The appropriateness of RAPM: toward the further development of theory

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Abstract

One of the few areas in management accounting and control research that has attained critical mass concerns the organizational and behavioral effects of budgeting. Many studies in this area focus on the use of budgets for managerial performance evaluation, and revolve around the construct Reliance on Accounting Performance Measures (RAPM). Despite the volume of the RAPM literature, concern has been expressed about its current state in terms of both theoretical progress and methodological practice. This paper provides an overview of the RAPM literature, and explains some important points of critique. In response to this critique, the last part of the paper explores the possibility for a further development of RAPM theory that is based on the concept of uncertainty.

1. Introduction

Within the management accounting and control literature, considerable attention is paid to the behavioral and organizational effects of using accounting information for the performance evaluation of subordinate managers. This attention is for a large part directed at describing and understanding the behavioral and organizational effects of a construct labeled Reliance on Accounting Performance Measures (RAPM). This construct signifies:

...the extent to which superiors rely on, and emphasize those performance criteria which are quantified in accounting and financial terms, and which are prespecified as budget targets. (Harrison 1993, p. 319).

The RAPM literature has earned a special position in the management accounting literature, not only because of its volume and thematic constancy (Kren & Liao, 1988; Lau, Low, & Eggleton, 1995), but also because of its impact on other “streams” of management accounting research (cf. Chapman, 1997, p. 192). Considering the status of RAPM research, Brownell and Dunk (1991, p. 703) even note (cf. Lau et al., 1995, p. 360):

The continuing stream of research devoted to this issue constitutes, in our view, the only organized critical mass of empirical work in management accounting at present.

Although these and other claims purport to signal the importance and vitality of the RAPM paradigm, the development of RAPM literature has been accompanied by critical commentaries as well (e.g. Otley, 1980; Briers & Hirst, 1990; Chapman, 1997). In an overview of two decades of RAPM research, Briers and Hirst (1990) point to
theoretical flaws in the RAPM paradigm. Their particular claim is that RAPM research has come to overemphasize statistical sophistication to the detriment of theory development. Critique has also been directed at the research models and research methods typically used in RAPM studies. In this respect, questions have been raised about the uncritical use of contingency theory in RAPM research (Otley, 1980; Schoonhoven, 1981; Chapman, 1997), and about its typical methods for data collection and data analysis. Regarding data collection, for example, Young (1996) points to the often careless use of questionnaire survey methodology, which is the typical data collection method in RAPM studies. Regarding data analysis, Lindsay (1995) has recently criticized the dominance of tests for statistical significance for accepting or rejecting research hypotheses. Therefore, while RAPM studies may form a critical mass in terms of number of papers, the question is left unanswered whether the claim for an organized critical mass is justified. Indeed, the theoretical and empirical flaws mentioned impede the development of the theoretically and empirically well grounded body of knowledge, that, almost by definition, an organized critical mass of studies should display. The remainder of this paper revolves around this question. It is structured as follows. In the second section, an overview is presented of the origins, the development and the findings of RAPM research. The third section then provides an overview of the methodological and theoretical problems of the RAPM paradigm that challenge the idea of an organized critical mass of RAPM studies. In the fourth section, a way is presented for the further organization of the RAPM paradigm, which involves theory development about RAPM under uncertainty. The fifth section illustrates the implications of this theory development for the RAPM paradigm, by providing some specific directions for further research. The paper closes with some final comments.

2. RAPM research: an overview

The starting point of RAPM research lies at the point in time when the human involvement in budgeting began to receive academic interest (Birnberg, Turopolec, & Young, 1983, p. 116; Briers & Hirst, 1990). A commissioned study by Argyris (1952) suggested the importance of behavioral factors for understanding the effectiveness of budgeting. Argyris' field-study of factory supervisors in four production firms showed that budgets induced behavioral and organizational effects that should be regarded dysfunctional from a management control perspective. The supervisors in this study appeared to perceive budgets as sources of pressure and tension, forcing them to narrow their attention strictly to the problems of their own department. Consequently, the supervisors expressed negative attitudes toward their superiors and toward budget procedures. Argyris' study was important for at least two reasons. First, it showed the need to complement technical knowledge of budgeting with knowledge of human behavior. Second, it suggested that dysfunctional behavior is not just a natural human tendency, causing a need to use controls, but that dysfunctional behavior could indeed be provoked by using (budgetary) controls. Subsequent empirical budgetary research aimed at explaining the incidence of these behaviors rather than at merely describing them. An important step was taken by DeCoster and Fertakis (1968) who investigated the relationship of budget pressure and leadership style for a sample of departmental supervisors. This study contributed to later RAPM research in two respects as well. First, it studied whether budget-pressure would result in an “initiating structure” leadership style (undesired), or a “consideration” leadership style (desired), and it thus formally addressed the appropriateness of using budgets. Second, their method involved the development of a budget-pressure questionnaire (BPQ). The BPQ was based on role theory (see, e.g., Kahn, Wolfe, Quinn, & Snoek, 1964; Rizzo, House, & Lirtzman, 1970; House & Rizzo, 1972) which, as will be further illustrated below, has become particularly influential in later RAPM studies. It was composed of 97 behaviors regarded indicative of felt budget pressure, about which the authors note:

The 97 questions were based upon the hypothesis that the more the supervisor does
in response to perceived or actual sent role expectations (i.e., budget requirements) (...), the more pressure he will feel. (DeCoster & Fertakis, 1968, p. 240).

Later, Swieringa and Moncur (1972, 1975) used adapted versions of the BPQ to describe and classify, so-called, budget-related behaviors. In this latter and shorter format, the questionnaire has been used in many later RAPM studies for measuring various budget-related variables (e.g. Kenis, 1979; Merchant, 1981, 1984).

The early studies, which attempted to broadly map budgetary processes and to explain (dys)functional effects of budgeting, were followed by those that focused on discrete steps in the budgeting process. Two steps, corresponding to the beginning and ending of the typical budgeting cycle, started to receive explicit attention. They were: (1) the way in which the budget is prepared (e.g. Hofstede, 1967; Milani, 1975); and (2) the use of budgets to control and evaluate managerial performance (e.g. Hopwood, 1972; Otley, 1978). Regarding budget preparation, studies by Hofstede and Milani suggested that the effects of budgeting depended on the extent to which subordinate managers were allowed to participate in the budgeting process and the extent to which they were capable of influencing budget target levels. This line of research was continued by studies that focused on a construct formalized as budget participation (e.g. Ronen & Livingstone, 1975; Brownell, 1981; Brownell & Hirst, 1986; Dunk, 1989). An overview of the early budget participation literature is found in Brownell (1982a). A recent and more critical overview of this literature is given by Shields and Shields (1998).

Regarding the use of the budget as a tool for performance evaluation, Hopwood (1972) and later Otley (1978) focused on the use of budgetary information by superiors to evaluate their subordinate’s performance. As the latter two studies are commonly regarded as the “formal” starting point for RAPM research (e.g. Kren & Liao, 1988; Briers & Hirst, 1990), separate attention is devoted to them below.

2.1. Dysfunctional consequences of RAPM

In a study by Hopwood (1972) the budget-pressure construct from Argyris (1952) and DeCoster and Fertakis (1968) was replaced with the more focused construct of supervisory style. Rather than following these two studies in their reliance on the budget-pressure construct (cf. Swieringa & Moncur, 1972), Hopwood (p. 157) started from the idea, supported by anecdotal evidence, that the extent and manner in which budgets are used reflect different management styles. In particular, Hopwood questioned whether dysfunctional reactions to budgeting were the effect of the inherent characteristics of accounting performance measures that budgets contain, or the effect of the precise manner in which and extent to which superiors used these measures to evaluate the performance of their subordinate managers.¹ Hopwood’s supervisory style construct was developed to express this “manner and extent”.² Hopwood (pp. 157–158) pointed to four inherent limitations of accounting information for managerial performance assessment:

First, not all the relevant dimensions of managerial performance are included in accounting reports since neither accountants nor managers have developed comprehensive measures and standards.

Second, even considering the economic aspects of performance, an organization’s economic cost function is rarely known with precision and an accounting system can only attempt to approximately represent its complexity (...).

Third, the accounting data are primarily concerned with representing outcomes, while

¹ Note that by focusing on the effects of performance evaluation, the budgeting theme became intertwined by a theme concerning the dysfunctional effects of performance evaluation, that had recently started to receive academic attention as well (e.g. Ridgway, 1956).

² In later RAPM studies, the supervisory style construct has received alternative and synonymous labels like budget emphasis (e.g. Brownell & Dunk, 1991), supervisory evaluation style (e.g. Harrison, 1992) and RAPM (e.g. Hirst, 1981).
managerial activity is concerned with the detailed process giving rise to the final outcomes (...).

Fourth, the main emphasis of accounting reports is on short-term performance indexes while the evaluation of managerial performance is often concerned with more long-term considerations.

The type of reasoning Hopwood (1972) applied in developing hypotheses was straightforward and corresponded with the role-theoretic reasoning underlying DeCoster and Fertakis’ (1968) budget-pressure construct. The general expectation was that dysfunctional behavior associated with the use of accounting performance information resulted from superiors neglecting these defects and using budgets in an absolute or Budget-Constrained way, rather than in a more relaxed Profit-Conscious way. In particular, Hopwood (1972) expected that the strict use of budget standards to evaluate managerial performance would negatively affect managers’ job-related tension, job attitudes, and social relations, and would indeed spur dysfunctional decision making and data manipulation. Such effects were argued to be the result of:

... disagreement and conflict between (the subordinate) and his supervisor over the dimensions, and their values, on which the job is described and evaluated. (Hopwood, 1972, p. 161).

As the quotation illustrates, the particular theoretical expectation was that strict emphasis on budget attainment would cause role conflict, which was identified previously as a major source of job-related tension (Kahn et al., 1964; Rizzo et al., 1970). The relevance of the concept is displayed in Kahn’s et al. (p. 19) formal definition of role conflict, as:

\[ \text{... the simultaneous occurrence of two (or more) sets of pressures such that compliance with one would make more difficult compliance with the other.}^4 \]

Hopwood (1972, p. 161) furthermore argued that too much budget emphasis would not only cause disagreement and conflict, but would also be ineffective since:

... even if the cost-center manager tries to improve his performance in terms of the accounting indexes, the behavior which is necessary to achieve this is not always clear if some of the reported costs are not under his control.

Hopwood’s (1972) study focused on cost-center managers, and was based on interviews and a questionnaire survey. The analysis showed overall support for the expected effect of the supervisory styles outlined. The Hopwood study was replicated by Otley (1978) who studied the effects of RAPM in a profit-center environment. Otley’s findings essentially contradicted Hopwood’s findings, as he found no significant relations between budget emphasis and either job-tension or negative social relations. Furthermore, Otley (1978) found positive relations between budget emphasis and managers’ budgetary performance, which falsified Hopwood’s suggestion that a strict reliance on APM would be universally inappropriate.

2.2. Dysfunctional consequences of RAPM in context

The contradictory findings in the Hopwood (1972) and Otley (1978) studies provided a strong incentive for further empirical research. Many later studies explicitly refer to these two studies for motivating their own efforts (e.g. Brownell, 1982b; Hirst, 1981, 1983b; Govindarajan, 1984). Several factors have contributed to the “pioneering”

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3 Hopwood designed a measurement scale for this study, using the relative importance of eight performance criteria which received both a rank and a score. The measurement scale was based on interviews, containing performance evaluation related statements which were common language in the organization investigated (see, Hopwood, 1972, 1973).

4 The full argument concerning role conflict is presented in the more elaborate Hopwood (1973).

5 Notably Hopwood and Otley have stayed out of the “debate” ever since starting it.
status of these two studies. First, both studies contained a comprehensive analysis of the effects of supervisory style, using a variety of budget-related and work-related variables. Second, the studies were largely similar concerning research questions and research method, suggesting that the difference in results was, somehow, “genuine”. Third, Otley (p. 123) himself triggered suspicion that the different results could be caused by systematic differences between his and Hopwood’s samples, by noting:

The present study was designed to eliminate technical failings in the accounting system, as far as possible, by observing the operation of a well designed system in a type of organization that was well suited for the application of budgetary control.

This notion of the suitability of RAPM laid the track for an explicit inclusion of contextual variables in research models that could explain different findings from situational differences between the Hopwood and Otley samples (Kren & Liao, 1988, p. 282). The common argument in these studies is that accounting reports only potentially have inherent defects, such as those outlined by Hopwood. However, the extent to which they are truly defective, and the extent to which their use truly results in dysfunctional effects, depends on the exact organizational context in which they are used. Therefore, while Hopwood is responsible for creating the distinction between budget system and its use to explain dysfunctional effects of budgeting, now context was added as a third, and theoretically relevant, dimension.

Over the last two decades, several contextual variables have been investigated in an attempt to understand the conditions under which RAPM is more (or less) effective. Together, the efforts form the area of the literature, called RAPM research, which has received the positive and negative qualifications mentioned at the outset of this paper. Common elements of RAPM studies are the focus on the use of accounting information for managerial performance evaluation, the frequent use of contingency frameworks in which the contextual appropriateness of RAPM is analyzed, and the heavy reliance on research methods from psychological and sociological research fields (cf. Merchant & Simons, 1986; Brownell, 1995). Table 1 presents an outline of some key aspects of the RAPM studies, organized by contingency variable examined. Below, attention is devoted to each category of studies, ranging from the “broad” national culture variable, to the more “specific” personality variables. A first category deals with universal studies, of which the early Hopwood and Otley studies are also examples. Because many studies have used multiple contingency factors, and because many studies have tested multiple hypotheses, both the table and the discussion contain cross references.

2.3. Universal (non-contingency) studies

Several universal studies have been done as well since the Hopwood (1972) and Otley (1978) studies. Onsi (1973) found, in line with Hopwood, that higher RAPM was associated with a greater propensity to created budgetary slack, and to engage in “creative” accounting, caused by a tendency to enhance the attainability of budget targets. In several later studies this finding has been (partially) replicated (Merchant, 1985c; Hughes & Kwon, 1990; Lal, Dunk, & Smith, 1996). A study by Kenis (1979) investigated the effects of RAPM on an array of job-related variables, such as job tension and job satisfaction. RAPM appeared to have a negative effect on tension, but, contrary to prediction, several positive effects of RAPM were found as well. These effects included an increase in managers’ motivation to participate in the budgeting process. Similarly, Hirst and Yetton (1984) noted as a positive effect that RAPM decreased managers’ role ambiguity. Overall, the results provide rather strong support for the effects of RAPM on slack creation and data manipulation. However, also positive effects of RAPM have been reported.

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6 The suitability of budgetary control for the sample studied was based on earlier studies (e.g., Bruns & Waterhouse, 1975), suggesting that decentralized and independent subunits (i.e. profit-centers) had the “profile of the optimum situation for budgetary control” (Otley, 1978, p. 126).
### Table 1
Overview of RAPM studies

<table>
<thead>
<tr>
<th>Contingency factor Study (year)</th>
<th>Relevant hypothesis: RAPM more appropriate for ...</th>
<th>Criterion (dependent) variable(s)</th>
<th>Support for hypothesis (claimed)</th>
<th>Findings significant</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. None (universalistic)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Hopwood (1972)</td>
<td>(No contingency variable)</td>
<td>Job-related tension Yes</td>
<td>Partially</td>
<td></td>
</tr>
<tr>
<td></td>
<td>167 supervisors (1)</td>
<td>Relations with supervisor Yes</td>
<td>Partially</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Relations with peers Yes</td>
<td>Partially</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Data manipulation Yes</td>
<td>Partially</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Dysfunctional behavior Yes</td>
<td>Partially</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Data manipulation n.a.</td>
<td>Yes</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Budgetary slack n.a.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>2. Onsi (1973)</td>
<td>(No contingency variable)</td>
<td>Budgetary slack n.a.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>132 functional mgrs (7)</td>
<td>Data manipulation n.a.</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>3. Otley (1978)</td>
<td>(No contingency variable)</td>
<td>Job-related tension No</td>
<td>No</td>
<td></td>
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<tr>
<td></td>
<td>39 profit center mgrs (1)</td>
<td>Trust in supervisor Yes</td>
<td>Yes</td>
<td></td>
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<td></td>
<td></td>
<td>Evaluation clarity Yes</td>
<td>Yes</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Job clarity Yes</td>
<td>Yes</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Evaluation fairness No</td>
<td>No</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Budgetary performance Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>4. Kenis (1979)</td>
<td>(No contingency variables)</td>
<td>Job-involvement No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td></td>
<td>169 department heads (16)</td>
<td>Job-satisfaction No</td>
<td>No</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Job tension Partially(^3)</td>
<td>Partially</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Budget attitudes No</td>
<td>No</td>
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<td></td>
<td></td>
<td>Budget motivation No</td>
<td>Yes</td>
<td></td>
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<td></td>
<td></td>
<td>Budgetary performance Partially</td>
<td>Yes</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Cost efficiency Partially</td>
<td>Partially</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Job performance Partially</td>
<td>Partially</td>
<td></td>
</tr>
<tr>
<td>5. Hirst and Yetton (1984)</td>
<td>(No contingency variable)</td>
<td>Role ambiguity Yes</td>
<td>Yes</td>
<td></td>
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<tr>
<td></td>
<td>= Hirst (1983b), see C1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Merchant (1985c)</td>
<td>(No contingency variable)</td>
<td>Budgetary slack Partially(^4)</td>
<td>Partially</td>
<td></td>
</tr>
<tr>
<td></td>
<td>= Merchant (1981), see E1</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
7. Merchant (1990)  
   = Merchant (1985b), see D2  
   (No contingency variable)  
   Accrual manipulation (3)  
   Partially  
   See also C6, D6 and G3  
   Short-term thinking  
   Yes  
   Discouragement new ideas  
   Yes  
   Correlation  
   Yes  

   = Merchant (1981), see A5  
   (No contingency variable) exploratory  
   Budgetary slack  
   n.a.  
   Yes5  
   LISREL  

9. Lal et al. (1996)  
   83 production mgrs (83)  
   (No contingency variable)  
   Budgetary slack  
   Yes  
   Yes  

**B. National culture characteristics**

1. Harrison (1992)  
   211 sales/purchase mgrs (28)  
   Higher budgetary participation (regardless of nation)  
   Job-related tension  
   Yes  
   No  
   See also F8  
   Job satisfaction  
   Yes  
   No  
   3-Way interaction  

2. Harrison (1993)  
   = Harrison (1992), see B1  
   Cultures with higher power-distance and collectivism  
   (Singapore vs. Australia; nation = dummy)  
   Job-related tension  
   Yes  
   Yes  
   2-Way interaction  
   Job-satisfaction  
   Yes  
   Yes  
   Exploratory: nation × personality (authoritarianism)  
   Job-related tension  
   n.a.  
   Yes  
   Exploratory: nation × personality (collectivism)  
   Job-related tension  
   Not tested –  
   Job-satisfaction  
   Not tested –  
   3-Way interaction  
   See also H2  

3. Lau et al. (1995)  
   114 functional mgrs (80)  
   For hypotheses, see E11  
   No formal test  
   Not tested –  

**C. Environmental characteristics**

1. Hirst (1983b)  
   111 functional mgrs (N.R.)6  
   Medium (environmental and task) uncertainty  
   Job-related tension  
   No  
   No  
   Relations w. supervisor  
   No  
   No  
   Quadratic regression  
   Lower (environmental and task) uncertainty  
   Job-related tension  
   Yes  
   Yes  
   2-Way interaction  

   = Merchant (1981), see E1  
   Products later in PLC  
   Use of APM  
   No  
   No  
   Products with stronger market position  
   Use of APM  
   No  
   No  
   Subgroup z-test  
   See also E3  

   58 SBU mgrs (18)  
   Lower environmental uncertainty  
   Effectiveness  
   Yes  
   n.a.7  
   2-Way interaction  

*(Table continued overleaf)*
<table>
<thead>
<tr>
<th>Contingency factor</th>
<th>Study (year)</th>
<th>Relevant hypothesis: RAPM more appropriate for ...</th>
<th>Criterion (dependent) variable(s)</th>
<th>Support for hypothesis (claimed)</th>
<th>Findings significant</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sample (No. of organizations)¹</strong></td>
<td>Other hypotheses or variables in this study</td>
<td><strong>Statistical model</strong></td>
<td>Job performance</td>
<td>Job satisfaction</td>
<td>Findings significant</td>
</tr>
<tr>
<td>4. Brownell (1987b)</td>
<td>50 functional mgrs (1)</td>
<td>Lower environmental uncertainty</td>
<td>Job performance</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Job satisfaction</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>5. Ezzamel (1990)</td>
<td>81 mgrs (81)</td>
<td>Higher environmental uncertainty</td>
<td>Use of APM</td>
<td>Correlation</td>
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<td></td>
<td></td>
<td></td>
<td>Correlation</td>
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<tr>
<td>7. Ross (1995)</td>
<td>= Ross (1994), see G6</td>
<td>Lower (environmental and task) uncertainty</td>
<td>Job-related tension</td>
<td>No</td>
<td>No</td>
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<td></td>
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<td>ANOVA</td>
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<td><strong>D. Strategic characteristics</strong></td>
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<td></td>
<td></td>
<td></td>
<td>2-Way interaction</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Use of accounting controls</td>
<td>Partially</td>
<td>Partially</td>
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<td></td>
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<td></td>
<td>Subgroup z-test</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>2-Way interaction</td>
<td></td>
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<tr>
<td>4. Simons (1987b)</td>
<td>76 mgrs (76)</td>
<td>Defender than prospector firms</td>
<td>Use of tight budget goals</td>
<td>No</td>
<td>No</td>
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<td></td>
<td></td>
<td></td>
<td>Use of cost control</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>5. Govindarajan (1988)</td>
<td>121 general SBU mgrs (24)</td>
<td>Low cost than differentiation strategy</td>
<td>Effectiveness</td>
<td>Yes</td>
<td>Yes</td>
</tr>
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<td></td>
<td></td>
<td></td>
<td>2-Way interaction</td>
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<td></td>
<td></td>
<td></td>
<td>Discouragement new ideas</td>
<td>No</td>
<td>No</td>
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<td></td>
<td></td>
<td>Subgroup z-test</td>
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</table>

See also A7, C6, and G3
### E. Task and departmental characteristics

   *170 manufacturing mgrs (19)*  
   Larger, decentralized firms  
   Use of APM performance partially partially  
   **Subgroup z-test**

2. Hirst (1983b)  
   *111 functional mgrs (N.R.)*  
   For hypotheses, see C1

   = Merchant (1981), see E1  
   Routine and repetitive production technology  
   Use of APM correlation partially partially  
   **Performance Subgroup z-test**

   = Hirst (1983b), see C1  
   Production than non-production jobs  
   Exploratory: low vs. high job structure  
   Role ambiguity yes yes  
   **Linear regression**

5. Brownell (1985)  
   *66 R&D and marketing mgrs (1)*  
   Marketing than R&D managers  
   Use of APM correlation partially partially  
   **Performance 2-Way interaction**

   *76 functional mgrs (1)*  
   Higher budget participation (low task uncertainty subgroup)  
   Use of APM correlation partially partially  
   **Performance 3-Way interaction**

7. Macintosh and Daft (1987)  
   *90 functional mgrs (20)*  
   Higher sequential interdependence  
   Use of operating budgets correlation yes partially  
   **Performance Correlation**

   *121 SBU mgrs (24)*  
   Match: decentralization, strategy and personality  
   Use of APM correlation yes yes  
   **Performance Correlation**

   *102 cost center mgrs (3)*  
   Lower task uncertainty  
   Use of APM correlation partially partially  
   **Performance 2-Way interaction**

---

See also D5 and H1

(Table continued overleaf)
### Table 1—contd from p. 458

<table>
<thead>
<tr>
<th>Contingency factor Study (year)</th>
<th>Relevant hypothesis: RAPM more appropriate for ...</th>
<th>Criterion (dependent) variable(s)</th>
<th>Support for hypothesis (claimed)</th>
<th>Findings significant</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sample (No. of organizations)</strong></td>
<td><strong>Other hypotheses or variables in this study</strong></td>
<td><strong>Statistical model</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Williams et al. (1990) 201 mgrs (22)</td>
<td>Exploratory: pooled vs. reciprocal task interdependence</td>
<td>Performance dimensions</td>
<td>n.a.</td>
<td>Partially</td>
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<tr>
<td></td>
<td></td>
<td>Canonical correlation</td>
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<tr>
<td></td>
<td>Higher budget participation (low task difficulty subgroup)</td>
<td>Performance 2-Way interaction</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>See also F6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>= Dunk (1989), see F3</td>
<td></td>
<td></td>
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<tr>
<td>13. Ross (1995) = Ross (1994), see G6</td>
<td>Lower task uncertainty × budgetary participation</td>
<td>Job-related tension 3-Way interaction</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td></td>
<td>Lower task difficulty × budgetary participation</td>
<td>Performance 3-way interaction</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>Higher budget participation (low task difficulty subgroup)</td>
<td>Performance 2-Way interaction</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td>See also B3 and F9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Abernethy and Brownell (1997) 127 senior R&amp;D officers (2)</td>
<td>Tasks with lower analyzibility and fewer exceptions</td>
<td>Performance 2-Way interaction</td>
<td>Partially</td>
<td>Partially</td>
</tr>
</tbody>
</table>

**F. Budget participation**

1. Brownell (1982a, 1982b) 38 cost-center mgrs (1) | Higher budget participation | Job satisfaction Performance 2-Way interaction | No | No |

2. Brownell and Hirst (1986) 76 functional mgrs (1) | For hypotheses, see E5 | | | |

3. Hirst (1987b) 44 managers (1) | Higher budget participation | Job performance 2-Way interaction | No | No |

<table>
<thead>
<tr>
<th>Study</th>
<th>Sample</th>
<th>Research Question</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brownell and Dunk (1991)</td>
<td>79 functional mgrs (46)</td>
<td>For hypotheses, see E11</td>
<td>Lower budget participation × information asymmetry</td>
</tr>
<tr>
<td>Dunk (1993)</td>
<td>= Brownell and Dunk (1991), see E11</td>
<td>For hypotheses, see E11</td>
<td>Higher individual's authoritarianism</td>
</tr>
<tr>
<td>Harrison (1992)</td>
<td>211 sales/purchase mgrs (28)</td>
<td>For hypotheses, see B1</td>
<td>Higher individual's collectivism (= lower individualism)</td>
</tr>
<tr>
<td>Lau et al. (1995)</td>
<td>114 functional mgrs (80)</td>
<td>For hypotheses, see E14</td>
<td>Higher individual's collectivism (= lower individualism)</td>
</tr>
</tbody>
</table>

**G. Superior-subordinate relation factors**

| Merchant (1985b) | 54 profit center mgrs (1) | Exploratory: initiating structure leadership style | Use of accounting controls: No No | Use of accounting controls: No No | Correlation |
| Merchant (1990) | see A7 | Considerate leadership style | Accrual manipulation: No No | Subgroup z-test |
| Macintosh and Williams (1992) | = Williams et al. (1990), see E9 | Managerial roles | Performance: n.a. Partially | Canonical correlation |
| Dunk (1993) | = Brownell and Dunk (1991), see E11 | For hypotheses, see F6 | Higher trust in supervisor | Job-related tension: Yes Yes | ANOVA |
| Ross (1994) | 215 responsibility center mgrs (18) | For hypotheses, see E11 | Higher individual's collectivism (= lower individualism) | Job-related tension: Not tested | Not tested |

**H. Personality characteristics**

1. Govindarajan (1988) | 121 general SBU mgrs (24) | For hypotheses, see E8 | Higher individual's authoritarianism | Job-related tension: No Yes | 2-Way interaction |
| Harrison (1993) | = Harrison (1992), see B1 | Higher individual's collectivism (= lower individualism) | Job-related tension: Not tested | Not tested | 2-Way interaction |

*See also B3*
### Table 1—contd from p. 460

<table>
<thead>
<tr>
<th>Contingency factor</th>
<th>Study (year)</th>
<th>Relevant hypothesis: RAPM more appropriate for ...</th>
<th>Criterion (dependent) variable(s)</th>
<th>Support for hypothesis (claimed)</th>
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<td>Sample (No. of organizations)</td>
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<td>Statistical model</td>
<td></td>
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<tr>
<td>I. Contagion effect</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Not statistically tested</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>See also G1</td>
<td></td>
</tr>
<tr>
<td>2. Barrett et al. (1992)</td>
<td>72 marketing mgrs (15)</td>
<td>Managers evaluated by APM themselves</td>
<td>Use of APM</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Correlation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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1 When the sample has been used in an earlier study, it is mentioned after the sign ‘=’. When it is noted ‘see X’, it means that the study is the same as study X.

2 The results reported here concern Hopwood's (1972) general hypothesis. This hypothesis was tested using pairwise \( t \)-tests for different means between subgroups based on the three evaluation styles (Budget Constrained, Profit Conscious and Non-Accounting). Note that these three subgroups were based on the relative importance of 'Meeting the Budget' and 'Concern with Cost' among eight performance criteria. Other and later 'exploratory' analyses in this study concerned calculating correlation coefficients for scores on the two individual performance criteria mentioned and the dependent variables. Here many opposite results were reported, for example indicating that 'Meeting the Budget' and 'Concern with Cost' were negatively related to job-related tension.

3 Kenis (1979) tested both the effects of a general use of APM and a punitive use of APM. The expected negative effects of RAPM on the dependent variables were only partially found and, moreover, only for punitive use of APM. No negative effects, and even positive effects, were found for general use of APM. Overall, this is denoted here as 'partial' support for the hypothesis.

4 RAPM was measured with three variables. 'Budgetary slack' was significantly and positively related to 'reactions to expected budget overruns' and significantly and negatively related to 'required explanations of variance' and 'link with extrinsic rewards'.

5 This study reports a reanalysis of Merchant's (1985c) data, which were used previously in Merchant (1981), using a LISREL-methodology. Now a positive relationship between RAPM and budgetary slack was found.

6 The acronym 'NR' indicates 'Not reported'.

7 Govindarajan (1984) compares correlation statistics for the relationship between environmental uncertainty and RAPM for more and less effective business-units. No formal test was reported. Furthermore, the relevant test should have concerned the effect of environmental uncertainty on the relationship between RAPM and effectiveness (see also text).

8 From the Govindarajan (1984) sample now 46 observations were used. The number of organizations was not reported in this paper.

9 See also Govindarajan (1984), here reported as D1.

10 The test used here, comparison of correlation coefficients per subgroup using \( z \)-tests, is not well suited to test hypotheses predicting interaction effects.

11 Govindarajan (1988) calculated distance scores as the actual scores minus the optimal score for each of the independent variables. These distance scores were correlated with performance. This approach supports a systems concept of contingency fit.

12 Aranya (1990) claims to have sampled in a high task uncertainty environment, and argues that for high task uncertainty, budgetary participation has a negative effect on the appropriateness of RAPM.

13 Number of organizations not reported.

14 Number of subjects not reported.

15 No formal tests were done after the initial analysis revealed that 'individualism-collectivism' scores were not reliable.

16 Only 26 observations used.
2.4. National culture characteristics

RAPM studies paying attention to national culture examine whether budget-based performance evaluation is more appropriate in some countries, than in others. The number of studies in this category is limited. Harrison (1993) found, in a setting of Australian and Singaporean managers, a direct effect of national culture on the relationship between RAPM and attitudinal variables. In Singapore, where power-distance is high and individualism is low, RAPM had a less negative effect on job-related tension and a more positive effect on job satisfaction. In the same setting, Harrison (1992) had earlier found no effect of national culture on the interaction between budgetary participation and RAPM. Also a study by Lau et al. (1995) was motivated by the aspect of national culture. They investigated, similarly to Harrison (1992), whether previous findings concerning budgetary participation were transferrable to Singapore (i.e. to a non-Anglo-Saxon country). The effect of national culture was not formally tested, but the results did not suggest a great impact. Overall, these studies provide at best partial support for the relevance of national culture.

2.5. Environmental characteristics

A large group of studies has tried to explain differences in the appropriateness of RAPM from the organization’s external environment. Typically, these studies have focused on factors contributing to the variability, unpredictability or uncertainty of the environment. Hirst (1983b) attempted to solve the Hopwood–Otley controversy by pointing out that RAPM was the least appropriate when uncertainty was either high or low. With high uncertainty, APM are relatively incomplete, causing superior–subordinate conflicts, and job-related tension. Alternatively, low uncertainty would cause APM to be “too” complete, resulting in a loss of subordinates’ discretionary power, and in conflict and job-related tension as well. Hirst’s analysis revealed, contrary to the expected curvilinear effect, that the appropriateness of RAPM, in terms of job-related tension, was low (high) when uncertainty was high (low). Regarding superior–subordinate relationships, no significant effects were found. In a study by Govindarajan (1984) similar hypotheses were tested in a sample of business-unit managers. Govindarajan predicted that APM were used less when environmental uncertainty was high, and that this uncertainty–RAPM relationship would be more “pronounced” for more effective business units. The analysis showed a negative correlation between uncertainty and use of APM, which was more negative for more effective business units. Later studies investigating the same or similar hypotheses showed mixed results. In a direct attempt to replicate Hirst’s findings, Ross (1995) failed to find a negative effect of uncertainty on the appropriateness of APM. Furthermore, Ezzamel (1990) found a positive correlation between uncertainty and use of APM. In sum, it appears that the overall evidence regarding environmental uncertainty is mixed at best.

2.6. Strategic characteristics

A third set of contingency studies has investigated the appropriateness of RAPM for different strategies. The literature on strategy-control system relationships, of which these studies are a subset, has recently been reviewed by Langfield-Smith (1997). Overall, she finds that the number of strategy-control studies is limited, and she concludes that strong evidence is lacking. An important cause may be that different typologies of strategy are used, leading to incomparability of findings (Langfield-Smith, 1997, p. 209). Also for RAPM studies investigating strategy, the results are mixed. Govindarajan and Gupta (1985) expected that RAPM would be less appropriate for business-units following a build strategy than for business-units following a harvest strategy, but found no support. APM appeared to be equally effective for build and harvest strategies.

---

7 Govindarajan (1984) did not test whether the difference in correlations between high performers and low performers was statistically significant. Furthermore, the proper test for finding whether RAPM should be matched with environmental uncertainty would have meant that the relationship between RAPM and performance would be different for different levels of environmental uncertainty.
even if in “build” business units the use of supplementary, long-term, performance criteria positively affected performance. Govindarajan (1988) found that RAPM is more appropriate for business-units following a low-cost strategy instead of a differentiation strategy, but other studies show no or only partial support (Merchant, 1985b, 1990). Simons (1987b) found that the use of financial controls differed between defender and prospector firms. The use of tight budget controls appeared, however, to be associated with higher performance for both categories of firms. These results and the differences in strategic typologies used, give little room for strong conclusions.

2.7. Task and departmental characteristics

The largest group of RAPM studies tries to establish a link between characteristics of the subordinate’s task and department, and the appropriateness of RAPM for his or her evaluation.

The theoretical arguments underlying hypotheses for the often studied task uncertainty variable are largely similar to those related to environmental uncertainty. The Hirst (1983b) paper has already been mentioned. The instrument used to measure uncertainty in that study also contained elements related to task uncertainty. An unsuccessful attempt to replicate Hirst’s results was made by Brownell and Hirst (1986). This study combined an analysis of task uncertainty with budget participation (see below). Later, Brownell and Dunk (1991) found support for an effect of task variability (and not task difficulty) on the effect of RAPM, a finding that was partially replicated by Lau et al. (1995). Also in these latter two studies, the task uncertainty variables and budget participation variables were examined simultaneously, hindering the interpretation of findings for task uncertainty alone (cf. Southwood, 1978). Other studies focused on broader (organizational) variables than managerial tasks alone, suggesting that APM are more appropriate for larger, formally controlled departments (e.g. Merchant, 1981, 1984). In sum, the evidence for this category of studies suggests that the appropriateness of RAPM tends to be higher for larger, more interdependent departments, and less uncertain tasks.

2.8. Budget participation

A large class of studies investigates the combined effects of two budget-related factors, RAPM and budgetary participation. Budgetary participation research investigates the (dys)functional consequences of subordinate participation in setting budget levels. Functional consequences may result from information sharing between superior and subordinate, and from a positive effect on subordinates’ goal-acceptance and motivation (e.g. Brownell & McInnes, 1986; Dunk, 1993). Dysfunctional consequences may result from subordinates’ attempts to negotiate slack into their budgets (e.g. Dunk). Brownell (1982a) found that budget participation and RAPM should be matched for optimal performance in the sense that when participation is high (low), RAPM should also be high (low). This finding has been combined with the findings of Hirst (1983b) in several subsequent studies. The combined and more elaborate hypothesis was that the match between budgetary participation and RAPM only holds in low task uncertainty situations (e.g. Brownell & Hirst, 1986; Brownell & Dunk, 1991; Lau et al., 1995). Overall, the findings of these studies are mixed. Furthermore, in many studies the results are not easily interpretable, because of the combined analysis of budget participation and task uncertainty. In a simpler research model Dunk (1989) and Aranya (1990), moreover, found effects contradicting Brownell’s (1982b) original finding. In sum, it appears that the combined effects of RAPM and budgetary participation are not yet well understood.

2.9. Superior–subordinate relation factors and the contagion effects

A broad category of RAPM studies encompasses contingency variables that describe aspects of the social relationship between superior and subordinate. Both Hopwood (1974) and Merchant
(1985b, 1990) studied the relationship between leadership style and RAPM. Hopwood found some support for the expectation that RAPM is matched with more considerate and less initiating structure leaders, but these findings could not be replicated by Merchant (1985a, b, c, 1990). Ross (1994) studied trust, arguing that this variable reduces the potential effect of RAPM on role conflict. He found that RAPM is more appropriate when managers trust their supervisors. Based on the principal-agent framework, Dunk (1993) investigated the effect of information asymmetry between superior and subordinate. His results, although opposite to expectations, suggested that it may be a relevant variable. Finally, Hopwood and Barrett, McDonagh, and Granleese (1992) showed that superiors tend to match their evaluation style with the style used in their own performance evaluation (see section I in Table 1). This phenomenon is known as the contagion effect (cf. Ansari, 1977, p. 110). Overall, the evidence suggests that factors concerning superior-subordinate relationships may be important, but so far only limited evidence exists.

2.10. Personality factors

A final and small category of contingency variables relates to the personality of the subordinate manager. Govindarajan (1988) found that in the optimal situation, strategy was matched with the subordinate’s locus of control and RAPM. In particular, the expectation and finding was that the optimal combination for a differentiation strategy would be an external locus of control, and low RAPM. Harrison (1993) found no support for the expectation that RAPM was more appropriate, in terms of job-related tension, for people with higher authoritarianism. The expectation was that based on the assumption that people with higher authoritarianism, would more easily accept the use of APM in hierarchical settings. In contrast, the results supported an opposite relationship. None of the relationships with job satisfaction were statistically significant. Also for this last category of RAPM studies, the overall results do not support strong conclusions. In the next section reasons will be presented for this state of affairs.

3. RAPM research: an evaluation

The overview of RAPM papers above supports the idea of a critical mass, at least in terms of research volume. Furthermore, many RAPM studies explicitly attempt to build on findings of previous studies, and attempt to integrate and replicate previous findings (cf. Lau et al., 1995, p. 360). However, and despite the common elements in RAPM studies outlined before, the idea of an organized critical mass of RAPM studies seems to be challenged by both methodological and theoretical problems. Important symptoms are not only the relatively large number of hypotheses not supported, but even more the low success rate of studies aimed at explicit replication of previous findings. Concerning the latter, recall that Brownell and Hirst (1986) and Ross (1995) tried but failed to replicate the Hirst (1983b) findings. Hirst (1987b), Dunk (1989) and Aranya (1990) tried but failed to replicate Brownell (1982b). Other replication studies were only partially successful (e.g. Brownell & Dunk, 1991). Consequently, Lindsay and Ehrenberg (1993, p. 224) even mention the RAPM paradigm as an example of an area of unsuccessful replications, and note:

Taken as a whole, this body of research, although typically ‘interesting’ in seeking to explain discrepancies, does not add up to a coherent body of knowledge or understanding.

In a recent overview of survey studies in management accounting, which included also many RAPM studies, Young (1996, p. 55) makes a similar remark, as he notes that:

... 25 years of survey research has yet to yield a cohesive body of knowledge about management accounting and control practices within and across industries and nations.

These comments, in particular, provide a sharp contrast with the idea of an “organized critical mass” of RAPM studies. The following three subsections discuss in more detail the problems of RAPM research that may explain these expressions of severe critique. The first subsection below
discusses problems concerning the meaning and measurement of the RAPM construct. The second subsection addresses limitations in the basic formulation of RAPM theory. The third subsection discusses problems with contingency theory in RAPM research.

### 3.1. Meaning and measurement of the RAPM construct

Despite the central role of the RAPM construct, RAPM studies show no unity in its empirical measurement. Brownell and Dunk (1991, p. 702) even note:

...the measurement of budget emphasis in performance evaluation (RAPM) is far from settled. That researchers have achieved as much towards reconciling the Hopwood (1972) and Otley (1978) results is quite remarkable when one considers the variations of measurement of budget emphasis.

Many studies use Hopwood’s (1972) original instrument, but formats differ from the original in the number and wording of the criteria (e.g. Otley, 1978; Brownell & Hirst, 1986), and in the way of deriving scores for statistical analysis (e.g. Brownell, 1982b; Harrison, 1992, 1993). A second class of studies use the BPQ, deriving RAPM scores through factor analysis (e.g. Kenis, 1979; Merchant, 1981, 1984), which has resulted in different numbers of factors, and different factor contents across studies. A third class of studies use ad-hoc “RAPM” instruments (e.g. Hirst, 1983b; Govindarajan, 1984). In none of these studies is formal proof provided for the equality or validity of the instruments used. Moreover, individual studies do not seem to acknowledge the importance of consistent measurement across studies in a developing paradigm (cf. Lindsay & Ehrenberg, 1993). Although variable measurement is typically considered a methodological issue, the variety in RAPM measurement also has important theoretical implications. First, the variety hinders the definition of the boundaries of the RAPM paradigm. For example, Govindarajan explicitly aims to solve the Hopwood–Otley controversy. In later studies, that use the same data and the same “RAPM” measures (e.g., Govindarajan & Gupta, 1985; Gupta & Govindarajan, 1984), this link is less explicitly made. Therefore, it is not clear to which exact phenomena “RAPM knowledge” pertains. Second, the diversity in RAPM measurement raises the question about the essence of the RAPM construct, and even if the RAPM construct still means ‘the same’ after several decades of research (e.g., Ross, 1995). In most studies, RAPM conveys a notion of targets expressed in accounting numbers, which therefore are of a quantitative and financial nature (e.g. Hofstede, 1967, p. 26; Hirst, 1987a; Harrison, 1993, p. 319). The emphasis on the accounting nature of APM causes them to be associated with rigidity, formality and objectivity (Langfield-Smith, 1997; Chapman, 1997), and their use is subsequently associated with job-related tension and disagreement. In other studies, RAPM reflects the use of budgets, and APM are regarded as typical examples of formal controls (cf. Fisher, 1995). While APM are clearly related to both, the concepts of targets and formal controls are not equivalent. Consequently, predictions about the appropriateness of RAPM will differ between the concept chosen, and the same applies for definitions of the “opposite” of targets and formal controls are not equivalent. Consequently, predictions about the appropriateness of RAPM will differ between the concept chosen, and the same applies for definitions of the “opposite” of

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8 Hirst (1983b) developed and used an instrument that measures the reliance on quantitative performance information. Govindarajan (1984) and Govindarajan and Gupta (1985) measured RAPM as the extent to which managerial bonuses depend on objective performance data (“formula-based approach”) as opposed to superiors’ subjective considerations (“subjective approach”). Both studies explicitly point out that the instrument they used was designed to be equivalent to the Hopwood instrument. For example Govindarajan (p. 125) states: “It is worth noting that strictly ‘formula-based’ and strictly ‘subjective’ approaches are analogous to Hopwood’s ‘budget-constrained’ and ‘non-accounting’ styles. In addition, a combination of subjective and formula-based approaches is similar to Hopwood’s ‘profit-conscious’ style.”

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9 Ross (1995, p. 3) argues that the content of these measures is different: “In each of the five questions used by Hirst [1983a, pp. 603–604] the emphasis is on the use of quantitative criteria for performance evaluation. (...) Although financial information is part of the quantitative information that could be used for performance evaluation it is also likely that non-financial quantitative information would be included in a manager’s definition of ‘quantitative’.”
RAPM. If RAPM is presented as a formal control, its effects should be contrasted with the use of informal controls (e.g. self-controls). If RAPM is presented as the use of accounting targets, its effects should be compared with those of “other” targets (non-financial, subjective, long-term, qualitative etc.). Interestingly, already Kahn (1972) questioned the theoretical focus on “the budget” in the Hopwood (1972) study, and the underdevelopment of the (opposite) Non-Accounting style, but so far no formal analysis has been done. Finally, the variety in RAPM measurement and the underdevelopment of the RAPM concept have probably also hindered its foundation in the conceptual management control literature. Neither the RAPM construct itself, nor any of the styles conceived by Hopwood have found their direct theoretical counterpart in the management control typologies outlined by Merchant (1982, 1985a), Ouchi (1977, 1979), Anthony (1981), Anthony and Govindarajan (1995) and others. This may also have reinforced the vague and imprecise equation of RAPM with “formal”, “hierarchical” and “static” controls (cf. Chapman, 1997).

3.2. A theory of RAPM

A second set of problems relates to the basic formulation of RAPM theory. In their overview of early RAPM literature, Briers and Hirst (1990, p. 385) sharply criticize the underdevelopment of theory in many RAPM studies:

Of particular concern is the inclusion of variables in hypotheses with little supporting explanation. For example, some studies use box diagrams with arrows indicating causally related variables. Although this is a parsimonious way of communicating connections, the supporting argument in some studies is only suggestive (...).

Briers’ and Hirst's (1990) remark is general, without a precise specification of “good” and “bad” studies. Furthermore, their remark seems to apply more to the presentation of theory in the papers than to the use of theory itself. In fact, and in contrast with the diversity in measurement of the RAPM construct, the paradigm shows great consistency in its basic theoretical framework, that is informed by role theory. This relative unity especially reflects in the criterion variables used to test RAPM hypotheses. Role theory typically points to such interpersonal and work-related factors as job-related tension and job satisfaction. Moreover, the emphasis on role theory (with its focal concept of role conflict) seems the cause of the limited focus in RAPM studies on the potential negative effects of RAPM, which specifically reflects in the frequent use of job-related tension. However, many studies have used performance as a criterion variable, rightly arguing that it is the ‘ultimate’ variable of interest. Unfortunately, the use of performance-related variables is problematic for other reasons (cf. Smith, 1983; Briers & Hirst; Langfield-Smith, 1997). First, RAPM research is about finding the right performance measures, and it seems illogical that a researcher uses the right performance measures, when the whole paradigm is about finding “right” performance measures. Indeed, Young (1996) points out that survey instruments for measuring performance too easily presuppose “relevant” dimensions of performance. Second, there is reason to suggest that performance is an independent variable (i.e. an antecedent of RAPM), rather than a

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10 Notably, already Hopwood’s original study exemplifies the importance of strict RAPM-definition. In this study, the RAPM styles in the statistical analysis were the result from preceding interviews that were done to validate the styles. In addition, Hopwood used more than one measure for RAPM. While this study is known for the discrete supervisory styles (and the negative effect of the Budget Constrained style), many of the negative effects were not found in analyses using the continuous accounting-related variables.

11 RAPM would typically be classified as a ‘bureaucratic’ control in Ouchi’s framework (1977, 1979). Its classification in Merchant’s (1982, 1985a) framework would be ambiguous, as it contains aspects of both ‘action control’ and ‘results control’.

12 Notable exceptions to the role-theoretic framework are the use of balance theory (Brownell, 1982b), and the of principal-agent models (Dunk, 1993). Yet, Brownell’s alternative theory is severely critiqued by Briers and Hirst (1990), and the reference to principal-agent theory by Dunk merely results in the adoption of new variables (i.e. information-asymmetry), not a new theory.
dependent variable (e.g. Merchant, 1985b; Langfield-Smith, p. 226). Finally, studies often display a gap between the theoretical hypothesis and the empirical test, by developing predictions about, for example, job-related tension and subsequently testing performance. Yet, it has often been demonstrated that the relationships between job attitudes (e.g. tension, satisfaction) and performance are complex and unclear (e.g. Schuler, 1980; Jamal, 1984; Tosi, Rizzo, & Carroll, 1994). Furthermore, such gaps obscure whether a failure to find support for a hypothesis is caused by insufficient theory or faulty method. Recently, Shields and Shields (1998, p. 50) derive the same conclusion regarding budgetary participation research. In sum, RAPM studies appear to be limited in their use of theory, and in their choice of criterion variables for testing the appropriateness of RAPM. Although this apparent unity could, by itself, positively affect the structure of the paradigm, the disappointing findings suggest that the paradigm would benefit from a more specific definition, measurement and modeling of appropriateness.

3.3. A contingency theory of RAPM

Briers’ and Hirst’s (1990) comment on the underdevelopment of RAPM theory is particularly troublesome, since it echoes many of Otley’s comments made ten years before, in a review of early contingency studies in management accounting. Otley (1980, p. 414) noted:

The contingency approach is invoked, so it seems, in order to cover up some of the embarrassing ambiguities that exist in the universalistic approach.

Contingency theory is often associated with the adage “it all depends”, but Otley’s comment seems to indicate that the adage signals the absence rather than presence of theory. RAPM studies show a great diversity in applying contingency frameworks, which forms a third source of problems hindering the organization and integration of the paradigm. A first source of diversity is the fact that RAPM studies vary widely in level of analysis, with contingency variables ranging from the broad concept of national culture to much more focused personality variables. Consequently, evidence is limited for each individual contingency variable. A second source of diversity is the difference between studies in the motivation to include a certain contextual variable. In many studies, the contextual variable chosen is argued to account for a systematic situational difference between the Hopwood and Otley samples (Kren & Liao, 1988, p. 282). Such studies, for example, explicitly investigate alleged differences between cost-center (Hopwood) and profit-center (Otley) managers (e.g. Hirst, 1983b). Other studies however, although also motivated by the contradictory findings from these two early studies, use fewer theoretical or systematical considerations in choosing contextual factors. They focus on ad-hoc factors expected to influence relationships examined earlier. Examples of the latter type of studies are those that combined the earlier mentioned budget-participation construct, to explain situational differences in the appropriateness of RAPM (e.g. Brownell, 1982b; Dunk, 1989). Third, a variety of motives exists to use contingency frameworks. In most cases, the motive is pragmatic, which is shown by using merely the outlines of contingency theory to study “any” contextual variable. Far less important seems the aim to contribute to develop a contingency theory of accounting (cf. Chapman, 1997), or to extend ‘the’ contingency theory of organizations to management accounting (cf. Schoonhoven, 1981). A cause may be that RAPM studies seem typical examples of management theory, which aims to solve practical problems rather than explain accounting phenomena from the context in which they appear (cf. Puxty & Chua, 1989, p. 115). A

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13 In RAPM research, for example, personality qualifies as a contingency variable, although it is not a “contingency factor” in a traditional sense (e.g., environment, strategy and organizational structure).

14 Puxty and Chua (1989, p. 115) note a difference between organization theory and management theory: ‘Organisation theorists (...) ask questions concerning the way organisations operate. Management theorists take as a much closer focus the question of what a manager should do to make his organisation operate better’. This distinction also underlies the debate about “normative” versus “positive” accounting (e.g. Christenson, 1983). Lindsay (1995) notes that current RAPM studies have little to offer in terms of advice to management (p. 44, 47).
relevant fourth source of variance is that RAPM studies carelessly mix predictions about the effects of APM with predictions about the use of APM. Some studies use a selection approach to contingency fit (cf. Drazin & Van de Ven, 1985; Fisher, 1995; Selto, Renner, & Young, 1995). They predict that, under certain circumstances, superiors will be reluctant to use APM and will use other performance measures instead (e.g., Merchant, 1984; Govindarajan, 1984). Other studies use an interaction approach to contingency fit, predicting certain (dys)functional effects of the interaction between RAPM and a contextual variable (Imoisili, 1989; Govindarajan, 1988; Brownell & Dunk, 1991). In many cases, no theoretical reason is given for the approach selected, and sometimes, the two kinds of expectations are even combined. For example, Merchant predicts an effect of technology and department size on both the use of APM (selection) and the effects of RAPM (interaction).\(^{15}\) Despite these differences, RAPM studies show a remarkable limited set of statistical models for testing contingency hypotheses. The dominant format in testing RAPM contingency hypotheses is the use of moderated regression analysis using interaction terms, in which the appropriateness of RAPM is the outcome of a RAPM-contingency interaction. Although this method is well documented in the methodological literature (e.g. Southwood, 1978; Cohen & Cohen, 1983; Champoux & Peters, 1987; Jaccard, Turrisi, & Wan, 1990), its use in RAPM research often does not seem the outcome of a deliberate choice, but rather seems the result of mere conservatism. Its unquestioned use limits the extent to which the RAPM paradigm can profit from developments in the wider organizational behavior literature, which documents many alternative formats for the formulation and statistical analysis of contingency hypotheses (see, e.g. Venkatraman & Camillus, 1984; Venkatraman, 1989).\(^{16}\) A final and methodological point of critique is the typical use of small and non-random samples (cf. Lindsay, 1995). Sample sizes below 50 are typical rather than exceptional. This itself does not "forbid" the use of statistical analysis and statistical significance, but it seems that significance is often but wrongly equated with materiality, and chance of replication (cf. Lindsay). The particular reason for mentioning this problem in this subsection on contingency theory, is that the statistically demanding interaction models used to test contingency hypotheses provide very unstable results with these low sample sizes (Schmidt & Hunter, 1978; Cohen & Cohen). This is a likely, additional, cause for the lack of consistent and replicated findings across studies (cf. Lindsay & Ehrenberg, 1993).

4. RAPM and uncertainty

The overview and analysis of RAPM research above could easily lead to pessimistic opinions about its current state, and its future. Many reviews of management accounting (and RAPM) research have indeed been quite successful in presenting gloomy pictures (cf. Chapman, 1997). However, to conclude the discussion in such a negative spirit, would be both pointless and shortsighted. An important reason for optimism is that many of the methodological problems noted can be resolved. For example, Young (1996) notes that in itself, survey research is a respectable way for data collection, and the notion of contingency theory is never challenged. Lindsay (1995) argues that a way to resolve current flaws in methodology would be to use more random sampling, and to focus more on simple and controlled replication (cf. Lindsay & Ehrenberg, 1993). Indeed, these and other aspects of the typical methodology of RAPM research are well documented in the literature (e.g., Dillman, 1978; Kerlinger, 1986).

\(^{15}\) Indeed, the "systems approach", the third alternative to express contingency fit, was already propagated by Otley (1980) but has been used sporadically. See Govindarajan (1988), Abernathy and Brownell (1997) for exceptions. See Selto et al. (1995) for a (non-RAPM) combination of the three forms of fit in one study.

\(^{16}\) A different although related issue concerns the use and interpretation of interaction statistics. Hartmann and Moers (1998) have recently shown that the application and interpretation of interaction statistics in RAPM research is subject to frequent and serious errors.
A greater cause for concern, and a greater challenge for research, are the problems related to RAPM theory. They will be the focus of the remaining sections of this paper. While methodological flaws may affect individual studies, theoretical flaws affect a whole research paradigm. Moreover, it is possible that the disappointing results from RAPM studies so far may be explained by a new theoretical perspective. Recently such a new approach for studying the role of accounting systems in organizations was proposed by Chapman (1997). Chapman (p. 189) points to the clarity and precision of seminal contingency research in the sixties (e.g. Burns & Stalker, 1961; Woodward, 1965; Lawrence & Lorsch, 1967), and points to the sharp contrast with the current state of contingency research in management accounting. He specifically proposes that contingency frameworks in management accounting should focus on uncertainty as the central concept, and he uses Galbraith’s (1973, 1977) framework for “organizational design” to support his arguments. Galbraith defines uncertainty as an information deficit, and his framework provides a synthesis of early contingency frameworks in which uncertainty also was the central concept (Chapman, p. 199). In the remainder of this paper, an attempt is made to transfer and extend Chapman’s proposal to the RAPM literature. In the subsections below, first an overview is given of the current ‘status’ of uncertainty in the RAPM literature. Based on this overview it will be concluded that uncertainty provides the RAPM paradigm with a paradox. The section closes by discussing how the explicit recognition of the paradox may prove beneficial for the further organization and development of the RAPM paradigm.

4.1. The focus on uncertainty in RAPM studies

Apart from the opposite findings of Hopwood (1972) and Otley (1978), another important factor spurring the influence of contingency theory in RAPM research was the prior development of the contingency theory of organizations, and the resulting availability of “ready made” contingency frameworks to management accounting researchers (Otley, 1980, p. 416; Kren & Liao, 1988, p. 283). In the seventies, several contingency frameworks for management accounting and control were developed, which were either normative and directed at prescribing accounting and control system design (e.g. Lorange & Scott Morton, 1974; Gordon & Miller, 1976; Waterhouse & Tiessen, 1978; Amigioni, 1978; Daft & Macintosh, 1978), or which served to test hypotheses predicting “fit” between selected organizational characteristics and the accounting system (e.g. Bruns & Waterhouse, 1975; Hayes, 1977). These studies had inconclusive findings (Sathe, 1978, p. 91; Hopwood, 1978, p. 8; Otley, 1980, p. 417), but they served to illustrate how contextual factors typical for contingency research in organizational behavior could be used in management accounting research, which are the uncertainty associated with the organization’s environment and with its task technology (e.g. Burns & Stalker, 1961; Woodward, 1965; Lawrence & Lorsch, 1967; Thompson, 1967; Perrow, 1967, 1970; cf. Sathe, 1978, p. 183; Otley, p. 419). In these early studies, the organizational environment was captured in terms of its dynamism, heterogeneity (Gordon & Miller, 1976), predictability (Waterhouse & Tiessen, 1978), complexity and variability (Amigioni). Task technology in turn was described as the variety (Daft & Macintosh) and routineness (Waterhouse & Tiessen) of tasks. The focus on uncertainty reflected the prime importance of this concept in the organizational behavior literature. Regarding organizational design, Thompson (1967, p. 159) argued that uncertainty is the “fundamental problem” of complex organizations and that dealing with uncertainty is the ‘essence’ of administrative processes. Similarly, Galbraith (1977, p. 36) had noted that:

Uncertainty is the core concept upon which the organization design frameworks are based.

The importance is reflected in empirical research as well, as evidenced by Downey and Slocum’s (1975, p. 562) argument that uncertainty had become the “central concept” of organizational contingency research. Similarly, Miles and Snow (1978, p. 254) concluded that:
... the concept of uncertainty has emerged as a primary variable linking a great number of organizational characteristics to conditions in the environment.

4.2. RAPM and uncertainty: theory

With this heritage, it is not surprising that uncertainty was among the first variables in RAPM studies adopting a contingency perspective (Hirst, 1983b; Govindarajan, 1984; cf. Brownell, 1987b; Chapman, 1997). It is often not recognized, however, that in other and later RAPM studies, uncertainty has remained an important factor, often serving as the implicit or theoretical factor behind the explicit and operational contingency variable chosen for empirical analysis. For example, Merchant (1984) investigated differences in the appropriateness of RAPM for subordinate managers of departments operating with different production technologies and in different markets, based on the expected difference in the uncertainty that the two kinds of departments would face. Brownell (1985) investigated differences in the appropriateness of RAPM between R&D and production departments, based on the assumption that the two would face different levels of environmental uncertainty. Both Imoisili (1989) and Macintosh and Daft (1987) investigated departmental interdependence and argued that this latter variable was an important cause of uncertainty in the manager’s working environment. Also the much studied budget participation variable is uncertainty related, as it influences information asymmetry between subordinate and superior (e.g. Dunk, 1993), and is often a response to task uncertainty and environmental uncertainty (cf. Shields & Shields, 1998). In RAPM hypotheses, uncertainty is typically predicted to affect subordinates’ perceptions of such factors as the controllability, completeness and relevance of RAPM. According to these arguments, uncertainty manifests itself as changing conditions that affect the controlled process. Uncertainty causes predictions to be difficult and thus hinders budgetary target setting. In addition, uncertainty makes it difficult to judge ex-post whether good (poor) managerial performance measured in accounting terms is the result of good (poor) managerial effort or (un)lucky circumstances (e.g. Govindarajan, 1984, p. 128; Brownell, 1985; Williams, Macintosh, & Moore, 1990; Imoisili, 1989). In short, dysfunctional consequences of using RAPM under uncertainty result from not applying or not being able to apply the controllability principle, which forms a central element of responsibility accounting frameworks (see below). Stressing ‘uncontrollable’ APM can result in the incompleteness of performance measurement (e.g., Hayes, 1977; Hirst, 1981, p. 771; cf. Govindarajan & Gupta, 1985; Merchant, 1990; Ross, 1995), or even in the irrelevance of performance evaluations (Govindarajan, p. 128; Govindarajan & Gupta, p. 54). The typical (role-theoretic) hypothesis predicts that uncertainty negatively affects the appropriateness of RAPM.

4.3. RAPM and uncertainty: evidence

Although the role of uncertainty in extant RAPM research is easily demonstrated, the current state of RAPM research does not allow the conclusion that the effects of uncertainty are well understood. An important example is the Hirst (1981, 1983b) study. Recall that Hirst originally expected a curvilinear effect of uncertainty on the appropriateness of RAPM. So far, no empirical proof has supported this initial expectation, but the linear relationship Hirst found instead has been wrongly equated with his original theory ever since (see, e.g. Brownell, 1987a). Yet, even this finding can, for several reasons, not be generalized to an overall negative relationship between uncertainty and the appropriateness of RAPM. First, in later studies that attempted to replicate Hirst’s findings, no interaction effects of uncertainty and RAPM on job-related tension were found (Brownell & Hirst, 1986; Imoisili, 1989; Brownell & Dunk, 1991; Lau et al., 1995; Ross, 1995). Second, Hirst did not find support for the expected interaction effect of RAPM and uncertainty on superior-subordinate relations, which he proposed as an alternative measure for the appropriateness of RAPM, following Hopwood (1972). This at least suggests that conclusions about the contextual appropriateness of RAPM depend on the
specific criterion variable used. Third, Hirst’s finding that RAPM is less appropriate under higher levels of uncertainty have not generally been confirmed by studies focusing on the performance effects of using RAPM under uncertainty. Merchant (1984), Brownell (1985) and Lau et al. did not find evidence of uncertainty affecting the relationship between the use of RAPM and managerial performance, which they predicted. Since, in contrast, studies by Brownell (1987a) and Govindarajan (1988) confirm a negative effect of uncertainty on the relationship between RAPM and managerial performance, the results are mixed at best. Fourth, also studies predicting an effect of uncertainty on the use of APM by superiors provided mixed results. Merchant only found partial support for an effect of uncertainty on the use of RAPM. Govindarajan (1984) found a negative relationship between environmental uncertainty and RAPM, but did not test whether the use of APM was negatively related to performance under high uncertainty (see before). Govindarajan and Gupta (1985) found that non-accounting information was used more in SBU’s with high-uncertainty strategies, but they also found that RAPM was equally effective in both high and low-uncertainty strategies. Finally, many studies suggest and find that RAPM is especially useful in situations of high uncertainty (cf. Simons, 1987a, p. 341). Ezzamel (1990) found that APM were used more frequently under conditions of high uncertainty, the rationale of which was that larger, decentralized firms would emphasize formal communication means when faced with uncertainty. Ezzamel’s study builds upon and confirms earlier findings (e.g., Khandwalla, 1972; Merchant, 1981; Simons, 1987b) that a positive relationship exists between the uncertainty originating in market factors (e.g. competition) and the use of formal controls such as budgets and accounting controls (cf. Chapman, 1997). Similarly, Macintosh and Daft (1987) found a positive relationship between departmental interdependence, an important source of uncertainty (e.g., Thompson, 1967) and the emphasis placed on meeting budgetary targets.

In sum, therefore, the results concerning RAPM and uncertainty do not display a large amount of consistency. In fact, the support for hypotheses predicting both a positive effect and a negative effect provides us with an apparent paradox.

4.4. The uncertainty paradox

The overview presented above suggests that no support exists for a universal negative effect of uncertainty on the appropriateness of RAPM. This clearly falsifies claims that the results of RAPM studies relying on uncertainty are consistent (e.g., Brownell, 1987a; Chapman, 1997, p. 193). In particular, such claims suggest that the results of a positive effect of uncertainty on the appropriateness of RAPM are neglected (cf. Briers & Hirst, 1990).17 Poole and Van de Ven (1989, pp. 562–563) explain this negligence by pointing to the general aim of a researcher in a specific domain to signal consistency (cf. Gresov, 1989; Mak, 1989). They note:

Contemporary theory construction methods are biased toward consistency. Relatively little attention has been paid to the resolution of tensions or oppositions.

and:

The presence of contrary of contradictory assumptions, explanations, or conclusions is often seen as an indicator of poor theory building.

In contrast, Poole and Van de Ven (1989, p. 563) argue that explicit recognition of a paradox is a fruitful exercise in the progress of theories, and recommend that more attention is given to theoretical tensions and inconsistencies, to stimulate the development of more comprehensive theories. Claims for the consistency of findings concerning uncertainty in RAPM research indeed fail to recognize that uncertainty provides us with a paradox for the design of management control systems. Recall, that in traditional RAPM thinking, and in the design of management control

17 Briers and Hirst (1990) note many examples of “selective referencing” in RAPM research, although they do not explicitly point out these results.
systems, the controllability principle is paramount. This principle states that:

... the manager of a responsibility center should be assigned responsibility only for the revenues, costs, or investment that responsibility center personnel control (Atkinson, Banker, Kaplan, & Young, 1997, p. 564).

The principle seems particularly applicable to uncertain situations, where the risk of being held responsible for uncontrollable factors is high. On the one hand, it seems widely accepted that adherence to the principle is desirable, since it represents that performance evaluations should be ‘fair’ (e.g. Merchant, 1987, p. 317). Choudhury (1986, p. 189) thus notes:

... the notion of being answerable (only) for what one is able to influence, may be viewed as conforming to a commonly held concept of justice ...

On the other hand, it should be noted that a strict application of the principle would imply that in most cases the use of budgets for managerial performance evaluation (and management control) would not be feasible, since especially in uncertain and complex organizations, with people working in joint effort, the possibility to single out individual responsibilities is severely limited (cf. Hirst, 1983a, p. 29; Merchant, 1987). The tension between the apparent logic of the controllability principle, and its apparent limited practical applicability has lead to different opinions about its value. Hirst (p. 36) explicitly concludes that the principle is paradoxical. On the one hand, decentralization is an important means of enhancing the controllability of organizational processes, and budgets are important tools to formalize decentralization, by means of creating responsibility centers (cf. Bruns & Waterhouse, 1975; Merchant, 1981, 1984). On the other hand, a strict application of the controllability principle would hinder the subsequent use of the budget for managerial performance evaluation. This and similar paradoxes, which point to the apparent limited feasibility of formal organizational controls in cases where they may be most needed, are mentioned throughout the control literature (e.g. Ouchi & Maguire, 1975; Vancil, 1979). Ouchi and Maguire (1975, p. 568) point to the paradox of using output performance measures with decentralization, stating:

The use of output measures is largely a result of the demand for quantifiable, simple measures. Paradoxically, output measures are used most when they are least appropriate: in the face of complexity (and) interdependence.

Baker, Jensen, & Murphy (1988, p. 598) note a tension between decentralization as a way to profit from “specific knowledge” of the subordinate on the one hand, and the subsequent obligation for the superior to choose the “correct objective measure of subordinate performance” on the other hand. Vancil (1979) addresses as a general theme the ‘ambiguity’ associated with decentralization and control, noting that control implies freedom and restriction simultaneously. Thompson (1967, p. 145) points to the “paradox of administration”, noting that organizations’ administrations aim at flexibility, while being mainly occupied with the reduction of uncertainty. Merchant (1984) points out that planning and control systems cannot be flexible and inflexible simultaneously. Finally, Emmanuel, Otley and Merchant (1990, p. 183) point out that budgets are most feasible, where they are least needed and vice versa. In sum, the discussion above suggests support for the relevance and importance of uncertainty when explaining and predicting the appropriateness of RAPM. However, it is also likely that the lack of consistent findings in RAPM studies thus far is the consequence of the tension between the opposite effects of using APM under uncertainty. In the final section some suggestions are given to deal with this tension.

5. Implications for RAPM research

According to Poole and Van de Ven (1989), the reasons to expose paradoxes lie in the alleged benefits for theoretical progress. In this case, several ways exist to address the uncertainty paradox...
of RAPM research, and each of these ways may prove to be fruitful for the further development of the RAPM paradigm. In this final section, attention will be given to five specific directions for further RAPM research that share the aim to resolve the paradox, and to revive and further organize the RAPM paradigm.

A first such direction would involve an explicit investigation of the different roles that APM play in evaluative situations, since it is not clear that APM takes the same role in each organization or division (cf. Kren & Liao, 1988, p. 300). Recently, Chapman (1997, p. 201) suggested that the role of accounting systems in general may depend on the level of uncertainty. Typically, accounting systems function as “answer machines” in low-uncertainty situations, but they may become ‘learning machines’ when uncertainty increases. Simons’ (1995) recent control framework, may also support such multiple roles for accounting information and budgets. Whereas accounting budgets typically serve as ‘diagnostic controls’ (feedback systems) under relative certainty, they also provide ‘boundaries’ to management activity, and may function as ‘interactive controls’, when operational targets should be aligned with strategy and (strategic) uncertainty (Simons, p. 138; Horngren, Sundem, & Stratton, 1996, p. 257). Notably, already Simon, Kozometsky, Guetzkow and Tyndall’s (1954) study emphasized that management accounting information is collected for various purposes; problem-solving, attention directing and score-card keeping activities. This understanding of the multiple roles of accounting and of RAPM may be enhanced if researchers explicitly consider which essential aspect of RAPM they address. An interesting illustration is provided by Govindarajan (1984, p. 128) who argued that APM are not appropriate under high uncertainty, and noted:

Performance evaluation presupposes targets—either explicit (e.g. budgets) or implicit. To arrive at a priori targets that can serve as valid standards for subsequent performance evaluation, one must be able to predict the conditions that will exist during the coming year.

Further research should be able to explain why uncertainty would only harm the controllability of accounting targets, which Govindarajan (1984) does not, and thus whether the essence of APM under uncertainty lies in the target-nature or in the accounting-nature of APM. Since it has been found that (formal) strategic control systems can be rigid as well (Ittner & Larcker, 1997, p. 294), another relevant dimension of APM under uncertainty to be examined may be its status of a formal control system (e.g. Fisher, 1995).

Second, research should become more explicit about the meaning of appropriateness. So far, RAPM studies have generally argued that uncertainty limits the feasibility of using RAPM, concluding that RAPM will be more appropriate under conditions of low uncertainty. Although this bias toward dysfunctional side-effects can be explained by looking at the history of the paradigm (see, e.g. Argyris, 1952), and although understanding dysfunctional effects should be considered important, the resulting analyses are often only partial. Instead, the appropriateness of RAPM should be approached as a combination of functional and dysfunctional consequences. In other words, while the feasibility of controls (and RAPM) is an important element in control system design (e.g. Merchant, 1985a), so is the need for control (e.g. Merchant, 1982, 1985a). This importance of the need for controls is currently often forgotten, possibly by the dominant focus on role conflict. A framework that may further substantiate the need for controls, and that may explain the positive effects of RAPM under uncertainty, could be based on goal theory (cf. Kren & Liao, 1988, p. 289). Typical goal-theoretic variables are “goal clarity” and ‘goal specificity’, and the goal-theoretic literature advocates, and finds, that clear and specific goals and objectives lead to higher performance (McConkie, 1979; Locke, 1968; Locke & Latham, 1990; Tosi et al., 1994). This may explain the positive effects of RAPM, since APM are relatively clear and specific (cf. Tosi, 1975, p. 150; Schuler, Beutell, & Youngblood, 1989, p. 240), as the results from Hirst and Yetton (1984) seem to support. It would be specifically important to study the effects of goal-setting under uncertainty. Hirst (1987a) pro-
vides an initial theoretical analysis of the goal-setting effects of budgets under uncertainty, but so-far no empirical work has been done in this field. Further RAPM research may, therefore, build on studies in organizational behavior (e.g., Early, 1985; Wood, Mento, & Locke, 1987; Wood, Bandura, & Bailey, 1990) that examine the effects of goal-setting in various contexts. An alternative framework for analyzing the effects of RAPM could be based on ‘equity theory’. Equity theory is concerned with peoples’ perceptions of “fairness” and “justice” in social relationships (cf. Huseman, Hatfield, & Miles, 1987; Landy, 1989), and has been used to predict and explain perceptions about the fairness of performance evaluations and rewards in organizational settings (Landy, Barnes, & Murphy, 1978; Landy & Farr, 1980; Landy, Barnes-Farrell, & Cleveland, 1980). Recall, that “fairness” has been mentioned often as an important reason for subordinates resistance against ‘uncontrollable’ performance measures (see, e.g. Hopwood, 1972, p. 161; Otley, 1978, p. 132; Lau et al., 1995, p. 360). The relevance of this variable for RAPM research is further demonstrated by Ross (1994). He found that trust between subordinate and superior mitigated the job-related tension effects of using APM. Trust is positively affected by the perceived ‘fairness’ of performance evaluations (see, e.g. Fulk, Brief, & Barr, 1985). Although some of these alternative frameworks may be more fruitful than others, they at least serve to demonstrate the possibilities for a more explicit definition of the concept of appropriateness, and to demonstrate possible alternatives to role theory in developing predictions about the contextual appropriateness of RAPM. In any case, their use will often imply the use of other criterion variables than those currently used in RAPM studies, that are more explicitly chosen, and that provide a better link between theory and test (cf. Shields & Shields, 1998, p. 50).

Third, theory is needed about the appropriateness of RAPM under uncertainty for the performance evaluator. In RAPM studies ‘appropriateness’ is examined in terms of subordinate’s attitudes and responses. An alternative level of analysis would be the superior, and a related question would be whether superiors’ evaluative behaviors can be explained in terms of contextual ‘appropriateness’. Especially studies investigating the contagion effect (e.g. Hopwood, 1974; Barrett et al., 1992) could be extended to explain why superiors have a tendency to pass performance criteria on to lower-level managers, and whether this especially happens with accounting performance measures. At least part of the explanation might lie in the uncertainty superiors face in observing and evaluating subordinates’ behaviors. Keeley (1977) found that supervisors may reduce their own uncertainty by emphasizing objective performance measures, such as APM, which limit supervisors’ need for subjective judgment (cf. Hartmann, 1995). Further studies in this direction may easily connect to studies in which RAPM is the dependent variable (e.g. Merchant, 1981, 1984). However, RAPM would now be modeled as the explicit, theoretically predicted, outcome, rather than as an indication of contextual fit, based on a “loose” application of contingency thinking. Such more comprehensive contingency frameworks may also lead to a better understanding of the diversity of roles that APM play in the (control) relationship between superiors and subordinates. In particular, they would allow an explicit integration of attempts to explain the use of APM better, and attempts to provide practical recommendations for using APM, since they would more broadly consider the options and trade-offs superiors face in choosing performance measures (e.g. Argyris, 1988; Pupty & Chua, 1989). These attempts could eventually result in a theory of superior choice, which is not available now. Some APM studies suggest that other factors than appropriateness in terms of subordinates’ reactions determine superiors’ choice of performance criteria. Otley (1978, p. 138) argues that actual performance influenced the reliance on APM, suggesting that APM are emphasized more in units with low profitability (cf. Merchant, 1985b;
Imoisili, 1989; Briers & Hirst, 1990; Langfield-Smith, 1997), and the organizational behavior literature points to the importance of sociological and psychological variables that determine the choice of performance criteria (e.g. Rahman & McGosh, 1976; Neu, 1992; Judge & Ferris, 1993). Such a theory of superiors’ choice would be the behavioral “counterpart” of principal-agent models that do explicitly consider the use of performance evaluation criteria as the outcome of a superior’s choice under uncertainty (e.g. Prendergast & Topel, 1993; Eisenhardt, 1985).19

Fourth, RAPM research should be challenged by finding out whether the appropriateness of RAPM is differently affected by different kinds of uncertainty. Typically, the arguments supporting uncertainty-related expectations have not discriminated between types and sources of uncertainty. Potentially relevant differences include differences between complexity and uncertainty (cf. Khandwalla, 1972; Govindarajan, 1984; Ezzamel, 1990; Chapman, 1997) and between objective “uncertainty” and perceived uncertainty (Downey & Slocum, 1975; Downey, Hellriegel, & Slocum, 1975). In RAPM research, these nuances have generally not been recognized. In particular, advances can be made by giving theoretical meaning to differences between environmental uncertainty and task uncertainty. Especially the role of budgets as a buffer against external uncertainty (cf. Thompson, 1967; Hayes, 1977; Merchant, 1984), and as a trigger to plan under environmental uncertainty (cf. Merchant, 1989, Chapter 5; Simons, 1987a, 1995) seem to deserve further investigations. In particular, these ill-understood functions of budgets under uncertainty may also explain a more positive role for budgets and RAPM under environmental uncertainty than is now generally hypothesized in studies that ‘mix’ the effects of task uncertainty and environmental uncertainty.

Finally, the impact of uncertainty on the appropriateness of APM could be better understood by including the personality of the subordinate manager. Current RAPM studies exclusively focus on uncertainty as a factor external to the manager, but there is reason to suggest that managers’ personal and general attitudes toward uncertainty affect the appropriateness of RAPM. Personality factors have been mentioned before as important determinants of managerial behavioral and attitudinal reactions to budgeting (e.g. Murray, 1990, p. 119). Likely candidates for investigation are personality variables related to individual preferences for risk and uncertainty (cf. Duncan, 1972, p. 314; Chapman, 1997, p. 199). Especially a construct called tolerance for ambiguity may prove useful for this purpose (e.g. Budner, 1962; Norton, 1975). Tolerance for ambiguity expresses an individual’s demand for information in uncertain environments (Frenkel-Brunswik, 1949; Martin & Westie, 1959; MacDonald, 1970) and seems, therefore, closely related to the conceptualization of uncertainty as a ‘deficit in information’ (cf. Galbraith, 1973, 1977). In related research fields (e.g. auditing, strategic management) this construct has shown to explain personal attitudes, behaviors and information preferences under uncertainty (e.g., Downey & Slocum, 1975; Duncan, 1972; Dermer, 1973; Gupta & Govindarajan, 1984; Gul, 1986). This variable may also explain a need for APM under uncertainty, since the clarity and precision of financial and quantitative performance measures may reduce subordinates’ perceptions of ambiguity (e.g., Gupta & Govindarajan; Hirst & Yetton, 1984).

6. Concluding comments

The recommendations for further elaboration of the RAPM paradigm given above are based on the presumption that it is worthwhile to continue to direct academic attention to the budgeting phenomenon in organizations in general, and to the extent and manner in which budgets are used for controlling individual managerial behavior in particular. This presumption is based on the idea that using “some form” of accounting target setting will remain important, because, as Chapman (1997, p. 202) notes:

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19 Such a theory would also respond to the comment by Flamholz and Das (1985) that the management control literature should be more explicit about the organizational level it addresses.
In a business setting (...) profit will still be the primary goal to be attained and so accounting cannot simply be discarded.

Similarly, Parker and Lewis (1995, p. 212) note that the emphasis in management control on “traditional” management accounting techniques is persistent, and may even be “topical” because in business and management:

... the dominant themes of the 1990s have become financial discipline, efficiency measurement, market solutions and the commercial ‘bottom line’ (...) This contemporary environment and its attendant philosophies have sponsored the persistence of the classical management approach towards control in both organizational management and management accounting.

Furthermore, claims for the continuing importance of accounting seem widely supported by the empirical literature that evidences the important and steady role of various forms of budgeting in contemporary organizations (see, e.g. Umapathy, 1987; Skinner, 1990; Merchant & Riccaboni, 1990; Otley, 1990). But even when acknowledging the importance of management accounting traditions, current theoretical and practical developments in management control should be considered a challenge rather than a threat for ‘traditional’ management accounting research. The RAPM literature may indeed provide an initial framework for analyzing recent ideas about the use of, for example, balanced scorecards and shareholder value for managerial performance evaluation (e.g. Otley; Kaplan & Norton, 1996). Based on RAPM research specific hypotheses could be formulated about the usefulness of having multiple performance indicators (as in balanced scorecards), about the effect of having non-financial or non-quantitative performance targets, or about the controllability problems associated with the use of performance measures derived from capital markets (as in shareholder value). So far, both theory development and empirical evidence concerning the (contextual) appropriateness of these innovative ideas in management control are limited. Finally, it should be noted that the current status and lack of organization of the RAPM research paradigm should be no reason for discouragement or abandonment. RAPM studies address important and interesting phenomena, which are embedded in a rich environmental, organizational, departmental and individual context (cf. Flamholtz & Das, 1985). Such “richness” obviously hinders quick answers to quick research questions. This means, however, that not only proposals for further theoretical development, but also pleas for methodological improvements deserve serious support. In particular, there seems to be room for more, small, high-quality and theory-driven replication studies (cf. Lindsay & Ehrenberg, 1993). Recall that RAPM research is well grounded in a well-documented research methodology for data gathering and data analysis (e.g. Dillman, 1978; Kerlinger, 1986; Lindsay, 1995; Young, 1996). Certainly, these relative strengths should be considered when judging claims for the need for more subjective and case-based studies in management accounting.

References


