	large multinational electronics and computer business	managers drawn from the marketing and R&D activities (1) and vice-presidents (2) of each function	61	n.i.
Brownell and Dunk, 1991	Survey	Manufacturing organizations	Managers in different functional areas, including production, marketing, research and development, engineering and administration.	79	Australia
Brownell and Hirst, 1986	Survey	A large manufacturing organization	line managers representing a wide variety of functions (i.e., marketing, production, research, administration, and distribution)	76	Australia
Brownell and McIness, 1986	Survey	Two companies in the electronics industry and one company in the steel industry	224 middle-level managers drawn from a variety of functional areas	108	n.i.
Dunk, 1989	n.i.	Consumer	Production managers	26	UK

⁸ This table provides an overview of the research method and object of the papers that are reported by Hartmann (2000) and Noeverman (2007). One paper was added to this list (Hartmann, 2005).

		product manufacturing organizations			
Dunk, 1992	= Dunk, 1989				
Dunk, 1993a, AOS	= Dunk, 1993a survey	Manufacturing organizations	Managers from different areas of responsibility (including production, marketing, R&D, finance and administration)	79	Australia
Dunk, 1993b, TAR	= Dunk, 1993a				
Ezzamel, 1990	Survey	Companies from the Times 1000	Finance directors ⁹	81	UK
Emsley, 2001	Interviews and questionnaire (presented during the interview)	medium-to-large sized manufacturing companies	Production and operational managers	38	n.i.
Frucot and Shaeron, 1991	Survey	21 different companies, varying in size, industry, and degree of foreign ownership (23% services, 8.4% merchandising, 60% manufacturing, 8.4% holding companies)	Managers from eight different functional areas	83	Mexico
Govindarajan, 1984	Interviews (1 st), survey (2 nd)	Multi-business firms	the senior-most corporate executive in charge of strategic planning (usually the vice president for planning) and also one or more senior line executives (usually a group vice-president) (1), business unit managers (2)	n.i. (1) / 58 (2)	US
Govindarajan, 1988	Survey	24 firms on the Fortune 500 list from various industries (automotive, petroleum, food products, chemical production, aerospace, elec-	SBU general managers and their superiors	75	US?

⁹ The finance directors were asked to solicit answers on each question from the relevant corporate manager.

		tronics, consumer durables, clothing manufacture and retail, and various consumer nondurables industries)			
Govindarajan and Gupta, 1985	= Govindarajan, 1984				
Gupta, 1987	= Govindarajan, 1984				
Harrison, 1992	Survey	Department and Retail stores	Middle-level managers in the merchandising and buying functions	117	Singapore Australia
Hartmann, 2005	Survey	Diverse organizations (both public and private sector)	Responsibility centre managers, across functional areas and positions in the organizational hierarchy, including line and staff managers, and of a single (Dutch) nationality.	196	The Netherlands
Hirst, 1981	No empirical data				
Hirst, 1983	survey	Diverse organizations (not specified)	Part-time students who are responsible for at least one subordinate, and accountable to a superior.	111	Australia
Hirst, 1987	No empirical data				
Hirst and Yetton, 1984	= Hirst, 1983				
Hopwood, 1972, 1973 and 1974	Questionnaire (1 st), interview (2 nd)	One manufacturing division of a large company	S: Cost center managers/departmental supervisors, I: cost center managers as well as other significant members of their organizational role sets (including supervisors, fellow cost center heads, cost center heads in other closely related departments, departmental administrators, departmental accountants and members of the company's sales department)	167 (1), 20 (2)	US
Hughes and Kwon (1990)	= Merchant, 1985				
Imoisili, 1989	survey	Manufacturing companies	Cost center managers and their superiors	102	US?
Kenis, 1979	survey	Manufacturing companies	Department managers and supervisors of	169	US

			plants		
Kren, 1992	survey	Fortune 500 manufacturing firms	Profit center managers?	80	n.i.
Lal et al., 1996	survey	Manufacturing companies	Managers	83	New Zealand
Lau et al., 1995	survey	Manufacturing companies with more than 100 employees	Functional heads	112	Singapore
Lau et al., 1997	survey	Manufacturing companies	Functional heads (production, marketing and service)	197	Singapore Australia
Lau and Tan, 1998	survey	Financial institutions with more than 100 employees	Middle-level managers	189	Australia Singapore
Lau and Tan, 2006	survey	Manufacturing organizations with more than 100 employees	Functional heads	152	Singapore
Macintosh, 1985	No empirical data				
Macintosh and Daft, 1987	interviews	Diverse organizations (private and public sector)	Corporate controller (preliminary visits) and department managers who have a clearly defined responsibility for meeting their operating budget	90?	US Canada
Macintosh and Williams, 1992	= Williams et al, 1990				
Marginson and Ogden, 2005	Interviews (1 st), Survey (2 nd)	A large communication business	Middle managers (having a business unit manager as a superior)	I: 26 S: 221	UK
Merchant, 1981	Interviews (1 st), survey (2 nd)	Electronics industry	I: Senior corporate officials such as the financial vice-president, controller, or director of planning and budgeting, S: middle-level manufacturing managers	I: 19 S: 170	?
Merchant, 1984	= Merchant, 1981				
Merchant, 1985	= Merchant, 1981				
Merchant, 1990	interviews	Two large (Fortune 300) divisionalized US corporations of which one has businesses in a wide variety of industries	Personnel at many levels in the organizations, occupying both staff and line positions, especially profit center managers.	? (17 different profit centers)	US

O'Connor, 1995	Interviews (1 st) and survey (2 nd)	Manufacturing organizations	I: General Managers/Managing Directors and/or their Directors of Personnel, S: Middle-level managers	I: 62? S: 125	Singapore
Onsi, 1973, TAR	Interviews (1 st), survey (2 nd)	Interviews: Large, national and international multidivisional companies Survey: large multinational manufacturing corporations	I: corporate controllers, budget directors, production vice-presidents, sales vice-presidents, and divisional managers S: divisional controllers, budget directors, cost analysts, manufacturing manager, sales managers	107	US
Otley, 1978	Interview (1 st), questionnaire (2 nd), document analysis (3 rd)	One single large manufacturing organization	Interview and survey: unit managers and group staff	41	UK
Otley and Pierce, 1995	survey	Big Six audit firms	Audit seniors	257	Ireland
Ross, 1994	survey	Diverse organizations (both public and private sector)	Senior and middle-level managers having responsibility center control	215	Australia
Ross, 1995	= Ross, 1994				
Simons, 1987	Interviews, survey	Manufacturing firms	I: senior general managers (usually the chief operating officer of the strategic business unit) S: chief executive officer	I: 12 S: 171	Canada
Van der Stede, 2000	survey	Diverse industries (only private sector)	Business unit general managers	153	Belgium
Williams et al., 1990	Interviews, survey	Public sector organizations	Lower-level managers	201	Canada

Figure 4-1: Research model

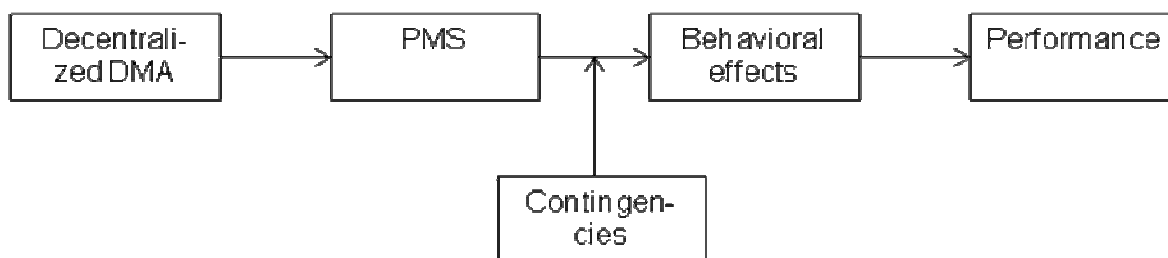


Table 2: Non response analysis

Reason	First mentioned reason	Second mentioned reason	Total
Filling in the questionnaire is too time consuming	62.3% (192)	0.0% (0)	62.3% (192)
It is the policy of my municipality not to participate in surveys	2.9% (9)	3.2% (10)	6.1% (19)
I am only recently appointed manager in my department	10.1% (31)	5.5% (17)	15.6% (48)
I am an interim manager	5.8% (18)	1.9% (6)	7.7% (24)
Some questions do not apply to my municipality	1.0% (3)	2.6% (8)	3.6% (11)
I did not receive the questionnaire	0.6% (2)	0.6% (2)	1.2% (4)
I did respond	1.9% (6)	0.0% (0)	1.9% (6)
I will respond	1.3% (4)	0.0% (0)	1.3% (4)
Other reason/remarks	13.9% (43)	17.9% (55)	33.8% (98)
	100.0% (308)	31.8% (98)	131.8% (406)

Table 3: Representation analysis: Costs DCA per inhabitant (in EUR)

	Mean costs	Min.	Max.	S.D.
All municipalities	25.69	1.78	278.58	14.44
Respondents non-response card	26.31	1.78	278.58	18.80
Respondents survey	27.31	1.78	278.58	23.00
Respondents survey – early response	25.75	1.78	101.68	12.15
Respondents survey – late response	30.44	2.85	278.58	35.90

Table 4: Representation analyse: Size of municipalities

	Respondents	All municipalities
Till 20,000 inh.	41.7% (96)	52.8% (260)
20-50,000 inh.	43.5% (100)	35.4% (174)
50-100,000 inh.	8.3% (19)	7.5% (37)
100,000+ inh.	6.5% (15)	4.3% (21)
Total	100.0% (230)	100.0% (492)
Average number of inh.	33.264**	28.522**

** Statistically significant differences (T-test) at $p < 0.05$

Table 5: Response rate per department

Department	Number of responses	Number in analysis
department of civil affairs (DCA)	125	116
social security department (SSD)	84	77
DCA / SSD	21	21
ISD	6	-
Total	236	214

Table 6: Descriptive characteristics for variables

Variable	Mean	SD	Possible range		Observed range		n
			Min.	Max.	Min.	Max.	
DMA	2.32	2.38	0	8	0	8	203
RAPM_AM	3.59	0.62	0	5	1	5	214
RAPM_NF	4.19	0.51	0	5	2	5	214
RAPM_SUB	3.25	0.68	0	5	1	5	214
EU	2.05	0.43	0	5	1	3.63	214
TU	3.06	0.58	1	5	1.81	4.69	214
FU	2.10	0.83	1	5	1	4	214
OP	3.53	0.51	1	5	2	5	214
PD	7.39	0.70	1	10	5	9	213

Table 7: Correlation table all variables

	DMA	RAPM_AM	RAPM_NF	RAPM_SUB	EU	TU	FU	OP	GC	AEC	PD
DMA	-	-0.035	-0.087	-0.018	-0.056	0.181***	0.106	0.033	-0.076	-0.008	-0.152**
RAPM_AM	-0.035	-	0.347***	0.221***	0.045	-0.097	0.067	0.207***	0.171**	0.090	-0.007
RAPM_NF	-0.087	0.347***	-	0.104	0.102	-0.032	-0.007	0.297***	0.327***	0.395***	0.147**
RAPM_SUB	-0.018	0.221***	0.104	-	-0.188***	-0.023	0.096	0.015	-0.096	-0.110	0.001
EU	-0.056	0.045	0.102	-0.188***	-	0.037	-0.053	-0.053	0.020	0.135**	0.049
TU	0.181**	-0.097	-0.032	-0.023	0.037	-	-0.018	-0.087	-0.279***	-0.034	-0.122*
FU	0.106	0.067	-0.007	0.096	-0.053	-0.018	-	-0.141**	-0.119*	0.160**	-0.149**
OP	0.033	0.207**	0.297***	0.015	-0.053	-0.087	-0.141**	-	0.391***	0.416***	0.178***
GC	-0.076	0.171**	0.327***	-0.096	0.020	-0.279***	-0.119*	0.391***	-	0.338***	0.249***
AEC	-0.008	0.090	0.395***	-0.110	0.135**	-0.034	-0.160**	0.416***	0.338***	-	0.172**
PD	0.111	0.032	0.104	0.083	-0.014	0.024	-0.094	0.178***	0.197***	0.131*	0.425***

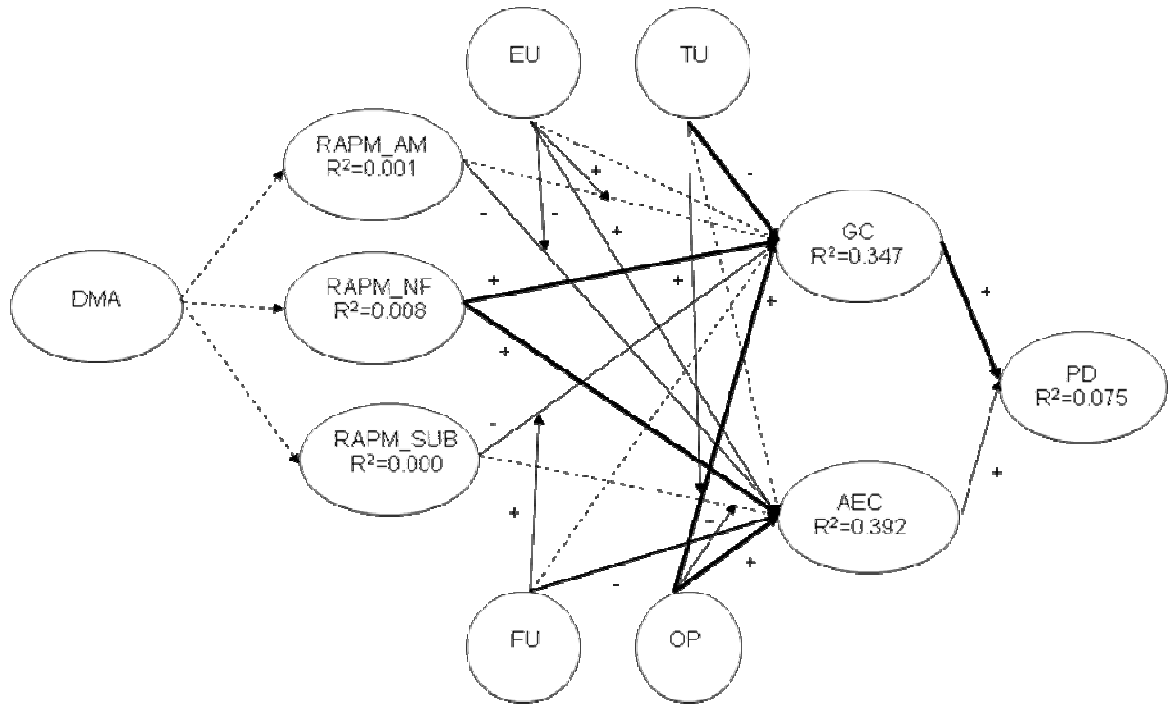
n=203-214 (due to missing data)

Table 8: PLS analysis

To	From	Coef.	t-value
RAPM-AM	DMA	-0.0377	0.7065
RAPM-NF	DMA	-0.0839	1.4471
RAPM-SUB	DMA	-0.0143	0.3292
GC	RAPM_AM	0.0115	0.245
	RAPM_NF	0.2204***	2.9941
	RAPM_SUB	-0.1122*	1.736
	EU	-0.0246	0.4268
	RAPM_AM * EU	0.2025***	2.4981
	RAPM_NF * EU	-0.0969	1.3859
	RAPM_SUB * EU	-0.0056	0.1128
	TU	-0.2267***	3.427
	RAPM_AM * TU	0.0049	0.0971
	RAPM_NF * TU	0.0241	0.6045
	RAPM_SUB * TU	0.0284	0.5508
	FU	-0.0463	1.0944
	RAPM_AM * FU	-0.0462	0.8644
	RAPM_NF * FU	-0.0389	0.7582
	RAPM_SUB * FU	0.1362*	1.9383
	OP	0.2979***	4.417
	RAPM_AM * OP	0.0338	0.5696
	RAPM_NF * OP	-0.1172	1.4679
	RAPM_SUB * OP	0.0696	1.2512
	AEC	RAPM_AM	-0.1341*
RAPM_NF		0.3195***	3.9593
RAPM_SUB		-0.0733	1.2802
EU		0.112*	1.7122
RAPM_AM * EU		-0.1952*	1.948
RAPM_NF * EU		-0.0758	1.1951
RAPM_SUB * EU		-0.0154	0.2777
TU		-0.0242	0.5578
RAPM_AM * TU		-0.0522	0.8912
RAPM_NF * TU		0.0387	0.7818
RAPM_SUB * TU		0.1052*	1.7862
FU		-0.1122**	2.0238
RAPM_AM * FU		0.083	1.2412
RAPM_NF * FU		-0.0033	0.0702
RAPM_SUB * FU		0.0551	1.0686
OP		0.3144***	4.5899
RAPM_AM * OP		0.0402	0.4912
RAPM_NF * OP		-0.0424	0.7378
RAPM_SUB * OP		0.134*	1.7894
PD		GC	0.1982***
	AEC	0.1301*	1.6728
	RAPM_AM	0.1%	
	RAPM_NF	0.8%	
	RAPM_SUB	0.0%	
	GC	34.7%	
	AEC	39.2%	
	PD	7.5%	

Figure 2: Outcomes PLS model

Significant relationships are indicated with continuing lines and level of boldness indicates the level of significance.



DMA=Decision Making Authority

RAPM_AM, RAPM_NF and RAMP_SUB=extent to which accounting (AM), objective non-financial (NF) and subjective nonfinancial (SUB) measures are used for performance evaluation

EU = Environmental Uncertainty, TU=Task Uncertainty, FU=Funding Uncertainty,

OP=Organic Processes

GC=Goal Clarity, AEC=Agreement on Evaluation Criteria, PD=Performance Department